United States Department of Agriculture

Soil 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 Lander County, Nevada, South Part (Volume I)

How To Use This Soil Survey

General Soil Map

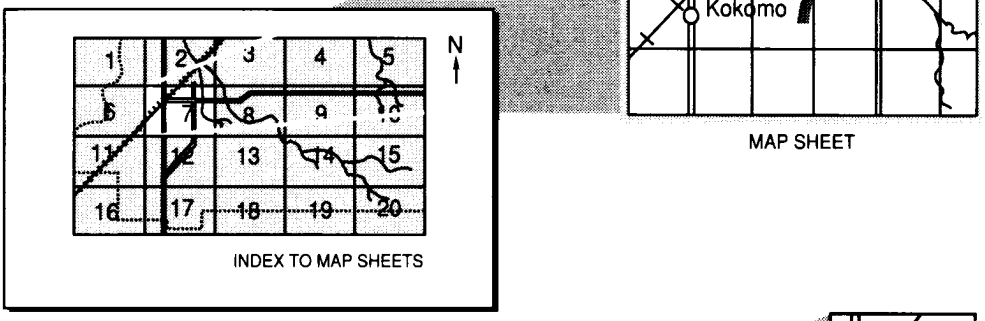
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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.

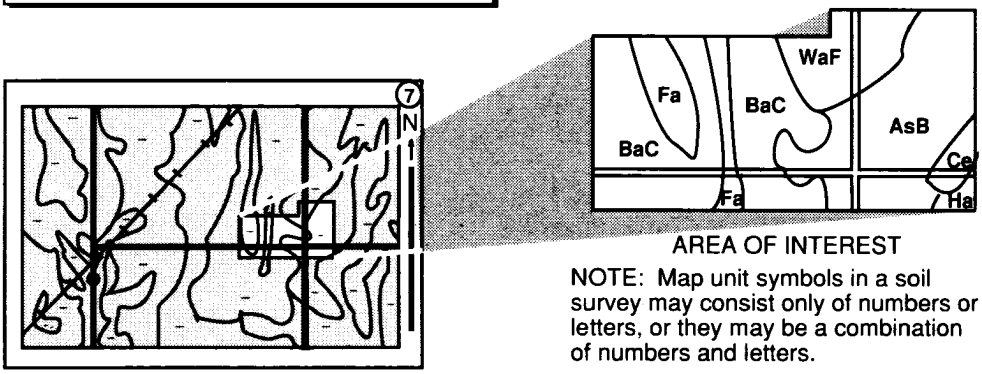
To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



INDEX TO MAP SHEETS

MAP SHEET

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 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 1985. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This survey was made cooperatively by the Soil Conservation Service; the United States Department of the Interior, Bureau of Land Management; and the University of Nevada, Agricultural Experiment Station. It is part of the technical assistance furnished to the Lander County Conservation District.

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: Typical sequence of landforms in the survey area near Mount Callaghan in the Toiyabe Range, north of Austin. Grassval and Oxcorel soils are on fan piedmont remnants in the foreground; Allor, Wieland, and Zaidy soils are on fan piedmont remnants in the center; Attella, Hymas, and Xine soils are on the forested hills at the left; and Bucan, Robson, Softscrabble, Walti, and Zoesta soils are on mountains in the background.

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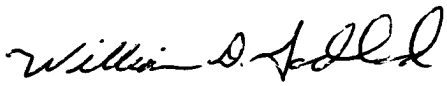
Foreword

This soil survey contains information that can be used in land-planning programs in Lander County. 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 Soil Conservation Service or the Cooperative Extension Service.



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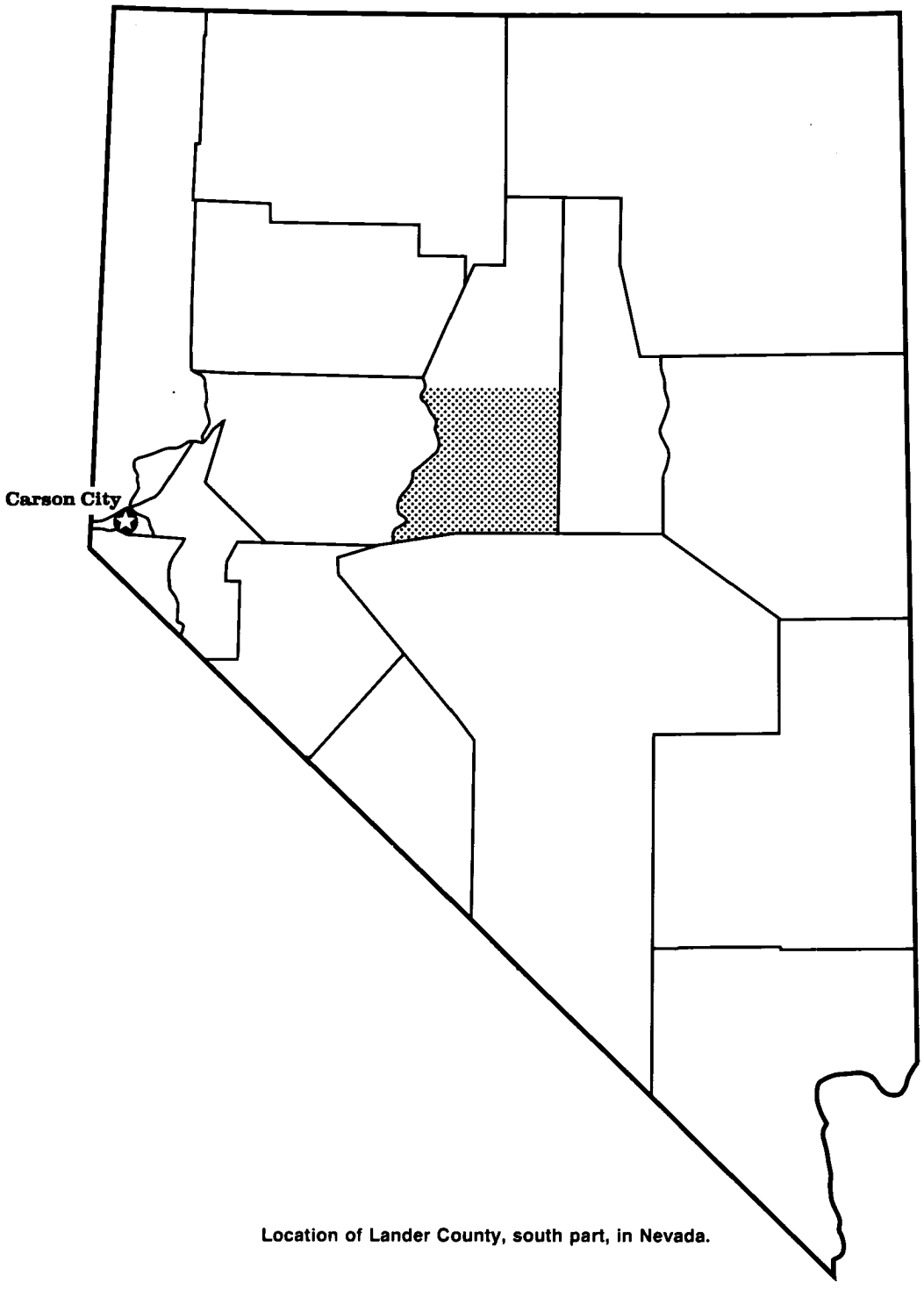

Location of Lander County, south part, in Nevada.

Soil Survey of Lander County, Nevada, South Part

By Carole E. Jett, Soil Conservation Service

Fieldwork by Carole E. Jett, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service,
in cooperation with
United States Department of the Interior, Bureau of Land Management,
and University of Nevada, Agricultural Experiment Station

The survey area is in the central part of Nevada. It has a total area of 1,554,671 acres. Austin and Kingston are the only communities in the survey area.

The survey area consists of numerous mountain ranges and valleys that are oriented north and south. Elevations range from 8,500 feet in the mountains to 6,100 feet in the valleys. The Reese River flows northward through the central part of the area.

Public lands in the area are administered by the Bureau of Land Management and the Forest Service. Land administered by the Forest Service is not included in this survey.

The descriptions, names, and delineations of soils in this soil survey do not fully agree with those in the surveys of adjacent areas. Differences are the result of a better knowledge of soils, modifications in series concepts, and 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 briefly discusses history, water supply, industries and transportation facilities, drainage, geology, and climate.

History

Lander County was first explored in 1828 by Peter Skeen Ogden. In 1841, the first immigrants came into the area on their way to California. By 1844, the winding course of the Humboldt River, known as the "Humboldt Trail," had become a thoroughfare for the westward procession of immigrants.

Settlement of the southern part of Lander County began with the discovery of gold in 1862, at which time the Reese River Mining District and the town of Austin were established. Completion of the transcontinental railroad in 1869 and the Nevada Central Railroad opened the area to markets in the east and west.

Mining is still a major industry in the area, but the number of operations has diminished.

Water Supply

Irrigation water in the area is supplied by wells and streams. Water from wells is used to irrigate alfalfa and small grain in the arid valleys, and water from streams is used to irrigate native meadows and pastures along drainageways. At the higher elevations numerous small springs, seeps, and small intermittent streams provide adequate watering facilities for livestock and wildlife.

Water for the community of Austin is supplied by springs and streams. Wells and streams provide water for domestic use in rural areas.

Industries and Transportation Facilities

The main industries in the survey area are ranching and mining.

The ranches are dominantly cow-calf operations, and the current year's crop generally is sold in fall and exported. A few herds of sheep are in the area.

Numerous mines are in the Austin area. The major minerals are gold, silver, and turquoise.

Three principal highways run through the survey area. U.S. Highway 50 runs east and west through Austin, State Highway 305 runs from north of Austin to Battle Mountain, and State Highway 376 runs from south of Highway 50 to Tonopah. Although these are the only paved roads in the survey area, many areas are accessible by dirt roads and trails suitable for four-wheel-drive vehicles.

Drainage

A large part of the survey area is drained by the Reese River, an intermittent axial stream that flows northward through the area and joins the Humboldt River near Battle Mountain. The southeast corner of the area is drained by Stoneberger Creek, which flows northward through Monitor Valley and into the Kobeh Valley in Eureka County.

The remaining areas, including the Big Smoky, Grass, and Smith Creek Valleys, are internally drained basins, or bolsons. They are drained by intermittent streams that flow only in spring and during local thunderstorms in summer and that end in a central playa.

Geology

The geology of the survey area is variable and complex *(25)*.

Most outcrops of pre-Tertiary age in the area consist of sedimentary and metasedimentary rock, mainly interbedded chert, shale, argillite, greenstone, limestone, and quartzite. Most of New Pass Range and the central part of the Shoshone Mountains and Toiyabe Range consist dominantly of this rock. Soils derived from this rock include those of the Atlow, Decram, Packer, and Torro series.

The volcanic rock in the survey area consists mainly of rhyolitic and andesitic tuff, welded ashflow tuff, basalt, and related pyroclastic rock. Most of this volcanic rock is of the Miocene and Pliocene epochs. The Desatoya, Shoshone, and Simpson Park Mountains and parts of the Toiyabe Range north of Boone and Skull Creeks consist dominantly of this rock. Soils derived from this rock include those of the Akerue, Colbar, Clanalpine, Reluctan, and Walti series.

The oldest valley fill in the area is of Tertiary age. It is along both sides of the Reese River Valley, on the eastern side of Gilbert Creek, and near New Pass and Carroll Summits and Mount Airy. This valley fill is partially lithified and typically consists of siltstone, sandstone, conglomerate, and some volcanic ash. Soils that formed in this material include those of the Genaw, Perlor, Puett, and Tessfive series.

The piedmont slopes in the valleys are made up of Quaternary alluvium that contains loess that is high in content of volcanic ash. Soils that formed in this alluvium include those of the Allor, Buffaran, Muni, Orovada, and Wieland series.

The youngest material in the area is the recent alluvium along the flood plains of the Reese River and Stoneberger Creek and on bolson floors in the Big Smoky, Grass, and Smith Creek Valleys. Soils that formed in this material are those of the Batan, Bubus, Sonoma, and Wholan series.

Climate

In this survey area, summers are hot, especially at the lower elevations, and winters are cold. At the lower elevations, precipitation normally is light throughout the year. The land in these areas is used mainly for range. At the higher elevations, precipitation is much greater and snow accumulates to considerable depths. Much of the snowmelt is used to irrigate crops in nearby valleys.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Austin, Battle Mountain, and Central Field Laboratory. 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. The climate at Battle Mountain, which is outside the survey area, closely resembles that of the lower elevations in the northern part of the area.

In winter, the average temperature is 31 degrees F and the average daily minimum temperature is 20 degrees. The lowest temperatures on record are -30 degrees at Battle Mountain on December 9, 1972, and -28 degrees at Central Field Laboratory on December 11, 1972. In summer, the average temperature is 64 degrees and the average daily maximum temperature is about 86 degrees. The highest temperature, 109 degrees, was recorded at Battle Mountain on July 27, 1975.

Growing degree days, shown in table 1, are equivalent to "heat units." Beginning in spring, 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 14 inches at Austin and 7 inches at Battle Mountain and Central Field

Laboratory. Of this, 60 percent usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the periods of record was 2.27 inches at Battle Mountain on October 12, 1963. Thunderstorms occur on about 12 days each year.

The average seasonal snowfall is 40 inches at Austin, 24 inches at Battle Mountain, and 30 inches at Central Field Laboratory. The greatest snow depth at any one time during the period of record was 23 inches at Austin. On the average, 31 days at Austin, 14 days at Battle Mountain, and 26 days at Central Field Laboratory have at least 1 inch of snow on the ground, but the number of such days varies greatly from year to year. Every few years a blizzard strikes the survey area with high winds and drifting snow. Even at the lower elevations, the snow remains on the ground for many weeks and livestock suffer.

The average relative humidity in midafternoon is about 30 percent. Humidity is higher at night, and the average at dawn is about 65 percent. The sun shines 85 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the west. Average windspeed is highest, 9 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. The fieldwork in the northern one-third of the survey area was done by soil scientists employed by the Soil Conservation Service, and the fieldwork in the southern two-thirds of the area was done by soil scientists employed by Soil and Land Use Technology, Inc., which was under contract to the Bureau of Land Management. The 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 unconsolidated parent material in which the soil formed. The unconsolidated material is devoid of roots and most 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 they were formed. During mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape 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-vegetation-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 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. 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. 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.

Because a large part of Lander County was mapped under several private contracts, some of the typical pedons described in this survey are located in the soil survey areas of Lander County, Nevada, North Part, and Eureka County Area, Nevada. As the survey progressed, it was determined that some of the soils in the area had already been mapped under contract. The typical pedon descriptions already completed for these soils were used, regardless of the survey area in which they occurred. The survey area in which the typical pedon for each taxonomic unit is located is given in the section "Taxonomic Units and Their Morphology."

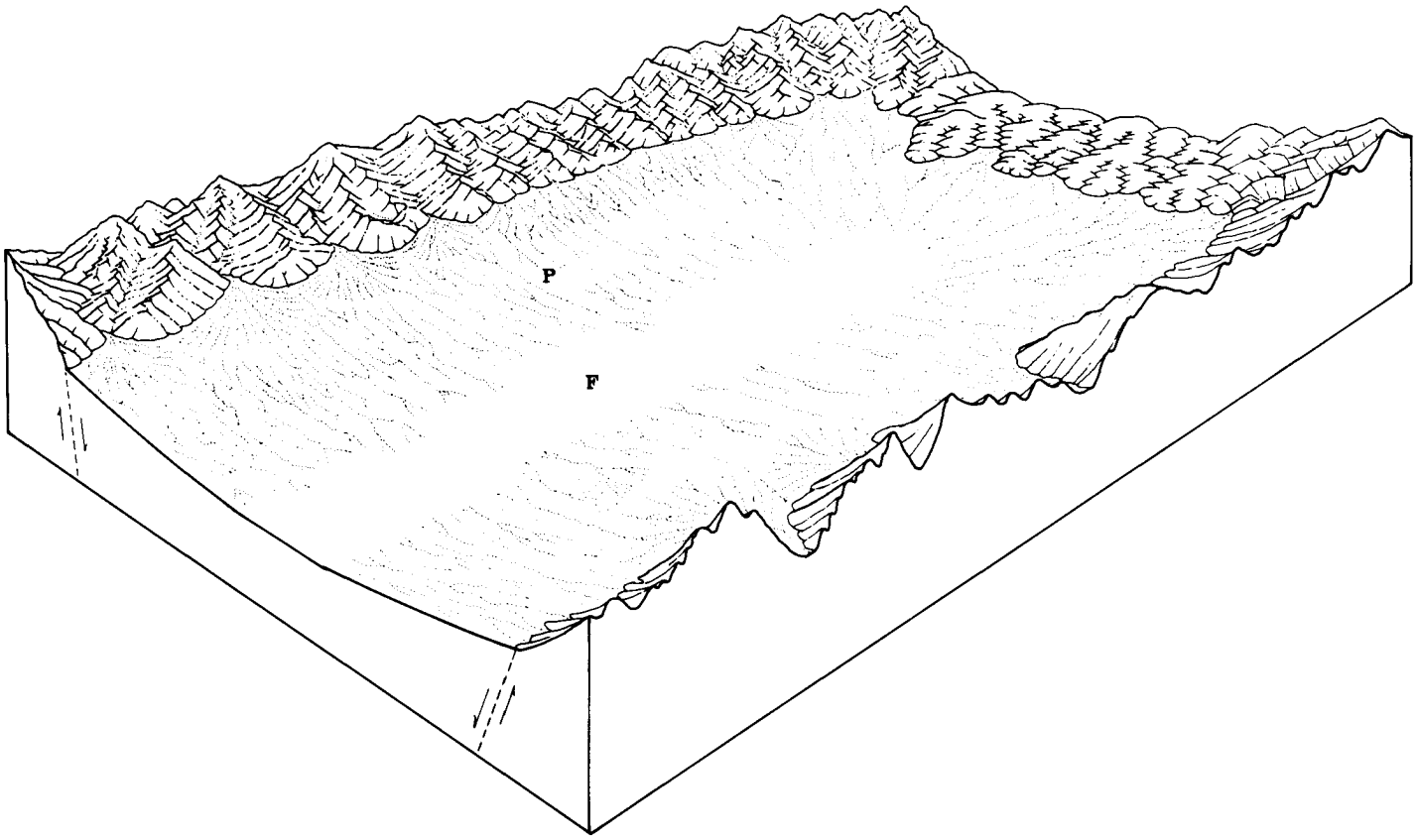

Figure 1.—The major physiographic parts of an internally drained intermontane basin, or bolson: the piedmont slope (P) and the basin floor, or, more specifically, the bolson floor (F). This drawing shows part of an elongated bolson that has bounding mountain ranges on the near and far sides and is cut off by hills on the far end. The drainageways, shown by dotted lines, suggest positions of major landforms. Neither the playas nor the drainageways on the floor are shown.

Characteristics of the soils in a map unit in this survey area are similar but not identical to those of the soils outside the survey area.

While a soil survey is in progress, samples of some of the soils in the area 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 and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data also 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.

Soil Landscapes

In this soil survey the mapped areas generally represent associations of two or three soil components and other included soils of limited extent. 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. While there is a relationship between the landforms and soils in a given area, these relationships 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 Peterson *(22)*. 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 into two general classes—bolson (fig. 1) and semibolson (fig. 2). Within these two groups are three major physiographic parts (fig. 3). These are the bounding mountains, the piedmont slope, and the basin floor. The bounding mountains rise less than 1,000 feet above the surrounding boundaries. The piedmont slope and basin floor are topographic forms that slope from the bounding mountains down to a central playa.

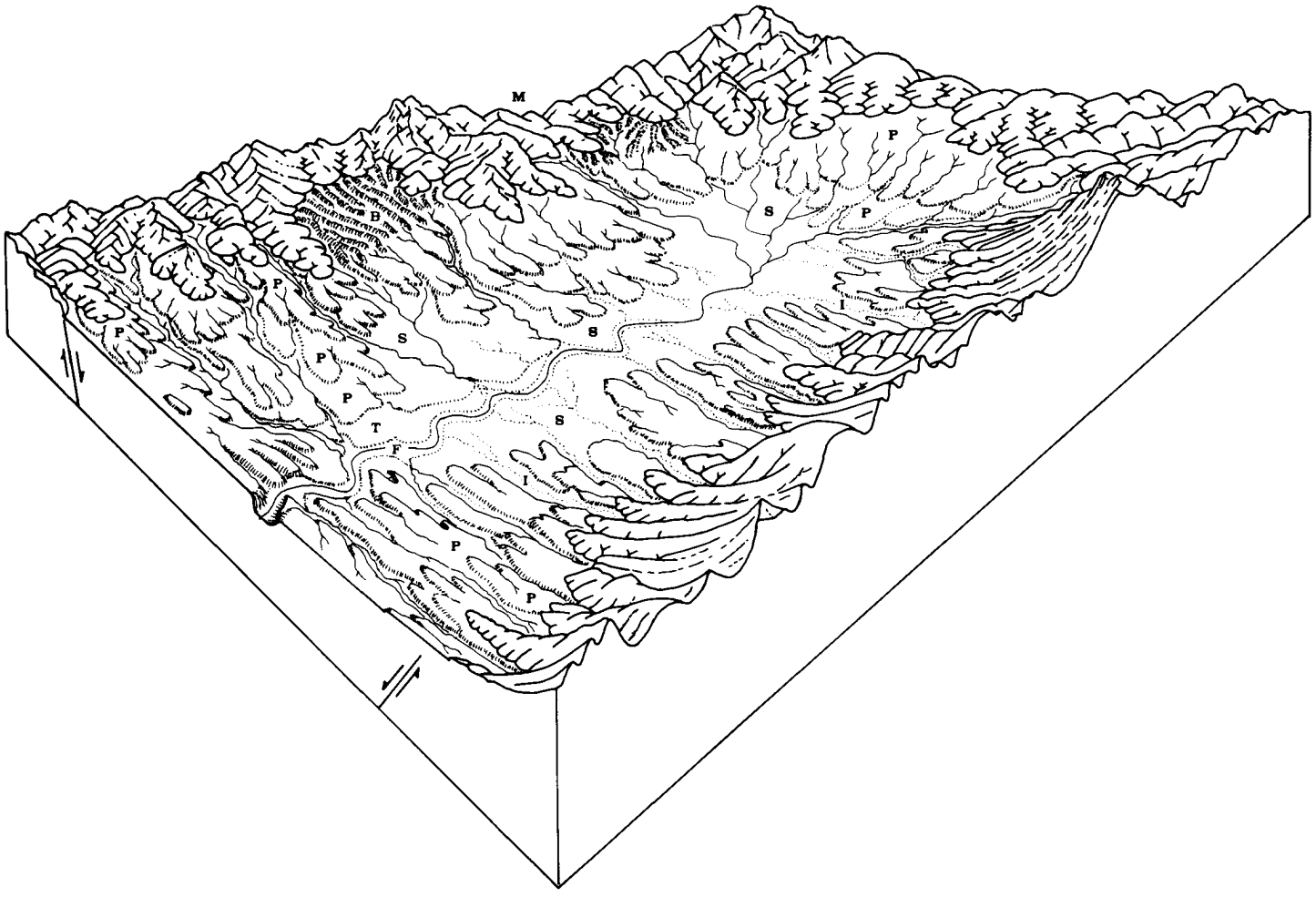

Figure 2.—A semibolson that displays the effects of several cycles of dissection and deposition. The major landforms are: ballenas (B); fan piedmonts (P), comprising several levels, or ages, of fan remnants; fan skirts (S); an axial-stream terrace (T); and an axial-stream flood plain (F). Alluvial fans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

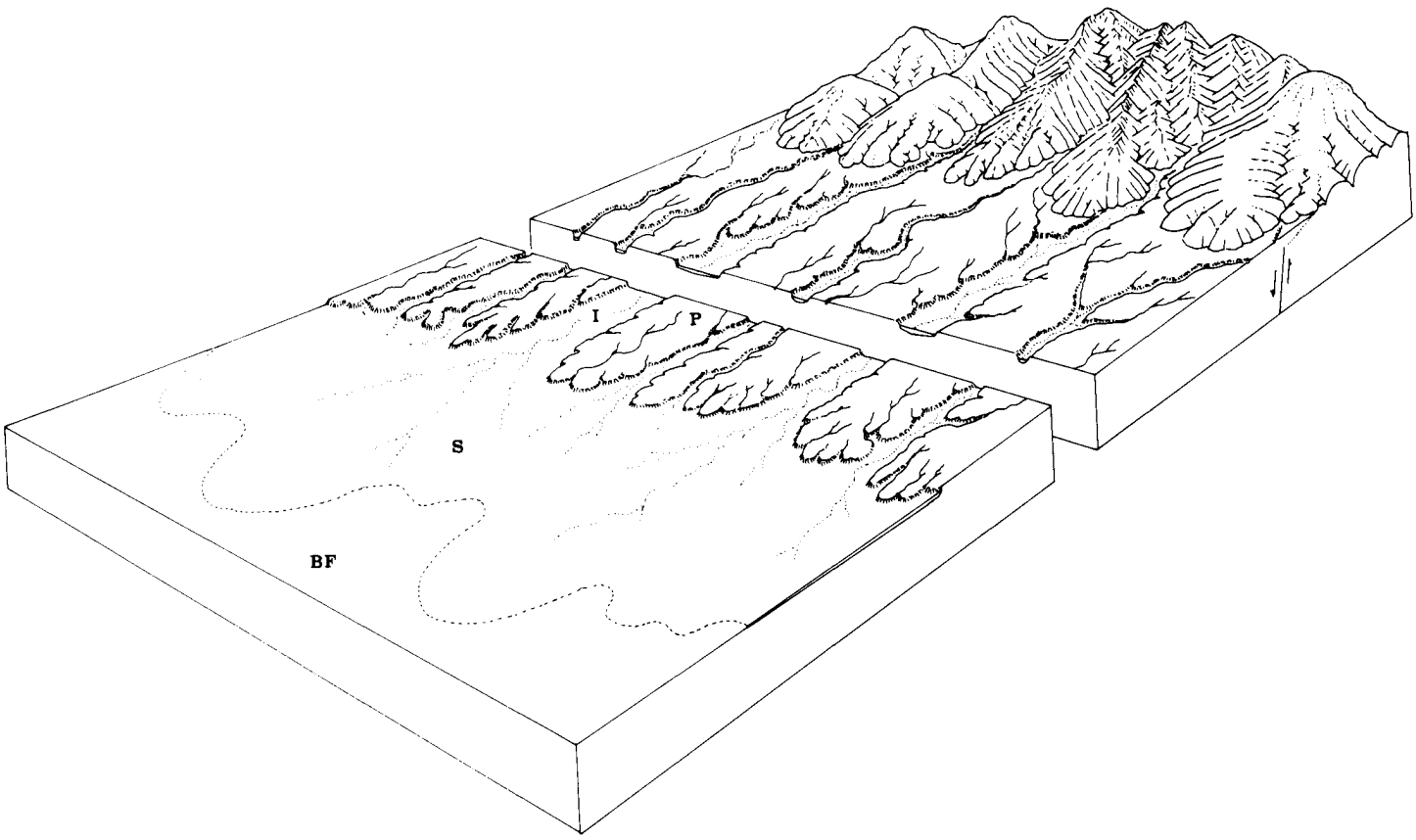

Figure 3.—A fan skirt (S) that merges along its lower boundary with a basin floor (BF) and that was formed by coalescing alluvial fans originating at gullies cut in a dissected fan piedmont (P) and by debouching inset fans (I) of the fan piedmont. The erosional fan piedmont remnants and mouths of the 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.

The shapes, genetic relationships, and geographic scales of the topography seen in the field are used to classify the landforms. The two general classes—bolson and semibolson—are successively divided into smaller and genetically more homogeneous classes (charts 1 and 2). 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," a landscape position is given for each major component. These 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. A more detailed landscape position also is given for each major component and contrasting inclusion in the map unit. These generally are component landforms, landform elements, or slope components.

CHART 1.—CLASSIFICATION OF BOLSON 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	Mountain valley fan	Erosional fan remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Rock pediment	Rock pediment remnant	Summit	Crest
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Channel	
	Ballena			Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Alluvial fan	Fan collar	Channel	
		Erosional fan remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Fan piedmont	Erosional fan remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
			Channel	
		Inset fan	Channel	
		Fan apron	Channel	
		Nonburied fan remnant	Channel	
		Beach terrace		
	Fan skirt		Channel	
		Beach terrace		
Basin floor (bolson floor)	Alluvial flat	Relict alluvial flat	Channel	
		Recent alluvial flat	Channel	
	Alluvial plain			
	Sand sheet	Sand dune (Parna dune)	Interdune flat	
	Lake plain	Lake-plain terrace	Channel	
	Playa	Flood-plain playa	Channel	

CHART 2.—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	Mountain valley fan	Erosional fan remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Rock pediment	Rock pediment remnant	Summit	Crest
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Channel	
	Ballena			Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Alluvial fan	Fan collar	Channel	
		Erosion fan remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Fan piedmont	Erosional fan remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
		Fan apron	Channel	
		Nonburied fan remnant	Channel	
	Pediment	Pediment remnant	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Channel	
	Fan skirt		Channel	

CHART 2.—CLASSIFICATION OF SEMIBOLSON LANDFORMS—Continued

Landforms			Parts of landforms	
I Major physiographic part	II Major landform	III Component landform	IV Landform element	V Slope component
Basin floor (semibolson floor)	Alluvial flat	Relict alluvial flat	Channel	
		Recent alluvial flat	Channel	
	Alluvial plain			
	Basin floor remnant	.....	Summit	
			Side slope	Shoulder slope
				Back slope
				Foot slope
			Partial ballena	Crest
				Shoulder slope
				Back slope
				Foot slope
			Channel	
		Inset fan	Channel	
	Sand sheet	Sand dune		
	Axial-stream flood plain	Flood-plain playa	Channel	
		Stream terrace	Summit	
		River terrace	Side slope	Shoulder slope
				Back slope
				Foot slope

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, a map unit 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.

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 or 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.

Figures 4 and 5 illustrate how the general soil map units relate to the various broad landscapes. The map units in figure 4 are representative of those on a bolson that is an internally drained intermontane basin, and the units in figure 5 are representative of those on a semibolson that is an externally drained intermontane basin.

The general map units in this survey have been grouped into general kinds of landscape for broad interpretive purposes. Each of the broad groups and the map units in each group are described in the following pages.

Map Unit Descriptions

Areas Dominated by Soils on Bolson and Semibolson Floors

Three map units are in this group. They make up about 11 percent of the survey area.

1. Playas

This map unit is on nearly level basin floors in the sink areas of the Grass and Smith Creek Valleys. It consists of nearly impermeable lacustrine sediment veneered by fine textured sediment or eolian sand. It is barren of vegetation. Water is ponded in areas of this unit after spring runoff in most years.

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

This unit is unsuitable for most uses.

2. Wendane-Gund-Batan

Nearly level, very deep, somewhat poorly drained and moderately well drained soils; on alluvial flats and lake plain remnants

This map unit is in the lower part of the Big Smoky, Grass, and Smith Creek Valleys, bordering areas of Playas. The vegetation is mainly basin wildrye, alkali bluegrass, inland saltgrass, black greasewood, and rubber rabbitbrush on the Wendane soils; basin wildrye, black greasewood, and basin big sagebrush on the Gund soils; and bottlebrush squirreltail, shadscale, bud sagebrush, and black greasewood on the Batan soils.

This unit makes up about 5 percent of the survey area.

The somewhat poorly drained Wendane and similar soils are on alluvial flats. These soils have a thin, light-colored upper layer and are dominantly stratified, medium textured and moderately fine textured throughout the profile. They are strongly affected by salt and sodium and are frequently flooded.

The somewhat poorly drained Gund and similar soils are on lake plain remnants. The upper layer of these soils is thin, light colored, and medium textured. Below this is dominantly medium textured or moderately fine textured material over fine textured lake sediment. These soils are strongly affected by salt and sodium and are rarely flooded.

The moderately well drained Batan and similar soils are on alluvial flat remnants. These soils have a thin, light-colored upper layer and are dominantly stratified, medium textured and moderately fine textured throughout the profile. They are strongly affected by salt and sodium and are not subject to flooding.

Of minor extent in this unit are Needle Peak and similar soils, Izo and similar soils, and Playas. Needle

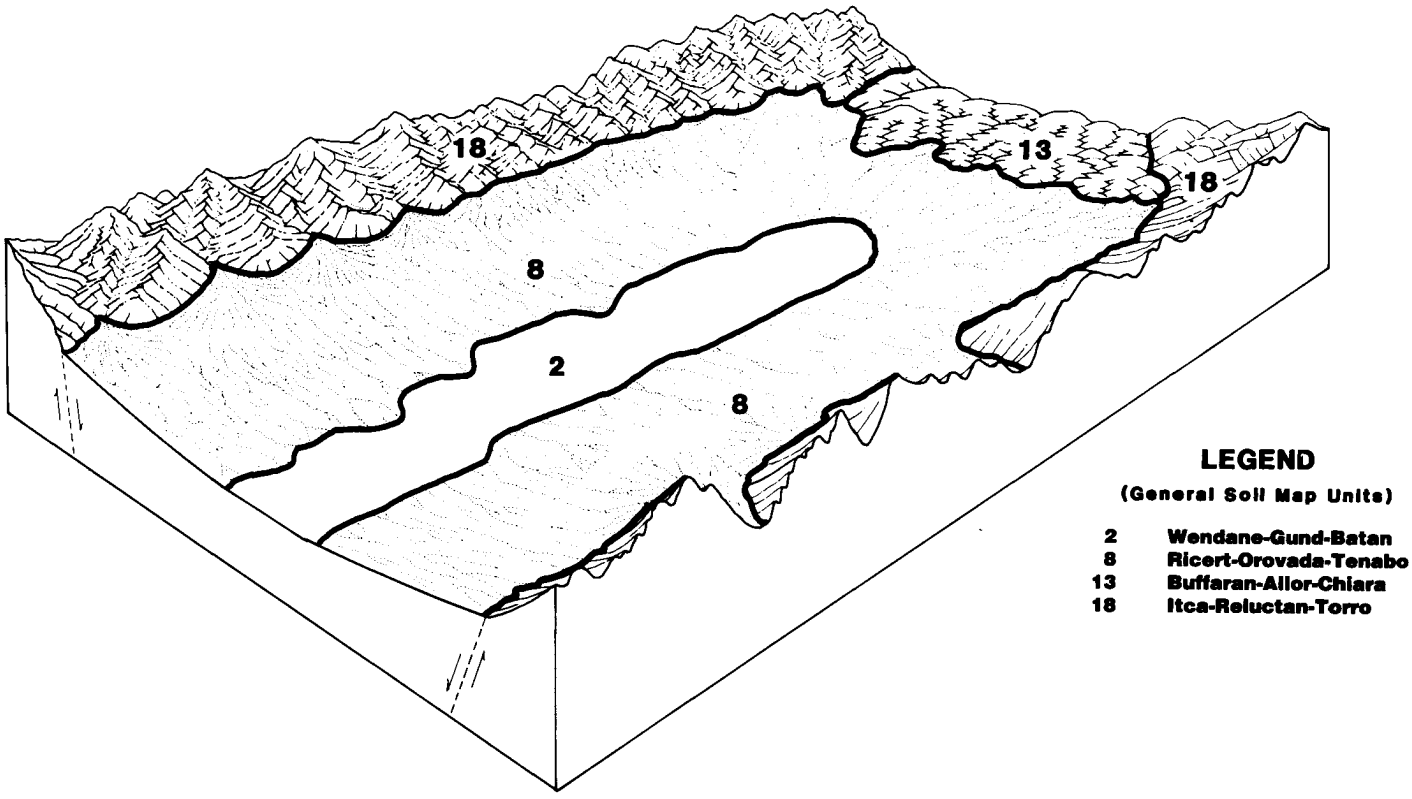

Figure 4.—General soil map units representative of those on a bolson that is an internally drained intermontane basin.

Peak and similar soils are somewhat poorly drained and occasionally flooded. They are moderately fine textured and are on low fan skirts. They are not affected by salt and sodium. They support basin big sagebrush, basin wildrye, and rubber rabbitbrush. Izo and similar soils are excessively drained and rarely flooded. They are extremely gravelly and coarse textured and are on offshore bars. They are slightly affected by salt and sodium. Areas of these soils in the Big Smoky Valley support shadscale, Bailey greasewood, and rabbitbrush, and areas in the Grass and Smith River Valleys support bottlebrush squirreltail, shadscale, and bud sagebrush. Playas are small, irregularly shaped sink areas that are ponded for brief periods, have a strong vesicular crust, and are barren of vegetation.

This unit is used for livestock grazing or wildlife habitat.

3. Sonoma-Wendane-Paranat

Nearly level, very deep, poorly drained and somewhat poorly drained soils; on axial-stream flood plains and alluvial flats

This map unit is in the central part of the survey area, along the Reese River meander belt and at the southern end of the Grass Valley. The vegetation is mainly basin wildrye, creeping wildrye, and sedges on the Sonoma and Paranat soils and basin wildrye, alkali bluegrass, inland saltgrass, black greasewood, and rubber rabbitbrush on the Wendane soils. Flooding of the Reese River is common. It occurs in spring 1 or more years in 5 and lasts 2 days to 1 month.

This unit makes up about 4 percent of the survey area.

The poorly drained Sonoma and similar soils are on axial-stream flood plains. These soils have a thick upper layer and are dominantly stratified, medium textured and moderately fine textured throughout the profile. They generally are not affected by salt and sodium, but they are slightly affected by salt and sodium in the upper layer in some areas.

The poorly drained Wendane and similar soils are on alluvial flats. These soils have a thin, light-colored upper layer and are dominantly stratified, medium textured and moderately fine textured throughout the profile. They are strongly affected by salt and sodium. In some areas they are ponded for long periods.

The poorly drained Paranat and similar soils are on axial-stream flood plains. These soils have a thick, dark upper layer and are dominantly stratified, medium

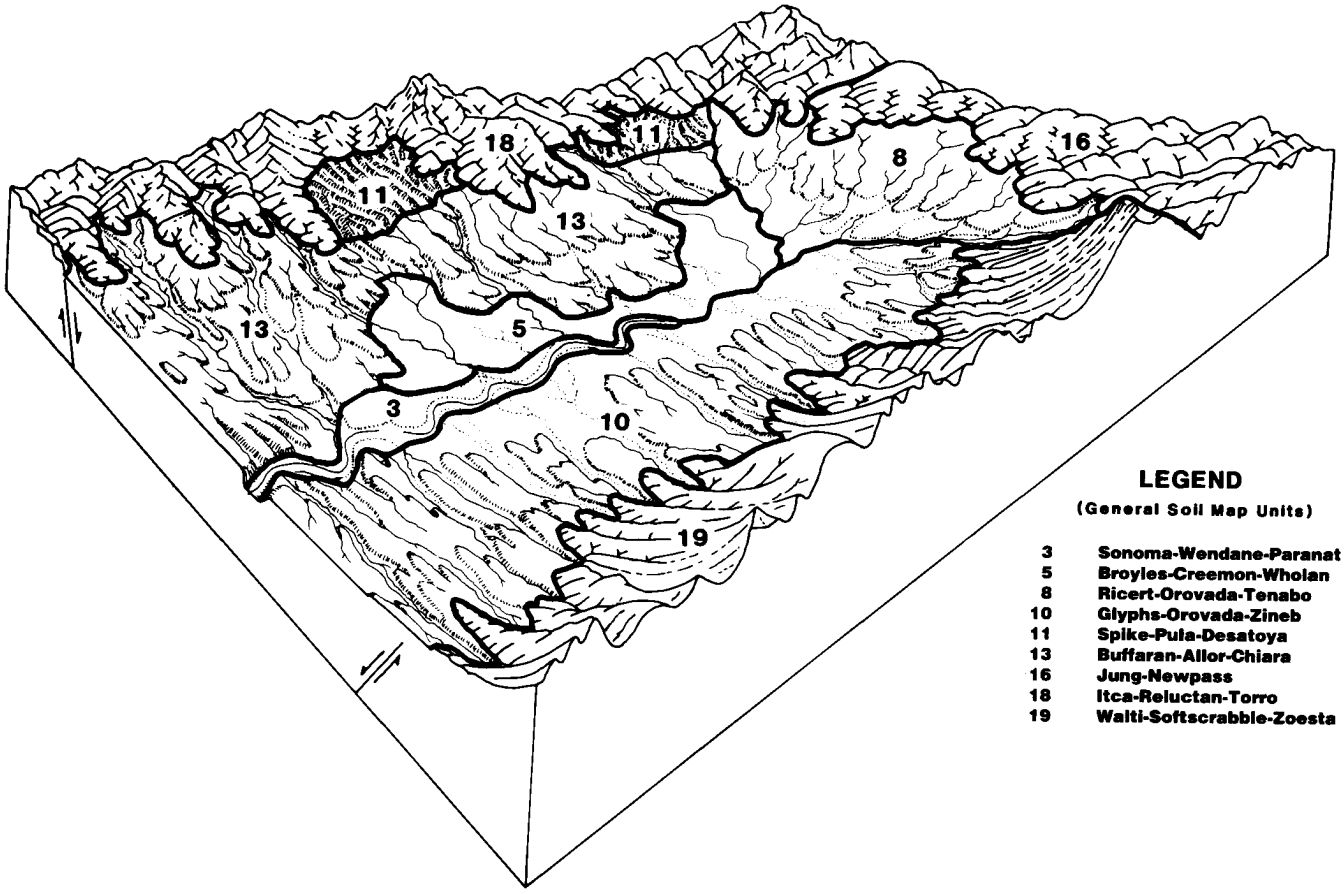

Figure 5.—General soil map units representative of those on a semibolson that is an externally drained intermontane basin.

textured and moderately fine textured material throughout the profile. They are not affected by salt and sodium.

Of minor extent in this unit are Kelk, Valmy, Bubus, the strongly saline Paranat, and similar soils. Kelk and similar soils are well drained and occasionally flooded. They are medium textured and are on alluvial flats. Valmy and similar soils are well drained and are not subject to flooding. They are moderately coarse textured or medium textured and are on narrow fan skirts. Some areas of Kelk and Valmy soils are not affected by salt and sodium, and some are slightly affected in the upper layer and strongly affected in the underlying material. Kelk and Valmy soils support basin wildrye, basin big sagebrush, and black greasewood. Bubus and similar soils are well drained and are not subject to flooding. They are moderately coarse textured or medium textured and are on alluvial flat remnants. They are strongly affected by salt and sodium. They support bottlebrush squirreltail, black greasewood, and shadscale. Paranat and similar soils are strongly saline in the upper layer. They support alkali cordgrass, alkali bluegrass, and basin wildrye.

This unit is used for livestock grazing or wildlife habitat.

Areas Dominated by Soils on Alluvial Plains, Beach Plains, and Broad Fan Skirts

Four map units are in this group. They make up about 18 percent of the survey area.

4. Laxal-Wardenot

Nearly level and gently sloping, very deep, somewhat excessively drained and excessively drained soils; on fan skirts and inset fans

This map unit is along the south-central boundary of the survey area, in the Big Smoky Valley. The vegetation is mainly galleta, Indian ricegrass, shadscale, and Bailey greasewood.

This unit makes up about 5 percent of the survey area.

The somewhat excessively drained Laxal and similar soils are on the broad, lower fan skirts and inset fans. These soils have a thin, light-colored upper layer and are stratified, very gravelly, moderately coarse textured and coarse textured throughout the profile. They generally are not affected by salt and sodium, but they are slightly affected by salt in the lower part in some areas. They are rarely or occasionally flooded.

The excessively drained Wardenot and similar soils are on the upper fan skirts. These soils have a thin, light-colored upper layer and are stratified, very gravelly and coarse textured throughout the profile. They are not affected by salt and sodium and are rarely flooded.

Of minor extent in this unit are Unsel and similar soils and Tomel and similar soils. Unsel and similar soils are very deep. They are moderately fine textured in the upper part and are very gravelly and coarse textured in the lower part. They are on adjacent fan piedmont remnants on the eastern side of the Big Smoky Valley. Tomel and similar soils are shallow to a strongly cemented hardpan and are medium textured. They are on adjacent fan piedmont remnants on the western side of the Big Smoky Valley. Both of the minor soils are well drained and are not subject to flooding. They support Indian ricegrass, shadscale, and Bailey greasewood.

This unit is used for livestock grazing or wildlife habitat.

5. Broyles-Creemon-Wholan

Nearly level and gently sloping, very deep, well drained soils; on fan skirts and alluvial plains

This map unit is in the Antelope, Big Smoky, Grass, and Smith Creek Valleys. The vegetation is mainly bottlebrush squirreltail, Indian ricegrass, shadscale, and bud sagebrush on the Broyles and Creemon soils and bottlebrush squirreltail and winterfat on the Wholan soils.

This unit makes up about 4 percent of the survey area.

The nearly level or gently sloping Broyles and similar soils are on the highest fan skirts bordering fan piedmonts. These soils have a thin, light-colored, medium textured upper layer and dominantly stratified, moderately coarse textured and medium textured underlying material. Some areas of these soils are not affected by salt and sodium, and some are slightly affected by salt and sodium in the upper part and are slightly or moderately affected by salt and moderately to strongly affected by sodium in the lower part. The soils are not subject to flooding.

The nearly level Creemon and similar soils are on the lower fan skirts and alluvial plains. These soils have a thin, light-colored, medium textured upper layer and dominantly stratified, medium textured underlying material. The soils are not affected by salt and sodium in the upper part, but they are moderately affected by salt and slightly affected by sodium in the lower part. They are not subject to flooding.

The nearly level Wholan and similar soils are on broad inset fans that shallowly dissect fan skirts and alluvial plains. These soils have a thin, light-colored, medium textured upper layer and dominantly medium textured underlying material. They are not affected by salt and sodium and are rarely flooded.

Of minor extent in this unit are Orovada, Ricert, Batan, and similar soils. Orovada and similar soils are nearly level to moderately sloping and are on fan skirts that receive additional moisture from runoff. They are medium textured and are slightly affected by salt in the lower part. They support Thurber needlegrass, bottlebrush squirreltail, and Wyoming big sagebrush. Ricert and similar soils are nearly level or gently sloping and are on adjacent fan piedmont remnants. They are medium textured and are moderately affected by salt and sodium throughout. They support bottlebrush squirreltail, shadscale, and bud sagebrush. Batan and similar soils are nearly level and are on alluvial flat remnants. They are moderately well drained and are medium textured or moderately fine textured. They are strongly affected by salt and sodium throughout. They support bottlebrush squirreltail, shadscale, and black greasewood.

6. McConnel-Rasille-Wholan

Nearly level to moderately sloping, very deep, somewhat excessively drained and well drained soils; on beach plains and fan skirts

This map unit is in the Smith Creek Valley. The vegetation is mainly Indian ricegrass, bluegrass, and Wyoming big sagebrush on the McConnel and Rasille soils and Indian ricegrass and winterfat on the Wholan soils.

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

The gently sloping or moderately sloping, somewhat excessively drained McConnel and similar soils are on offshore bars of beach plains that follow the contour of the shoreline. These soils are moderately coarse textured or medium textured over extremely gravelly, coarse textured lacustrine beach sediment. They are not affected by salt and sodium and are not subject to flooding.

The nearly level, well drained Rasille and similar soils are on fan skirts and in lagoons of beach plains. These soils are medium textured throughout the profile. They

are not affected by salt and sodium and are rarely flooded.

The nearly level, well drained Wholan and similar soils are on inset fans of beach plains. These soils are medium textured throughout the profile. They are not affected by salt and sodium in the upper part, but they are slightly affected by salt in the lower part. They are rarely flooded.

Of minor extent in this unit are Allor, Misad, Bubus, and similar soils. Allor and similar soils are gently sloping or moderately sloping and are on fan piedmont remnants. They are moderately fine textured and are not affected by salt and sodium. They support Indian ricegrass and Wyoming big sagebrush. Misad and similar soils are gently sloping and are on offshore bars. They are very gravelly and medium textured and are slightly affected by salt and sodium. They support bottlebrush squirreltail, shadscale, and bud sagebrush. Bubus and similar soils are nearly level and are on the lower fan skirts. They are medium textured and are slightly to strongly affected by salt and sodium. They support bottlebrush squirreltail, shadscale, and black greasewood. All of the minor soils are well drained, and none is subject to flooding.

This unit is used for livestock grazing or wildlife habitat.

7. Rutab-Orovada-Wholan

Nearly level, very deep, well drained soils; on fan skirts

This map unit is in the southern part of the survey area, in the Monitor and Reese River Valleys. The vegetation is mainly Indian ricegrass, bluegrass, and Wyoming big sagebrush on the Rutab and Orovada soils and Indian ricegrass and winterfat on the Wholan soils.

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

The Rutab and similar soils are on fan skirts. These soils are moderately coarse textured or medium textured in the upper part and are extremely gravelly and coarse textured in the lower part. They are slightly affected by salt in the lower part and are not subject to flooding.

The Orovada and similar soils are on fan skirts. These soils are moderately coarse textured or medium textured throughout the profile. They are slightly affected by salt in the lower part and are rarely flooded.

The Wholan and similar soils are on inset fans of fan skirts. These soils are medium textured throughout the profile. They are slightly affected by salt in the lower part and are rarely flooded.

Of minor extent in this unit are Rotinom, Glyphs, Allor, and similar soils. Rotinom and similar soils are well drained, occasionally flooded, and medium textured. They are nearly level and are on stream terraces along the Stoneberger Creek flood plain. They are not affected by salt and sodium in the upper part, but they are slightly affected by sodium in the lower part. They support bottlebrush squirreltail, Indian ricegrass, shadscale, and bud sagebrush. Glyphs, Allor, and similar soils are well drained, are not subject to flooding, and are medium textured. They are gently sloping and are on fan piedmont remnants. They are not affected by salt and sodium. They support bluegrass, needleandthread, and Wyoming big sagebrush.

This unit is used for livestock grazing or wildlife habitat.

Areas Dominated By Soils on Piedmont Slopes and Adjacent Fan Skirts

Six map units are in this group. They make up about 37 percent of the survey area.

8. Ricert-Orovada-Tenabo

Gently sloping and moderately sloping, shallow and very deep, well drained soils; on fan piedmont remnants, fan skirts, and inset fans of lower piedmont slopes

This map unit is in the Antelope, Big Smoky, Grass, Reese River, and Smith Creek Valleys. The vegetation is mainly bottlebrush squirreltail, Indian ricegrass, shadscale, and bud sagebrush on the Ricert and Tenabo soils and bluebunch wheatgrass, Thurber needlegrass, and Wyoming big sagebrush on the Orovada soils.

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

The gently sloping or moderately sloping, very deep Ricert and similar soils are on the lower fan piedmont remnants. The upper layer of these soils is thin, light colored, and medium textured. The next layer is moderately fine textured and is moderately affected by sodium. The lower layer is very gravelly and moderately coarse textured. It is slightly affected by salt and strongly affected by sodium.

The gently sloping or moderately sloping, very deep Orovada and similar soils are on fan skirts and inset fans. The upper layer of these soils is thin and moderately coarse textured. Below this is dominantly stratified, moderately coarse textured and medium textured material that is slightly to moderately affected by salt.

The gently sloping, shallow Tenabo and similar soils are on the higher fan piedmont remnants. The upper layer of these soils is thin, light colored, and medium textured. The next layer is moderately fine textured

material that is slightly or moderately affected by sodium. Below this is an indurated hardpan.

Of minor extent in this unit are Broyles, Hessing, Allor, and similar soils. Broyles, Hessing, and similar soils are very deep, well drained, and medium textured. They are nearly level or gently sloping and are on the lower inset fans and the margins of fan skirts. They are slightly affected by salt and sodium in the upper part and are slightly to moderately affected by salt and moderately to strongly affected by sodium in the lower part. They support bottlebrush squirreltail, Indian ricegrass, and shadscale. Allor and similar soils are very deep and well drained. They are gently sloping or moderately sloping and are on the higher fan piedmont remnants. They are moderately fine textured over very gravelly material in the lower part. They are not affected by salt and sodium. They support bottlebrush squirreltail and black sagebrush. None of the minor soils is subject to flooding.

This unit is used for livestock grazing or wildlife habitat.

9. Muni-Glyphs-Orovada

Nearly level to moderately sloping, shallow and very deep, well drained soils; on fan piedmont remnants and fan skirts

This map unit is in the southern part of the survey area, flanking the sides of the Monitor Valley and in small areas in the Reese River Valley. The vegetation is mainly bluegrass, Indian ricegrass, needlegrass, and Wyoming big sagebrush.

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

The gently sloping or moderately sloping, shallow Muni and similar soils are on fan piedmont remnants. These soils have a thin, medium textured upper layer. Below this is gravelly, medium textured to moderately fine textured material over a strongly silica-cemented hardpan. The soils are not affected by salt and sodium.

The gently sloping or moderately sloping, very deep Glyphs and similar soils are on broad fan piedmont remnants. The upper layer of these soils is thin, gravelly, and medium textured. The next layer is gravelly and moderately fine textured. The lower layer is gravelly and moderately coarse textured or medium textured. The soils are not affected by salt and sodium.

The nearly level or gently sloping, very deep Orovada and similar soils are on fan skirts. The upper part of these soils is thin and medium textured. Below this is moderately coarse or medium textured material that is slightly affected by salt.

Of minor extent in this unit are Broyles and similar soils and Unius and similar soils. Broyles and similar soils are very deep, moderately coarse textured, and nearly level and are on the margins of the lower fan skirts. They support bottlebrush squirreltail, Indian ricegrass, shadscale, and bud sagebrush. They are slightly or moderately affected by salt and sodium. Unius and similar soils are shallow and moderately sloping and are on fan piedmont remnants. They are moderately coarse textured over a strongly silica-cemented hardpan. They support needleandthread, bluegrass, Indian ricegrass, and black sagebrush. They are not affected by salt and sodium.

This unit is used for livestock grazing or wildlife habitat.

10. Glyphs-Orovada-Zineb

Gently sloping and moderately sloping, very deep, well drained soils; on fan piedmont remnants, fan skirts, and fan aprons

This map unit is on the eastern side of the Reese River Valley. The vegetation is mainly Indian ricegrass, bluegrass, and Wyoming big sagebrush.

This unit makes up about 4 percent of the survey area.

The gently sloping or moderately sloping Glyphs and similar soils are on broad fan piedmont remnants. The upper layer of these soils is thin, gravelly, and medium textured. The next layer is moderately fine textured. The lower layer is gravelly and moderately coarse textured or medium textured. The soils are not affected by salt and sodium.

The gently sloping Orovada and similar soils are on fan skirts. The upper layer of these soils is thin and moderately coarse textured. Below this is dominantly stratified, moderately coarse textured and medium textured material that is slightly affected by salt.

The gently sloping Zineb and similar soils are on fan aprons. The upper layer of these soils is light colored, gravelly, and moderately coarse textured. Below this is dominantly stratified, very gravelly and extremely gravelly, moderately coarse textured and medium textured material. The soils are not affected by salt and sodium.

Of minor extent in this unit are Desatoya and similar soils and Jesse Camp and similar soils. Desatoya and similar soils are very deep and well drained and are on the highest fan piedmont remnants. They are thin, light colored, gravelly, and medium textured in the upper layer; thin and fine textured in the next layer; and very gravelly and moderately coarse textured in the lower layer. They support Indian ricegrass, needleandthread, and black sagebrush. Jesse Camp and similar soils are very deep and well drained. They are nearly level and are on inset fans near the front of mountains. They are

coarse textured or medium textured throughout the profile and are very gravelly in some areas. They are rarely flooded. They support basin wildrye, bluegrass, and basin big sagebrush.

This unit is used for livestock grazing or wildlife habitat.

11. Spike-Pula-Desatoya

Strongly sloping to steep, very deep, well drained soils; on fan piedmont remnants and partial ballenas

This map unit is in the north-central part of the survey area, in the Reese River Valley. The vegetation is mainly Indian ricegrass, galleta, Wyoming big sagebrush, and shadscale on the Spike soils; Indian ricegrass, needleandthread, and Wyoming big sagebrush on the Pula soils; and Indian ricegrass, needleandthread, and black sagebrush on the Desatoya soils.

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

The steep Spike and similar soils are on south-facing side slopes of deeply incised fan piedmont remnants and partial ballenas. The upper layer of these soils is thin, very gravelly, and moderately coarse textured. The next layer is very gravelly and moderately fine textured. The lower layer is extremely gravelly and moderately coarse textured. These soils are slightly to moderately affected by salt and slightly affected by sodium below the upper layer.

The moderately steep or steep Pula and similar soils are on concave, north-facing side slopes of fan piedmont remnants. The upper layer of these soils is thin, very gravelly, and medium textured. The next layer is very gravelly and fine textured. The lower layer is very gravelly and medium textured. The soils are not affected by salt and sodium.

The strongly sloping to steep Desatoya and similar soils are on summits and convex side slopes of fan piedmont remnants. The upper layer of these soils is thin, gravelly, and medium textured. The next layer is thin and fine textured. The lower layer is very gravelly and moderately coarse textured or medium textured. It is slightly or moderately affected by salt.

Of minor extent in this unit are Grassval, Buffaran, Orovada, and similar soils. Grassval and similar soils are gently sloping and shallow and are on the lower summits of fan piedmont remnants. They are moderately fine textured in the lower part over a thick, indurated hardpan. They support Indian ricegrass, bottlebrush squirreltail, and black sagebrush. Buffaran and similar soils are gently sloping and shallow and are on the higher summits of fan piedmont remnants. They are fine textured in the lower part over a thick, indurated hardpan. They support Indian ricegrass, bluegrass, and Wyoming big sagebrush. Orovada and similar soils are gently sloping and very deep and are on inset fans. They are gravelly and medium textured throughout the profile. They support Indian ricegrass, needlegrass, bluegrass, and big sagebrush.

This unit is used for livestock grazing or wildlife habitat.

12. Grassval-Oxcorel-Allor

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

This map unit is at the southern end of the Grass Valley and in the alluvial divide between the Simpson Park Mountains and the Toquima Range. The vegetation is mainly Indian ricegrass, bluegrass, and black sagebrush on the Grassval soils; bottlebrush squirreltail, Indian ricegrass, shadscale, and bud sagebrush on the Oxcorel soils; and Thurber needlegrass, bluegrass, and Wyoming big sagebrush on the Allor soils.

This unit makes up about 5 percent of the survey area.

The gently sloping to strongly sloping, shallow Grassval and similar soils are on the higher fan piedmont remnants. The upper part of these soils is thin, light colored, and medium textured. Below this is moderately fine textured material over an indurated hardpan. The soils are not affected by salt and sodium.

The gently sloping or moderately sloping, very deep Oxcorel and similar soils are on the lower fan piedmont remnants. The upper part of these soils is thin, light colored, and medium textured. The next layer is fine textured and is slightly affected by salt and moderately affected by sodium. The lower layer is very gravelly and moderately coarse textured or medium textured. It is strongly affected by salt and sodium.

The gently sloping to strongly sloping, very deep Allor and similar soils are on fan piedmont remnants. The upper layer of these soils is thin, gravelly, and medium textured. The next layer is gravelly and moderately fine textured. The lower layer is gravelly and moderately coarse textured or medium textured. The soils are not affected by salt and sodium.

Of minor extent in this unit are Tenabo, Broyles, Orovada, and similar soils. Tenabo and similar soils are shallow and well drained and are on fan piedmont remnants. The lower part of these soils is moderately fine textured material that is sodium affected over an indurated hardpan. Tenabo and similar soils support bottlebrush squirreltail, shadscale, and bud sagebrush. Broyles and similar soils are very deep, well drained, and medium textured. They are nearly level and are on

slightly convex fan skirts. They are slightly affected by salt and sodium. They support Indian ricegrass, shadscale, and bud sagebrush. Orovada and similar soils are very deep, well drained, and medium textured. They are gently sloping and are on inset fans. They are rarely flooded and are not affected by salt and sodium. They support Thurber needlegrass, bluebunch wheatgrass, and Wyoming big sagebrush.

This unit is used for livestock grazing or wildlife habitat.

13. Buffaran-Allor-Chiara

Gently sloping to strongly sloping, shallow and very deep, well drained soils; on fan piedmont remnants and ballenas

This map unit is mainly in the Smith Creek Valley and in the alluvial divide between the Shoshone and New Pass Mountains, but small areas are in the Antelope, Grass, and Reese River Valleys. The vegetation is mainly bluegrass, Indian ricegrass, Thurber needlegrass, and Wyoming big sagebrush.

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

The gently sloping or moderately sloping, shallow Buffaran and similar soils are on the higher summits of fan piedmont remnants and ballenas. The upper layer of these soils is thin, light colored, stony, and medium textured. Below this is fine textured material over an indurated hardpan. The soils are not affected by salt and sodium.

The gently sloping to strongly sloping, very deep Allor and similar soils are on the broad, lower fan piedmont remnants. The upper layer of these soils is thin, gravelly, and medium textured. The next layer is gravelly and moderately fine textured. The lower layer is gravelly and moderately coarse textured or medium textured. The soils are not affected by salt and sodium.

The strongly sloping, shallow Chiara and similar soils are on shoulder slopes of fan piedmont remnants. These soils are light colored and medium textured over an indurated hardpan. They are not affected by salt and sodium.

Of minor extent in this unit are Filiran, Pineval, Oxcorel, and similar soils. Filiran and similar soils are nearly level and moderately deep. They are on broad, slightly concave fan piedmont remnants along Iowa Canyon. They have an upper layer that is thin and light colored. Below this is a thick layer of material that is slightly affected by salt and moderately affected by sodium over a strongly cemented hardpan. Pineval and similar soils are very deep, very gravelly, and moderately coarse textured or medium textured. They are nearly level or gently sloping and are on the lower inset fans and fan skirts. They are not affected by salt and sodium. They support bottlebrush squirreltail, Indian ricegrass, and Wyoming big sagebrush. Oxcorel and similar soils are very deep and gently sloping. They are on dissected, convex fan piedmont remnants. They have an upper layer that is thin, light colored, and medium textured. The next layer is fine textured and moderately affected by sodium. The lower layer is slightly affected by salt and strongly affected by sodium. Oxcorel and similar soils support Indian ricegrass, shadscale, and bud sagebrush.

This unit is used for livestock grazing or wildlife habitat.

Areas Dominated by Soils On Foothills and Low Mountains

Four map units are in this group. They make up about 15 percent of the survey area.

14. Tessfive-Puett-Genaw

Gently sloping to moderately steep, shallow, well drained soils; on foothills and rock pediments

This map unit is in small areas in the northern part of the Reese River Valley. The vegetation is mainly Indian ricegrass, Thurber needlegrass, and black sagebrush on the Tessfive soils; Indian ricegrass, black sagebrush, and Wyoming big sagebrush on the Puett soils; and bluebunch wheatgrass, Thurber needlegrass, and Wyoming big sagebrush on the Genaw soils.

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

The gently sloping to moderately steep Tessfive and similar soils are on convex summits, shoulder slopes, and side slopes of rolling foothills. These soils are gravelly and medium textured over semiconsolidated sedimentary rock.

The strongly sloping or moderately steep Puett and similar soils are on eroded, convex side slopes of rolling foothills. These soils are light colored and medium textured over soft, semiconsolidated sedimentary rock.

The moderately steep Genaw and similar soils are on concave side slopes of rock pediments. The upper layer of these soils is thin, gravelly, and medium textured. Below this is gravelly, medium textured or moderately fine textured material over soft, semiconsolidated sedimentary rock.

Of minor extent in this unit are Atlow, Koynik, Perlor, and similar soils. Atlow and similar soils are shallow, very gravelly, and medium textured. They are on stable summits of rolling foothills. They support Indian ricegrass, Sandberg bluegrass, and black sagebrush. Koynik and similar soils are shallow and medium textured over interbedded hard limestone and Tertiary

sediment. They are on concave side slopes of foothills. They support Sandberg bluegrass and Utah juniper. Perlor and similar soils are shallow and medium textured. They are on the lower summits of rolling foothills. They support Indian ricegrass, shadscale, and bud sagebrush.

This unit is used for livestock grazing or wildlife habitat.

15. Old Camp-Colbar-Newpass

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

This map unit is in the northwestern part of the survey area, in the New Pass and Shoshone Mountains. The vegetation is mainly pine bluegrass, Thurber needlegrass, and Wyoming big sagebrush.

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

The moderately steep or steep, shallow Old Camp and similar soils are on foothills. These soils are thin, very gravelly and very cobbly, medium textured material over hard bedrock. They are not affected by salt and sodium.

The moderately steep, moderately deep Colbar and similar soils are on the lower north- and east-facing side slopes of foothills. The upper layer of these soils is thin, very cobbly, and medium textured. Below this is gravelly, moderately fine textured material over hard bedrock. The soils are not affected by salt and sodium.

The strongly sloping, moderately deep Newpass and similar soils are on summits and the higher north- and east-facing side slopes of foothills. The upper layer of these soils is thin, very gravelly, and medium textured. The next layer is fine textured and is slightly affected by sodium. Below this is a thin, strongly cemented hardpan over hard bedrock.

Of minor extent in this unit are Laped and similar soils and Rock outcrop. Laped and similar soils are shallow and medium textured. They are on low summits of foothills. They support Indian ricegrass, shadscale, and bud sagebrush. Rock outcrop occurs as scattered barren peaks.

This unit is used for livestock grazing or wildlife habitat.

16. Jung-Newpass

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

This map unit is in the central Shoshone Mountains. The vegetation is mainly pine bluegrass, Thurber needlegrass, and black sagebrush on the Jung soils and pine bluegrass, Thurber needlegrass, and Wyoming big sagebrush on the Newpass soils.

This unit makes up about 4 percent of the survey area.

The strongly sloping and moderately steep, shallow Jung and similar soils are on rounded, convex summits and south- and west-facing side slopes of rolling foothills. The upper layer of these soils is thin, very cobbly, and medium textured. Below this is very cobbly, fine textured material over hard bedrock. The soils are not affected by salt and sodium.

The moderately steep, moderately deep Newpass and similar soils are on north- and east-facing side slopes of rolling foothills. The upper layer of these soils is thin, very gravelly, and medium textured. The next layer is fine textured and is slightly affected by sodium. Below this is a thin, strongly cemented hardpan over hard bedrock.

Of minor extent in this unit are Itca and similar soils, Old Camp and similar soils, and Rock outcrop. Itca and similar soils are shallow, very gravelly, and medium textured. They are steep and are on concave side slopes of mountains. They support bluebunch wheatgrass, mountain big sagebrush, singleleaf pinyon, and Utah juniper. Old Camp and similar soils are shallow, very gravelly, and medium textured or moderately fine textured. They are moderately sloping to moderately steep and are on the lower summits and convex side slopes of mountains. They support pine bluegrass, Thurber needlegrass, and Wyoming big sagebrush. Rock outcrop occurs as scattered barren peaks.

This unit is used for livestock grazing or wildlife habitat.

17. Akerue-Simpark-Punchbowl

Gently sloping to moderately steep, shallow, well drained soils; on low mountains

This map unit is in the Simpson Park Mountains and the northeastern part of the Toiyabe Range. The vegetation is mainly Indian ricegrass, needleandthread, and black sagebrush.

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

The moderately steep Akerue and similar soils are on shoulder slopes and upper side slopes of low mountains. The upper layer of these soils is very stony and medium textured. The next layer is very cobbly and fine textured. Below this is a thin, indurated hardpan over bedrock.

The gently sloping to moderately steep Simpark and similar soils are on the broad upper summits and the

lower side slopes of low mountains. The upper layer of these soils is very stony and moderately coarse textured. The next layer is very cobbly and medium textured. Below this is an indurated hardpan over bedrock.

The strongly sloping Punchbowl and similar soils are on the lower summits and shoulder slopes of low mountains above rimrock. The upper layer of these soils is thin, very gravelly or extremely stony, and medium textured. Below this is gravelly, medium textured material over hard bedrock.

Of minor extent in this unit are Robson and similar soils, Rock outcrop, Duco and similar soils, and Nobuck and similar soils. Robson and similar soils are shallow, very cobbly, and fine textured. They are on north-facing shoulder slopes of mountains. They support Thurber needlegrass, bluegrass, and low sagebrush. Rock outcrop occurs as rimrock along shoulder slopes of mountains and as cliffs on eroded side slopes of mountains. Areas of Rock outcrop are barren. Duco and similar soils are shallow, very gravelly, and medium textured. They are moderately sloping to steep and are on crests of mountains. They support pine bluegrass, mountain big sagebrush, singleleaf pinyon, and Utah juniper. Nobuck and similar soils are moderately deep, very gravelly, and medium textured. They are on steep, north-facing side slopes of mountains in areas where snow accumulates. They support bluebunch wheatgrass, bluegrass, and big sagebrush.

This unit is used mainly for livestock grazing or wildlife habitat.

Areas Dominated by Soils On Mountains

Three map units are in this group. They make up about 19 percent of the survey area.

18. Itca-Reluctan-Torro

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

This map unit is in all of the mountain ranges in the survey area. The vegetation is mainly bluegrass, mountain big sagebrush, and singleleaf pinyon on the Itca soils and bluebunch wheatgrass, Idaho fescue, and mountain big sagebrush on the Reluctan and Torro soils.

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

The moderately steep or steep, shallow Itca and similar soils are on convex crests and mainly the east-facing and higher south- and west-facing side slopes of mountains. The upper layer of these soils is thick, dark, very cobbly, and medium textured. Below this is very gravelly, fine textured material over hard bedrock.

The moderately steep or steep, moderately deep Reluctan and similar soils are on the higher, concave, north- and east-facing side slopes of mountains. The upper layer of these soils is thick, dark, very gravelly or very cobbly, and medium textured. Below this is gravelly, moderately fine textured material over hard bedrock.

The steep, very deep Torro and similar soils are on concave, west- and south-facing side slopes of mountains. The upper layer of these soils is thick, dark, very gravelly or extremely gravelly, and medium textured. The lower layer is extremely gravelly and medium textured or moderately fine textured.

Of minor extent in this unit are Walti, Clanalpine, Roca, and similar soils, Rock outcrop, and Welch and similar soils. Walti and similar soils are moderately deep, fine textured, and moderately sloping. They are on crests of mountains. They support Idaho fescue, bluebunch wheatgrass, and low sagebrush. Clanalpine and similar soils are moderately deep, very gravelly, and moderately fine textured. They are on the highest north- and west-facing shoulder slopes and side slopes of mountains below areas of Rock outcrop. They support Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, and singleleaf pinyon. Roca and similar soils are moderately deep, very gravelly, and fine textured. They are steep and are on the concave, lower, south-facing side slopes of mountains. They support bluegrass, bluebunch wheatgrass, and Wyoming big sagebrush. Rock outcrop occurs as rimrock along shoulder slopes of mountains, as cliffs along canyon walls, and as scattered peaks. Areas of Rock outcrop are barren. Welch and similar soils are nearly level to gently sloping and are in intermountain drainageways and riparian areas. They support basin wildrye and basin big sagebrush in areas where the channel has been subject to entrenchment and bluegrass, hairgrass, rush, and sedges in undrained areas.

This unit is used for livestock grazing or wildlife habitat.

19. Walti-Softscrabble-Zoesta

Strongly sloping and moderately steep, moderately deep and very deep, well drained soils; on high mountains

This map unit is in the Simpson Park Mountains and the Toiyabe Range. The vegetation is mainly Idaho fescue, bluebunch wheatgrass, and low sagebrush on the Walti and Zoesta soils and bluebunch wheatgrass, Idaho fescue, and mountain big sagebrush on the Softscrabble soils.

This unit makes up about 5 percent of the survey area.

The moderately deep Walti and similar soils are on

convex crests and shoulder slopes of high mountains. The upper layer of these soils is thick, very cobbly, and medium textured. Below this is fine textured material over hard bedrock.

The very deep Softscrabble and similar soils are on concave, north- and east-facing side slopes of high mountains. The upper layer of these soils is very thick, dark, very gravelly, and medium textured. The next layer is very gravelly or very cobbly and moderately fine textured. The lower layer is very gravelly or very cobbly and moderately coarse textured or medium textured.

The very deep Zoesta and similar soils are on south- and west-facing side slopes of high mountains. The upper layer of these soils is thin, cobbly, and medium textured. The lower layer is very thick and fine textured.

Of minor extent in this unit are Sumine and similar soils, Atlow and similar soils, Rock outcrop, Colbar and similar soils, and Welch and similar soils. Sumine and similar soils are moderately deep, very gravelly, and moderately fine textured. They are steep and are on south-facing side slopes of mountains. They support bluebunch wheatgrass and mountain big sagebrush. Atlow and similar soils are shallow, gravelly, and moderately fine textured. They are moderately sloping and are on the lower crests of mountains. They support bluegrass, bottlebrush squirreltail, and black sagebrush. Rock outcrop occurs on mountains as rimrock on eroded shoulder slopes, cliffs on side slopes, and scattered peaks. Areas of Rock outcrop are barren. Colbar and similar soils are moderately deep and moderately fine textured. They are moderately steep or steep and are on the lower side slopes of mountains. They support Thurber needlegrass, bluebunch wheatgrass, and Wyoming big sagebrush. Welch and similar soils are nearly level to gently sloping and are in intermountain drainageways and riparian areas. They support basin wildrye and basin big sagebrush in areas where the channel has been subject to entrenchment and bluegrass, hairgrass, rush, and sedges in undrained areas.

This unit is used for livestock grazing or wildlife habitat.

20. Packer-Hapgood-Sumine

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

This map unit is in the Desatoya, New Pass, Shoshone, and Simpson Park Mountains and the Toiyabe Range. The vegetation is mainly Idaho fescue, Webber ricegrass, low sagebrush, and black sagebrush on the Packer soils; Idaho fescue, bluebunch wheatgrass, and snowberry on the Hapgood soils; and bluebunch wheatgrass, basin wildrye, and mountain big sagebrush on the Sumine soils.

This unit makes up about 5 percent of the survey area.

The moderately steep to very steep, very deep Packer and similar soils are on convex crests and nose slopes of high mountains. The upper layer of these soils is very gravelly and medium textured. The lower layer is very gravelly and medium textured or moderately fine textured.

The steep or very steep, very deep Hapgood and similar soils are on concave, north-facing side slopes of high mountains. The upper layer of these soils is very thick, dark, very gravelly, and medium textured. The lower layer is very gravelly or very cobbly and medium textured.

The steep, moderately deep Sumine and similar soils are on south-facing side slopes of mountains. The upper layer of these soils is thick, dark, very gravelly, and medium textured. Below this is very gravelly, moderately fine textured material over hard bedrock.

Of minor extent in this unit are Layview and similar soils, Hatur and similar soils, Rock outcrop, and Welch and similar soils. Layview and similar soils are shallow and moderately fine textured. They are on convex crests of mountains. They support Idaho fescue, bluebunch wheatgrass, black sagebrush, and low sagebrush. Hatur and similar soils are moderately deep, very gravelly, and medium textured. They are on side slopes of mountains below limestone rock outcroppings. They support bluebunch wheatgrass, Idaho fescue, and mountain big sagebrush. Rock outcrop occurs as exposed bedrock on shoulder slopes and cliffs, along canyon walls, and on scattered peaks of mountains. Welch and similar soils are very deep, poorly drained, and moderately fine textured. They are along canyon bottoms and adjacent to seeps and springs. They are flooded for short periods late in spring. They support basin wildrye, bluegrass, and basin big sagebrush.

This unit is used mainly for livestock grazing or wildlife habitat.

Broad Land Use Considerations

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

About 98 percent of the land area is used for range and related uses. Careful management of this land is needed. General soil map unit 3 has the highest potential to produce forage; however, because it is near

a water source and supports more palatable plants, it also has the potential to be overused, resulting in deterioration of the range. Map unit 2 and units 4 through 14 are used extensively for range. The main limitation is inadequate precipitation. Some of the soils in these units have a hardpan or bedrock, which limits the rooting depth and the available water capacity, and some have rock fragments on the surface, which hinder mechanical operations. Map units 15 through 20 are well suited to use as range; however, mechanical operations are hindered in most areas by the slope and by the rock fragments on the surface. The rooting depth is limited in some of the soils in units 15 through 19.

About 1 percent of the land in the survey area is used as irrigated cropland, and about 18 percent more would be suitable for use as cropland if irrigation water were available. The main crops are alfalfa hay, alfalfa for seed, improved grass-legume forage, and small grain, such as barley, wheat, and oats. Small areas in units 3 through 7 are used as cropland. The soils in unit 3 are limited by a high water table and a hazard of flooding. The soils in the other units are limited mainly because water is not available for irrigation.

Most of the irrigation water in the survey area must be pumped from wells, and sources of water are not easily found. The Duric Camborthids in unit 5, Typic Camborthids in units 5 through 7, and Durixerollic Camborthids in units 6 and 7 are well suited to climatically adapted plants. The selection of plants is limited by the short growing season. Most areas of the soils in these map units have potential for growing irrigated crops if the content of salts and sodium is controlled. Some of the sloping soils in units 6 and 7 are limited by a hazard of erosion or by low available soil moisture.

Less than 1 percent of the land in the survey area is used for pasture and meadow hay. Map unit 3 is used extensively for pasture and meadow hay, and most areas of the unit are well suited to these uses. Some areas of this unit are limited by the content of salts and sodium.

Almost all of the land in the survey area is used by one or more kinds of wildlife. The perennial streams along the Reese River support catfish, black bass, and carp. Several of the streams and small ponds in the area support trout.

The openland wildlife species common to the area include deer, valley quail, cottontail, meadowlark, and killdeer. Map units 2 and 3 are used extensively by these species. The availability of water and the food and cover provided by the native meadows and pastures in these units are attractive to wildlife. Irrigated areas of units 4 through 7 also are used extensively by openland wildlife. Watering facilities need to be provided when these areas are not being irrigated. Fencerows, ditchbanks, and odd corners can be planted with suitable plants to improve the habitat. Adjacent areas of rangeland provide additional cover.

The wetland wildlife species common to the area include ducks, geese, herons, muskrat, and beaver. Map unit 3 is used extensively by these species. Shallow water areas can be established in the nearly level areas of this unit, but the more sloping areas are limited for this use. Some areas of this unit have been drained by stream entrenchment and thus provide limited habitat for wetland wildlife.

The rangeland wildlife species common to the area include antelope, mule deer, jackrabbit, chukar, and sage grouse. Map units 6 through 8 and 10 through 13 are used extensively by these species. The native plant community in many areas is limited by low precipitation. Proper design and placement of watering facilities are beneficial.

Detailed Soil Map Units

The map units on the detailed soil 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 soil maps, can be used to determine the suitability and limitations of a soil 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. 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 precisely define and locate the soils and miscellaneous areas.

The detailed soil map units identified within the survey area reflect various relationships of soils with component parts of the landscape. These relationships are illustrated in figures 6 and 7. These figures indicate, in a three-dimensional representation, the soil-physiographic relationships typical of the area.

Figure 6 illustrates how some of the map unit delineations appear throughout the various segments of the landscape.

Each map unit has one or more major soils or miscellaneous areas and generally has several contrasting inclusions. Figure 7 illustrates the physiographic positions of the major components in a few typical map units.

The unique physiographic position of each soil or miscellaneous area identified is given in the map unit descriptions.

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, Kelk silt loam, saline, is a phase of the Kelk series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Beoska-Tenabo complex is an example.

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. Akerue-Simpark-Punchbowl association is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Playas is an example.

The detail of mapping was selected to meet the anticipated long-term use of the survey, and the map

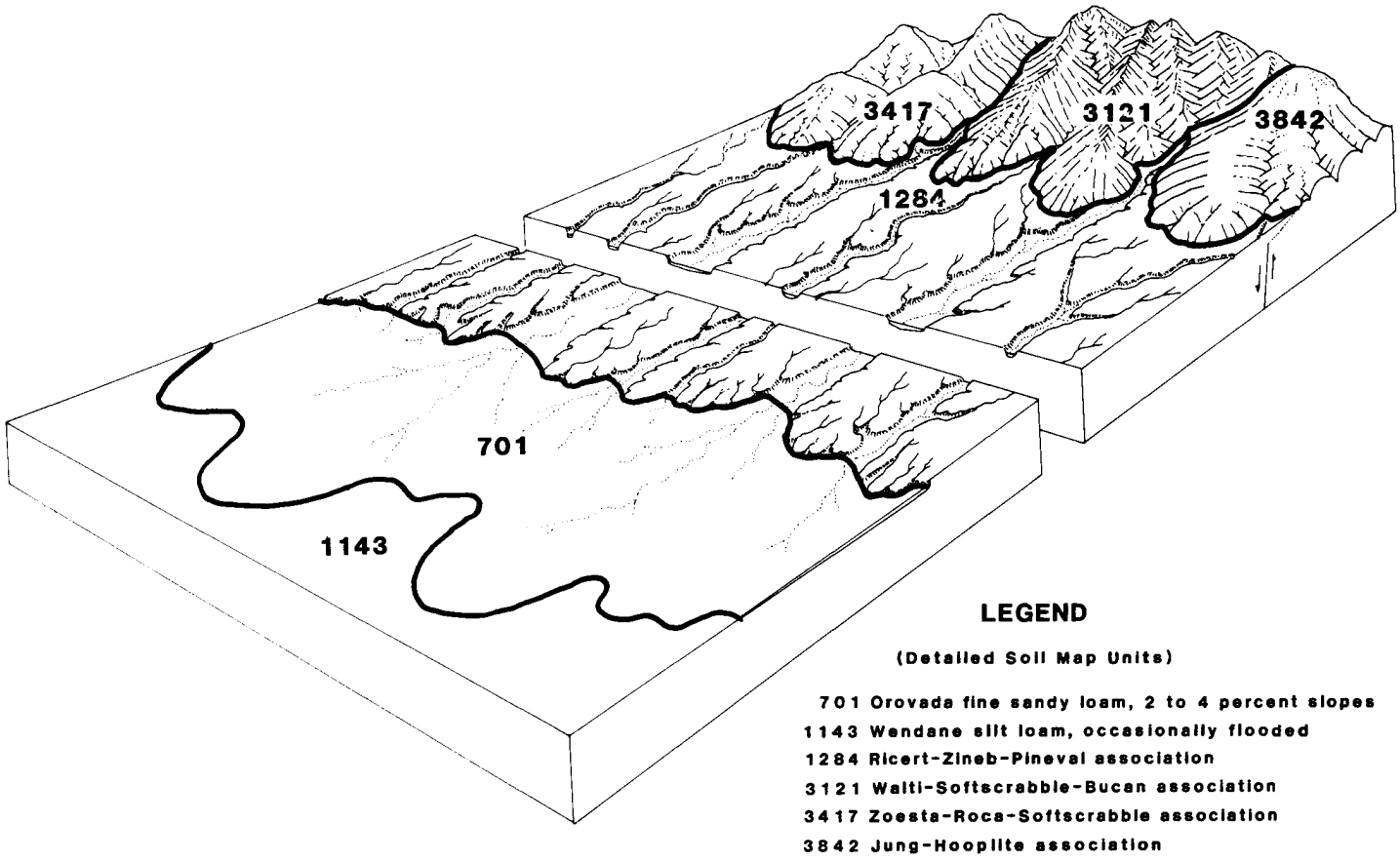

Figure 6.—Appearance of some detailed soil map units as they occur in various positions on the landscape.

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. Some of the terms used in the descriptions are defined in the Glossary. More information is given in the sections "Use and Management of the Soils" and "Soil Properties."

The landscape position is described for the entire map unit. These descriptions generally are broader than those given for each major component.

Composition includes the components identified in the name of the map unit as well as the contrasting inclusions. Inclusions are areas of 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 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 a 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 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 the composition. The

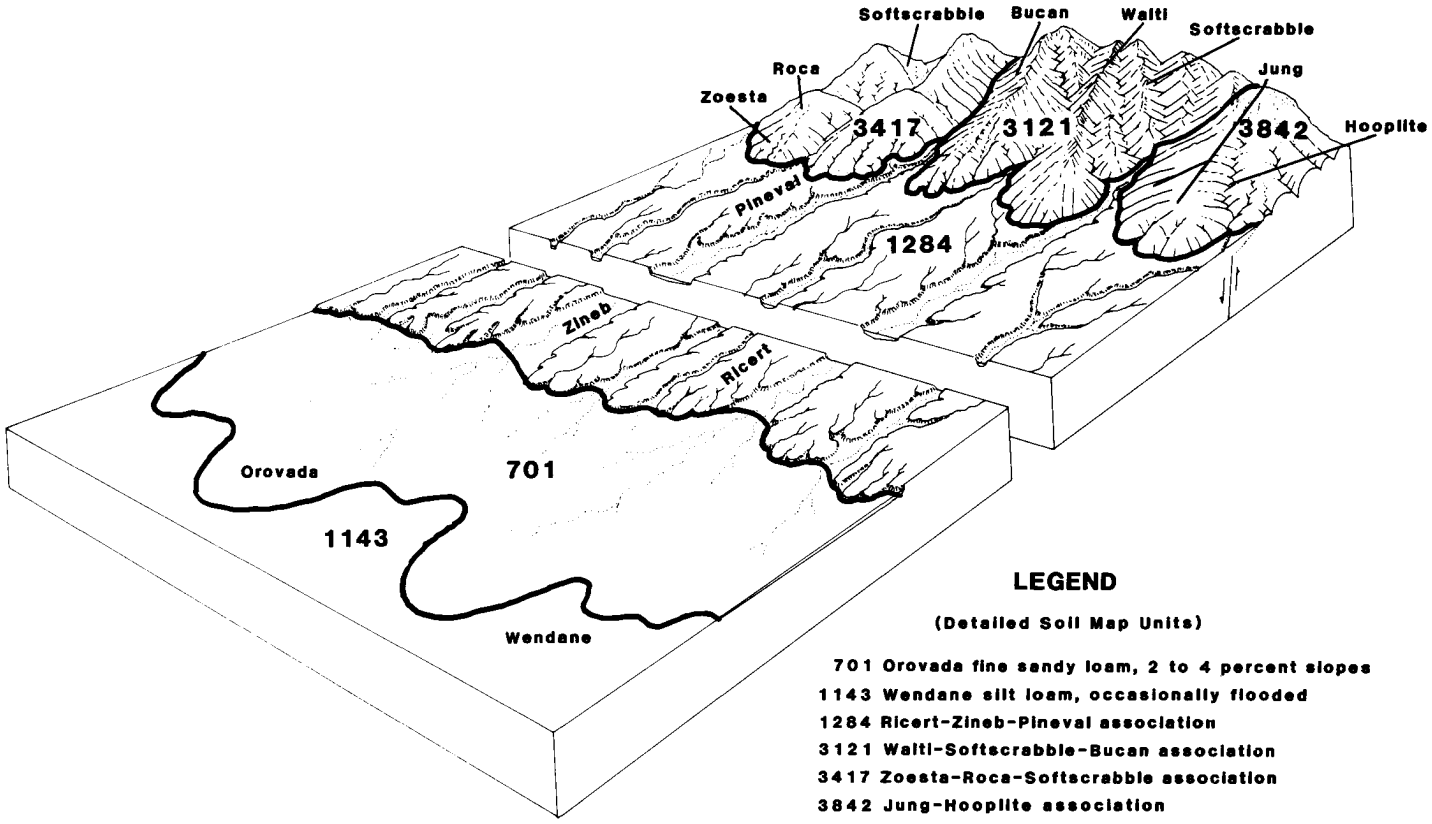

Figure 7.—Landscape positions of each major soil component identified within the respective map units.

major uses, ratings for various uses, restrictive features for various practices, and interpretive groups also are shown.

Map Unit Descriptions

120—Akerue-Simpark-Robson association

Positions on landscape: Foothills

Composition

Major components:
Akerue very stony loam, 15 to 30 percent slopes—40 percent
Simpark very stony loam, 15 to 50 percent slopes—35 percent
Robson very cobbly loam, 8 to 30 percent slopes—10 percent
Contrasting inclusions:
Lithic Xeric Torriorthents, loamy, mixed, frigid, 15 to 75 percent slopes—5 percent
Aridic Argixerolls, fine-loamy, mixed, frigid, 8 to 15 percent slopes—5 percent
Rock outcrop—3 percent
Rubble land—2 percent

Characteristics of the Akerue Soil

Classification: Xerollic Durargids, clayey-skeletal, montmorillonitic, frigid, shallow
Positions on landscape: Smooth to convex, south- and west-facing side slopes of foothills
Parent material: Residuum derived from andesite, rhyolite, and quartzite
Slope: 15 to 30 percent
Elevation: 6,200 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, needleandthread, Indian ricegrass

Typical Profile

Rock fragments on surface: 35 percent cobbles and stones, 35 percent pebbles

Depth: 0 to 3 inches
Texture: Very stony loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 15 inches
Texture: Very cobbly clay loam, very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 21 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 21 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 15 to 26 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.6 to 2.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Low

Characteristics of the Simpark Soil

Classification: Xerollic Durargids, loamy-skeletal, mixed, frigid, shallow
Positions on landscape: Smooth to slightly concave, east-facing and lower north-facing side slopes of foothills
Parent material: Residuum that is derived from volcanic rock and includes volcanic ash
Slope: 15 to 50 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Black sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 15 percent cobbles and stones, 35 percent pebbles

Depth: 0 to 13 inches
Texture: Very stony loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 to 18 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 22 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 22 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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 Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex summits and higher north-facing side slopes of foothills
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 8 to 30 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Depth: 0 to 2 inches

Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 2 to 5 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; 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: Lithic Xeric Torriorthents, loamy, mixed, frigid
Positions on landscape: Convex nose slopes of foothills
Distinctive present vegetation: Black sagebrush, low sagebrush, bluegrass

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave toe slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush, mountain big sagebrush, Thurber needlegrass

Inclusion 3
Positions on landscape: Rimrock on shoulder slopes of foothills
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Rock stripes below Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Akerue Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Simpark Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Simpark Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, slope
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
Local roads and streets: Severe—cemented pan, slope
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Robson Soil
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, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Land capability classification: Akerue, Simpark, and Robson soils—VIIs, nonirrigated
Range site: Akerue and Simpark soils—028B016N; Robson soil—028B045N; Inclusion 1—028B038N; Inclusion 2—028B007N; Inclusions 3 and 4—none

121—Akerue-Simpark-Punchbowl association

Positions on landscape: Foothills

Composition

Major components:
Akerue very cobbly loam, 15 to 30 percent slopes—40 percent
Simpark very cobbly loam, 15 to 30 percent slopes—25 percent
Punchbowl gravelly loam, 8 to 15 percent slopes—20 percent
Contrasting inclusions:
Robson very cobbly loam, 30 to 50 percent slopes—7 percent
Durixerollic Haplargids, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes—5 percent
Rock outcrop—3 percent

Characteristics of the Akerue Soil

Classification: Xerollic Durargids, clayey-skeletal, montmorillonitic, frigid, shallow
Positions on landscape: Convex to smooth, broad shoulder slopes and upper side slopes of foothills
Parent material: Residuum derived from andesite, rhyolite, and quartzite
Slope: 15 to 30 percent
Elevation: 6,600 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, needleandthread, Indian ricegrass

Typical Profile

Rock fragments on surface: 35 percent cobbles, 35 percent pebbles

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 15 inches
Texture: Very cobbly clay loam, very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 21 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 21 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 15 to 26 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.6 to 2.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Low

Characteristics of the Simpark Soil

Classification: Xerollic Durargids, loamy-skeletal, mixed, frigid, shallow
Positions on landscape: Smooth to slightly concave, lower side slopes of foothills
Parent material: Residuum that is derived from andesite and rhyolite and includes volcanic ash
Slope: 15 to 30 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days

Dominant present vegetation: Black sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 40 percent cobbles, 20 percent pebbles
Depth: 0 to 13 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 to 18 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 22 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 22 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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 Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex narrow summits and shoulder slopes of foothills
Parent material: Residuum derived from andesite, dacite, and tuff
Slope: 8 to 15 percent
Elevation: 6,800 to 7,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Slightly concave, north-facing side slopes of foothills
Distinctive present vegetation: Low sagebrush, bluegrass

Inclusion 2

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, frigid

Positions on landscape: Drainageways and inset fans between foothills
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 3
Positions on landscape: Rimrock on shoulder slopes of foothills
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Akerue Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Simpark Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

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

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

Punchbowl Soil
Range seeding: Poor—droughty, depth to rock
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

Land capability classification: Akerue, Simpark, and Punchbowl soils—VIIs, nonirrigated
Range site: Akerue, Simpark, and Punchbowl soils—028B016N; Inclusion 1—028B045N; Inclusion 2—028B010N; Inclusion 3—none

141—Unsel-Wardenot-Belted association

Positions on landscape: Piedmont slopes

Composition

Major components:
Unsel gravelly fine sandy loam, 2 to 4 percent slopes—35 percent
Wardenot gravelly fine sandy loam, 2 to 4 percent slopes—30 percent
Belted gravelly fine sandy loam, 2 to 8 percent slopes—25 percent
Contrasting inclusions:
Haploxerollic Durargids, loamy, mixed, mesic, shallow, 2 to 4 percent slopes—7 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Unsel Soil

Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, bottlebrush squirreltail, galleta

Typical Profile

Rock fragments on surface: 80 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 8 to 18 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 18 to 31 inches
Texture: Gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 31 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.6 to 5.8 inches
Water-supplying capacity: 7 inches
Runoff: Medium or rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Wardenot Soil

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Fan skirts, inset fans
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, greasewood, bottlebrush squirreltail, galleta

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 13

Depth: 5 to 60 inches
Texture: Stratified very gravelly fine sandy loam to extremely cobbly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: A
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Belted Soil

Classification: Haplic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 53 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, Indian ricegrass, galleta

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly fine sandy loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 13

Depth: 4 to 14 inches
Texture: Gravelly clay loam
Structure: Granular
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 14 to 25 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Very hard, very firm

Depth: 25 to 60 inches
Texture: Very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Very strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 13

Soil and Water Features

Depth to the hardpan: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.4 to 2.2 inches
Water-supplying capacity: 5 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Fan drainageways of the higher fan piedmont remnants
Distinctive present vegetation: Black sagebrush, Indian ricegrass, shadscale

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan drainageways of the lower fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Unsel Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Wardenot Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Belted Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Unsel Soil
Range seeding: Poor—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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

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

Belted Soil
Range seeding: Poor—too arid, droughty, cemented pan
Roadfill: Good
Topsoil: Poor—cemented pan, small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave

Local roads and streets: Moderate—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Unsel soil—IIIe, irrigated, and VIIc, nonirrigated; Wardenot soil—IVe, irrigated, and VIIc, nonirrigated; Belted soil—VIIs, nonirrigated
Range site: Unsel, Wardenot, and Belted soils—029X017N; Inclusion 1—028B016N; Inclusion 2—028B010N

142—Unsel-Caphor-Chedehap association

Positions on landscape: Piedmont slopes

Composition

Major components:
Unsel gravelly fine sandy loam, 2 to 4 percent slopes—40 percent
Caphor fine sandy loam, 2 to 4 percent slopes—25 percent
Chedehap coarse sandy loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Batan silt loam, 0 to 2 percent slopes—7 percent
Creemon silt loam, 0 to 2 percent slopes—4 percent
Xeric Torriorthents, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—4 percent

Characteristics of the Unsel Soil

Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants, nonburied fan remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, bottlebrush squirreltail, galleta

Typical Profile

Rock fragments on surface: 80 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 8 to 18 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 18 to 31 inches
Texture: Gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 31 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.6 to 5.8 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Caphor Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 17 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 17 to 35 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 35 to 60 inches
Texture: Gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 3.7 to 5.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Chedehap Soil

Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan aprons
Parent material: Moderately coarse textured alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Wyoming big sagebrush, spiny hopsage, needleandthread, bluegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Coarse sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 12 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 37 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 37 to 60 inches
Texture: Loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid over very rapid
Available water capacity: 4.1 to 6.0 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants adjacent to the lower fan skirt margins

Distinctive present vegetation: Black sagebrush, shadscale

Inclusion 2
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The lower fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways, inset fans
Distinctive present vegetation: Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Unsel Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Caphor Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Chedehap Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Unsel Soil
Range seeding: Poor—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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Caphor Soil
Range seeding: Poor—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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Chedehap Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Poor—too sandy
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Unsel and Caphor soils—IIIe, irrigated, and VIIc, nonirrigated; Chedehap soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Unsel soil—029X017N; Caphor soil—028B017N; Chedehap soil—028B052N; Inclusion 1—024X003N; Inclusion 2—024X002N; Inclusion 3—028B010N

150—Chedehap-Enko-Ricert association

Positions on landscape: Piedmont slopes

Composition

Major components:
Chedehap coarse sandy loam, 2 to 8 percent slopes—45 percent
Enko gravelly fine sandy loam, 2 to 8 percent slopes—25 percent
Ricert gravelly fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 4 to 8 percent slopes—6 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 2 to 4 percent slopes—5 percent
Xeric Torriorthents, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—4 percent

Characteristics of the Chedehap Soil

Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans, fan aprons
Parent material: Moderately coarse textured alluvium
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Wyoming big sagebrush, spiny hopsage, needleandthread, bluegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Coarse sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 12 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 37 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 37 to 60 inches
Texture: Loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid over very rapid
Available water capacity: 4.1 to 6.0 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—moderate
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
Positions on landscape: Fan apron remnants
Parent material: Mixed alluvium that includes some loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 12 inches
Texture: Loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 18 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 60 inches
Texture: Sandy loam, fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.1 to 8.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,100 feet
Average annual precipitation: About 7 inches

Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The upper part of fan apron remnants
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush, needleandthread

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The upper part of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Black sagebrush, needleandthread

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Chedehap Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Enko Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Chedehap Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Poor—too sandy
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Enko Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones
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

Ricert Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good

Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Chedehap and Ricert soils—IVe, irrigated, and VIIs, nonirrigated; Enko soil—IVe, irrigated, and VIs, nonirrigated
Range site: Chedehap soil—028B052N; Enko soil—028B010N; Ricert soil—028B017N; Inclusion 1—028B052N; Inclusion 2—028B010N; Inclusion 3—028B016N

160—Batan association

Positions on landscape: Alluvial flat remnants

Composition

Major components:
Batan silt loam, 0 to 2 percent slopes—50 percent
Batan silt loam, slightly saline, 0 to 2 percent slopes—40 percent
Contrasting inclusions:
Wholan silt loam, 0 to 2 percent slopes—8 percent
Rasille silt loam, 0 to 2 percent slopes—2 percent

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Broad, slightly dissected alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Batan Soil, Slightly Saline

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: The upper dissected alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline

Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans dissecting alluvial flat remnants
Distinctive present vegetation: Winterfat, bud sagebrush, Indian ricegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Narrow drainageways
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Batan Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Batan Soil, Slightly Saline
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Batan Soil, Slightly Saline
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Slight—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Batan Soil, Slightly Saline
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Batan soil—VIIs, nonirrigated; Batan soil, slightly saline—VIIc, nonirrigated
Range site: Batan soil—024X003N; Batan soil, slightly saline—024X002N; Inclusion 1—024X004N; Inclusion 2—028B010N

161—Batan silt loam

Positions on landscape: Alluvial flat remnants

Composition

Major component:
Batan silt loam, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Bubus very fine sandy loam, 0 to 2 percent slopes—5 percent
Typic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Sonoma silt loam, rarely flooded, strongly saline, 0 to 2 percent slopes—5 percent

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic

Positions on landscape: Alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,200 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—severe
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The highest part of alluvial flat remnants
Distinctive present vegetation: Black greasewood, shadscale, bud sagebrush

Inclusion 2
Classification: Typic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Recent alluvial flats
Distinctive present vegetation: Black greasewood, shadscale, bud sagebrush

Inclusion 3
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Smooth axial-stream flood plains
Distinctive present vegetation: Basin wildrye, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Batan soil—VIIs, nonirrigated
Range site: Batan soil—024X003N; Inclusion 1—024X003N; Inclusion 2—024X012N; Inclusion 3—024X007N

162—Batan-Kelk association

Positions on landscape: Alluvial flats, fan skirts

Composition

Major components:
Batan silt loam, 0 to 2 percent slopes—40 percent
Kelk silt loam, 0 to 2 percent slopes—35 percent
Kelk silt loam, occasionally flooded, 0 to 2 percent slopes—15 percent

Contrasting inclusions:
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—8 percent
Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 50

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Inset fans dissecting alluvial flats
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black greasewood, basin big sagebrush, basin wildrye

Typical Profile

Depth: 0 to 3 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Depth: 3 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 20 to 40 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 40 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; 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—moderate
Potential for frost action: Moderate

Characteristics of the Kelk Soil, Occasionally Flooded

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, basin big sagebrush, rubber rabbitbrush, black greasewood

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; 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
Positions on landscape: The lower areas of alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye, inland saltgrass

Inclusion 2
Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan skirts over the higher areas of alluvial flat remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Batan Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Kelk Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Kelk Soil, Occasionally Flooded
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Kelk Soil
Range seeding: Poor—excess salt
Roadfill: Fair—low strength, shrink-swell
Topsoil: Poor—thin layer, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—low strength, frost action, shrink-swell

Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Kelk Soil, Occasionally Flooded
Range seeding: Fair—too arid
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

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Batan soil—VIIs, nonirrigated; Kelk soil—IIs, irrigated, and VIs, nonirrigated; Kelk soil, occasionally flooded—IIw, irrigated, and VIw, nonirrigated
Range site: Batan soil—024X003N; Kelk soil—024X022N; Kelk soil, occasionally flooded—024X006N; Inclusion 1—024X011N; Inclusion 2—028B017N

168—Batan-Bubus-Ocala association

Positions on landscape: Alluvial flats, fan skirts

Composition

Major components:
Batan silt loam, 0 to 2 percent slopes—35 percent
Bubus very fine sandy loam, 0 to 2 percent slopes—35 percent
Ocala silt loam, occasionally flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Kelk silt loam, occasionally flooded, 0 to 2 percent slopes—5 percent
Broyles very fine sandy loam, 0 to 2 percent slopes—5 percent

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 50

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Bubus Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The higher, slightly dissected alluvial flat remnants
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days

Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 6 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 10 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Low, smooth alluvial flats
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, alkali sacaton

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 30 to 46

Depth: 4 to 36 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 20 to 35

Depth: 36 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 35

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in February through May
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 2

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Batan Soil

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Bubus Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Ocala Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Bubus Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ocala Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Batan and Bubus soils—VIIs, nonirrigated; Ocala soil—VIIw, nonirrigated
Range site: Batan and Bubus soils—024X003N; Ocala soil—024X007N; Inclusion 1—024X006N; Inclusion 2—024X002N

169—Batan-Ocala association

Positions on landscape: Basin floors

Composition

Major components:
Batan silt loam, 0 to 2 percent slopes—35 percent
Ocala silty clay loam, occasionally flooded, 0 to 2 percent slopes—25 percent
Ocala silty clay loam, rarely flooded, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Aquic Durorthidic Torriorthents, fine-silty, mixed, mesic, 0 to 2 percent slopes—5 percent
Playas—5 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 8 to 15 percent slopes—5 percent

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,500 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 40 to 50

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable

Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 50

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Ocala Soil, Occasionally Flooded

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The higher alluvial flats near shallow channels
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 6,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, alkali sacaton

Typical Profile

Depth: 0 to 4 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 30 to 50

Depth: 4 to 36 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 20 to 35

Depth: 36 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 35

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in February through May
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Ocala Soil, Rarely Flooded

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower alluvial flats that are subject to ponding
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 6,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye

Typical Profile

Depth: 0 to 6 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 40 to 50 millimhos per centimeter
Sodicity (SAR): 40 to 60

Depth: 6 to 13 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 13 to 60 inches

Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aquic Durorthidic Torriorthents, fine-silty, mixed, mesic
Positions on landscape: Inset fans within alluvial flats
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Positions on landscape: Irregularly shaped depressions and sink areas
Distinctive present vegetation: None

Inclusion 3
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Convex, stabilized sand sheets
Distinctive present vegetation: Wyoming big sagebrush, Thurber needlegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Batan Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Ocala Soil, Occasionally Flooded
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Ocala Soil, Rarely Flooded
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ocala Soil, Occasionally Flooded
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ocala Soil, Rarely Flooded
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Batan soil—VIIs, nonirrigated; Ocala soils—VIIw, nonirrigated
Range site: Batan soil—024X003N; Ocala soil, occasionally flooded—024X007N; Ocala soil, rarely

flooded—024X011N; Inclusion 1—024X006N; Inclusion 2—none; Inclusion 3—024X005N

170—Beoska-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Beoska gravelly sandy loam, 2 to 4 percent slopes—60 percent
Orovada fine sandy loam, rarely flooded, 2 to 8 percent slopes—25 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—7 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—4 percent
Oxcorel very fine sandy loam, 0 to 4 percent slopes—4 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6.8 to 7.8 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fan remnants
Parent material: Loess that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,800 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Broad inset fans
Distinctive present vegetation: Wyoming big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The higher summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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, flooding
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable—excess fines
Gravel: Improbable—excess fines

Interpretive Groups

Land capability classification: Beoska soil—IIIe, irrigated, and VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Beoska soil—024X002N; Orovada soil—028B010N; Inclusion 1—024X020N; Inclusion 2—024X005N; Inclusion 3—024X002N

171—Beoska silt loam, 2 to 8 percent slopes

Positions on landscape: Fan piedmonts

Composition

Major component:
Beoska silt loam, 2 to 8 percent slopes—85 percent
Contrasting inclusions:
Entic Durorthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—5 percent
Broyles very fine sandy loam, 2 to 8 percent slopes—4 percent
Tenabo silt loam, 2 to 8 percent slopes—4 percent
Orovada fine sandy loam, 2 to 8 percent slopes—2 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic

Positions on landscape: Fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 40

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 40 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 40 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Entic Durorthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower inset fans and fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 4
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Drainageways, the higher inset fans
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Beoska soil—IIIe, irrigated; VIIs, nonirrigated
Range site: Beoska soil—024X002N; Inclusions 1, 2, and 3—024X002N; Inclusion 4—024X020N

172—Beoska-Tenabo complex

Positions on landscape: Fan piedmonts

Composition

Major components:
Beoska silt loam, 0 to 2 percent slopes—60 percent
Tenabo silt loam, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—7 percent
Haplic Nadurargids, clayey, montmorillonitic, mesic, shallow, 0 to 2 percent slopes—3 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 10

Depth: 13 to 20 inches

Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 20 to 39 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 39 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.2 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 2
Classification: Haplic Nadurargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The intermediate part of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Tenabo Soil
Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Beoska soil—IIIs, irrigated, and VIIs, nonirrigated; Tenabo soil—IVs, irrigated, and VIIs, nonirrigated
Range site: Beoska and Tenabo soils—024X002N; Inclusion 1—024X020N; Inclusion 2—024X002N

173—Beoska-Allor association

Positions on landscape: Fan piedmonts

Composition

Major components:
Beoska very fine sandy loam, 2 to 8 percent slopes—55 percent

Allor gravelly loam, 8 to 15 percent slopes—30 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—9 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—3 percent
Oxcorel gravelly loam, 2 to 4 percent slopes—3 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 5,200 to 5,900 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4.9 to 6.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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 Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 3
Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The higher summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Beoska soil—IIIe, irrigated, and VIIs, nonirrigated; Allor soil—IVe, irrigated, and VIIc, nonirrigated
Range site: Beoska soil—024X002N; Allor soil—027X008N; Inclusions 1 and 2—024X020N; Inclusion 3—024X002N

174—Beoska-Chiara association

Positions on landscape: Fan piedmonts

Composition

Major components:
Beoska silt loam, 2 to 8 percent slopes—55 percent
Chiara fine sandy loam, 2 to 8 percent slopes—30 percent
Contrasting inclusions:
Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow, 2 to 8 percent slopes—7 percent
Durixerollic Camborthids, fine-loamy, mixed, mesic, 0 to 4 percent slopes—4 percent
Tenabo silt loam, 2 to 8 percent slopes—4 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F

Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: The higher fan piedmont remnants
Parent material: Loess mantle that is high in content of volcanic ash over alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 5 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 16 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Depth: 16 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.4 to 2.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.37; T value—1; 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 Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 2
Classification: Durixerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Chiara Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Chiara Soil
Range seeding: Poor—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

Interpretive Groups

Land capability classification: Beoska soil—IIIe, irrigated, and VIIs, nonirrigated; Chiara soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Beoska soil—024X002N; Chiara soil—024X005N; Inclusion 1—024X020N; Inclusion 2—028B003N; Inclusion 3—024X002N

175—Beoska-Whirlo-Misad association

Positions on landscape: Fan piedmonts

Composition

Major components:
Beoska very fine sandy loam, 0 to 2 percent slopes—30 percent
Whirlo silt loam, 0 to 2 percent slopes—30 percent
Misad gravelly sandy loam, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 2 percent slopes—8 percent
Duric Natrargids, fine-loamy, mixed, mesic, 0 to 2 percent slopes—7 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 24 to 55 inches

Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Whirlo Soil

Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fan remnants
Parent material: Mixed alluvium that includes loess
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 12 to 24 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 24 to 60 inches
Texture: Very gravelly coarse sandy loam
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.9 to 6.1 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Characteristics of the Misad Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 31 inches
Texture: Stratified fine sandy loam to very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable

Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 31 to 60 inches
Texture: Stratified very gravelly loamy sand to extremely gravelly coarse sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 2.9 to 4.1 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Channels
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 2
Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Whirlo Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Misad Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Whirlo Soil
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Misad Soil
Range seeding: Poor—too arid, excess salt
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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Beoska soil—IIIs, irrigated, and VIIs, nonirrigated; Whirlo soil—IIc, irrigated, and VIIc, nonirrigated; Misad soil—IVs, irrigated, and VIIs, nonirrigated
Range site: Beoska, Whirlo, and Misad soils—024X002N; Inclusion 1—024X020N; Inclusion 2—024X002N

177—Beoska-Dewar-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Beoska very fine sandy loam, 4 to 8 percent slopes—40 percent
Dewar gravelly loam, 2 to 8 percent slopes—25 percent
Orovada gravelly very fine sandy loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—7 percent
Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow, 15 to 50 percent slopes—7 percent
Duric Natrargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—6 percent

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Summits and shoulder slopes of fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: Low

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Concave summits and convex shoulder slopes of fan piedmont remnants
Parent material: Loess and mixed silty alluvium that include volcanic ash
Slope: 2 to 8 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 4 to 14 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 14 to 50 inches
Material: Indurated hardpan
Structure: Platy

Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 13 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.7 to 2.3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.37; 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 Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.3 to 9.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; 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, loamy-skeletal, mixed, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Side slopes of rock pediment remnants
Distinctive present vegetation: Shadscale, Wyoming big sagebrush, galleta

Inclusion 3
Classification: Duric Natrargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Dewar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Beoska Soil

Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Dewar Soil

Range seeding: Poor—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

Orovada Soil

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
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

Land capability classification: Beoska soil—IIIe, irrigated, and VIIs, nonirrigated; Dewar soil—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Beoska soil—024X002N; Dewar soil—024X005N; Orovada soil—028B010N; Inclusion 1—024X005N; Inclusion 2—024X045N; Inclusion 3—024X002N

180—Needle Peak-Batan-Yobe association

Positions on landscape: Alluvial flats, fan skirts

Composition

Major components:
Needle Peak silt loam, 0 to 2 percent slopes—40 percent
Batan silt loam, 0 to 2 percent slopes—30 percent
Yobe silt loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Xeric Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—7 percent
Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 2 percent slopes—3 percent

Characteristics of the Needle Peak Soil

Classification: Aquic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Fan skirts and inset fans dissecting alluvial flats and lake plains
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Basin wildrye, rubber rabbitbrush, basin big sagebrush, black greasewood

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Depth: 8 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: 48 to 72 inches
Frequency of flooding: Occasional for brief periods in March through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: High

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Yobe Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Mixed silty lacustrine sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye, rubber rabbitbrush, alkali sacaton

Typical Profile

Depth: 0 to 16 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 16 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 16 to 25 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 36 to 60 inches
Frequency of flooding: Frequent for brief to long periods in January through April
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower fan skirt margins intermingled with alluvial flat remnants
Distinctive present vegetation: Black greasewood, basin wildrye, basin big sagebrush

Inclusion 2
Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: The highest fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Needle Peak Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair
Wetland plants: Fair
Shallow water areas: Fair

Batan Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Yobe Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Needle Peak Soil
Range seeding: Fair—too arid
Roadfill: Poor—low strength
Topsoil: Good
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Yobe Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Needle Peak soil—IIw, irrigated, and VIw, nonirrigated; Batan soil—VIIs, nonirrigated; Yobe soil—VIIw, nonirrigated
Range site: Needle Peak soil—024X006N; Batan soil—024X003N; Yobe soil—024X007N; Inclusion 1—024X022N; Inclusion 2—028B017N

190—Wardenot-Sundown association

Positions on landscape: Fan skirts, inset fans

Composition

Major components:
Wardenot gravelly fine sandy loam, 2 to 4 percent slopes—70 percent
Sundown fine sand, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Typic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—6 percent
Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 4 percent slopes—4 percent

Characteristics of the Wardenot Soil

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, bottlebrush squirreltail, galleta

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter

Sodicity (SAR): 5 to 13

Depth: 5 to 60 inches
Texture: Stratified very gravelly fine sandy loam to extremely cobbly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: A
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Sundown Soil

Classification: Typic Torripsamments, mixed, mesic
Positions on landscape: Sand sheets over fan skirts
Parent material: Mixed alluvium, eolian deposits
Slope: 2 to 4 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 53 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Indian ricegrass, fourwing saltbush, sand dropseed

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sand
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 60 inches
Texture: Loamy fine sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Rapid
Available water capacity: 5.1 to 5.8 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: A
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—1
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The lower margins of fan skirts
Distinctive present vegetation: Shadscale, Bailey greasewood, galleta

Inclusion 2
Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Black sagebrush, bottlebrush squirreltail, shadscale

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wardenot Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Sundown Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

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

Sundown Soil
Range seeding: Poor—too arid, droughty, too sandy
Roadfill: Good
Topsoil: Poor—too sandy
Daily cover for landfill: Fair—too sandy

Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Wardenot soil—IVe, irrigated, and VIIc, nonirrigated; Sundown soil—IVs, irrigated, and VIIs, nonirrigated
Range site: Wardenot soil—029X017N; Sundown soil—029X012N; Inclusion 1—029X017N; Inclusion 2—028B011N

191—Wardenot-Laxal association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Wardenot gravelly fine sandy loam, 2 to 4 percent slopes—50 percent
Laxal very gravelly fine sandy loam, occasionally flooded, 2 to 4 percent slopes—25 percent
Wardenot gravelly fine sandy loam, strongly saline, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Unsel gravelly fine sandy loam, 0 to 2 percent slopes—6 percent
Typic Torriorthents, fine-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—4 percent

Characteristics of the Wardenot Soil

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Broad fan skirts
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, bottlebrush squirreltail, galleta

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 13

Depth: 5 to 60 inches
Texture: Stratified very gravelly fine sandy loam to extremely cobbly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: A
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Laxal Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Parent material: Alluvium derived from shale and volcanic rock
Slope: 2 to 4 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 10 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline

Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in July through September
Permeability: Moderately rapid
Available water capacity: 3.9 to 5.3 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Wardenot Soil, Strongly Saline

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Narrow, lower margins of fan skirts
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail, galleta

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 25 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 5 to 60 inches
Texture: Stratified very gravelly fine sandy loam and extremely cobbly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.9 to 5.2 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: A
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Distinctive present vegetation: Shadscale, Bailey greasewood, galleta

Inclusion 2

Classification: Typic Torriorthents, fine-loamy, mixed (calcareous), mesic
Positions on landscape: Adjacent alluvial flats
Distinctive present vegetation: Black greasewood, seepweed, inland saltgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wardenot Soil

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Laxal Soil

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Wardenot Soil, Strongly Saline

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Wardenot Soil

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

Gravel: Probable source

Laxal Soil
Range seeding: Poor—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: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

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

Restrictive Features for Selected Practices

Laxal Soil
Drainage: Deep to water
Irrigation: Droughty, flooding, slope
Terraces and diversions: Too sandy

Interpretive Groups

Land capability classification: Wardenot soil—IVe, irrigated, and VIIc, nonirrigated; Laxal soil—IVw, irrigated, and VIIw, nonirrigated; Wardenot soil, strongly saline—VIIs, nonirrigated
Range site: Wardenot and Laxal soils—029X017N; Wardenot soil, strongly saline—024X003N; Inclusion 1—029X017N; Inclusion 2—028B020N

200—Izo-Misad association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Izo very gravelly loamy sand, 2 to 4 percent slopes—60 percent
Misad gravelly sandy loam, 2 to 4 percent slopes—30 percent
Contrasting inclusions:
Unsel gravelly fine sandy loam, 0 to 2 percent slopes—6 percent
Durorthidic Torriorthents, fine-loamy, mixed (calcareous), mesic—4 percent

Characteristics of the Izo Soil

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Inset fans, areas adjacent to channels
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Galleta, bottlebrush squirreltail, shadscale, Bailey greasewood

Typical Profile

Depth: 0 to 2 inches
Texture: Very gravelly loamy sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 2 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Rapid
Available water capacity: 1.2 to 2.4 inches
Water-supplying capacity: 5 inches
Runoff: Slow
Hydrologic group: A
Erosion factors (upper layer): K value—0.05; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Misad Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 31 inches
Texture: Stratified fine sandy loam to very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 31 to 60 inches
Texture: Stratified very gravelly loamy sand to extremely gravelly coarse sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 2.9 to 4.1 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Distinctive present vegetation: Shadscale, Bailey greasewood, galleta

Inclusion 2
Classification: Durorthidic Torriorthents, fine-loamy, mixed (calcareous), mesic
Positions on landscape: Adjacent alluvial flat remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Izo Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Misad Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Izo Soil
Range seeding: Poor—too arid, droughty, 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—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Misad Soil
Range seeding: Poor—too arid, excess salt
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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Izo soil—VIIs, nonirrigated; Misad soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Izo soil—029X017N; Misad soil—024X002N; Inclusion 1—029X017N; Inclusion 2—024X003N

201—Izo-Bubus association

Positions on landscape: Fan skirts, alluvial flats

Composition

Major components:
Izo gravelly loam, 0 to 4 percent slopes—65 percent
Bubus very gravelly very fine sandy loam, eroded, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Batan silt loam, 0 to 2 percent slopes—7 percent
Playas—3 percent

Characteristics of the Izo Soil

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 0 to 4 percent
Elevation: 5,500 to 5,600 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Galleta, bottlebrush squirreltail, shadscale, Bailey greasewood

Typical Profile

Depth: 0 to 2 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 2 to 60 inches
Texture: Stratified gravelly loamy sand to very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Rapid
Available water capacity: 1.4 to 2.6 inches
Water-supplying capacity: 5 inches
Runoff: Slow
Hydrologic group: A
Erosion factors (upper layer): K value—0.37; 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: Low

Characteristics of the Bubus Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,500 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 4 inches
Texture: Very gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 4 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.6 to 9.9 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—5

Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants near areas of Playas
Distinctive present vegetation: Shadscale, seepweed, black greasewood

Inclusion 2
Positions on landscape: Small sink areas
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Izo Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Bubus Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Izo Soil
Range seeding: Poor—too arid, droughty
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
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Bubus Soil
Range seeding: Poor—too arid, small stones, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Izo and Bubus soils—VIIs, nonirrigated
Range site: Izo soil—029X017N; Bubus soil—024X003N; Inclusion 1—024X003N; Inclusion 2—none

210—Laxal association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Laxal gravelly fine sandy loam, 2 to 4 percent slopes—65 percent
Laxal very gravelly fine sandy loam, occasionally flooded, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—7 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 4 percent slopes—5 percent
Durorthidic Torriorthents, fine-loamy, mixed (calcareous), mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Laxal Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Alluvium derived from shale and volcanic rock
Slope: 2 to 4 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose

Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 8 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Laxal Soil, Occasionally Flooded

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Parent material: Alluvium derived from shale and volcanic rock
Slope: 2 to 4 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 10 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in July through September
Permeability: Moderately rapid
Available water capacity: 3.9 to 5.3 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: The upper margins of fan skirts
Distinctive present vegetation: Black sagebrush, needleandthread, spiny hopsage

Inclusion 2
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Adjacent to channels
Distinctive present vegetation: Basin big sagebrush, spiny hopsage, needleandthread

Inclusion 3
Classification: Durorthidic Torriorthents, fine-loamy, mixed (calcareous), mesic
Positions on landscape: The lower margins of fan skirts
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Laxal Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Laxal Soil, Occasionally Flooded
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Laxal Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding

Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Laxal Soil, Occasionally Flooded
Range seeding: Poor—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: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Restrictive Features for Selected Practices

Laxal Soil
Drainage: Deep to water
Irrigation: Droughty, slope, excess salt
Terraces and diversions: Too sandy

Laxal Soil, Occasionally Flooded
Drainage: Deep to water
Irrigation: Droughty, flooding
Terraces and diversions: Too sandy

Interpretive Groups

Land capability classification: Laxal soil—IVs, irrigated, and VIIs, nonirrigated; Laxal soil, occasionally flooded—IVw, irrigated, and VIIw, nonirrigated
Range site: Laxal soils—029X017N; Inclusion 1—029X008N; Inclusion 2—028B009N; Inclusion 3—024X003N

211—Laxal gravelly fine sandy loam, occasionally flooded, 0 to 2 percent slopes

Positions on landscape: Fan skirts

Composition

Major component:
Laxal gravelly fine sandy loam, occasionally flooded, 0 to 2 percent slopes—90 percent
Contrasting inclusions:
Typic Torriorthents, sandy-skeletal, mixed (calcareous), mesic, frequently flooded, 0 to 2 percent slopes—7 percent
Xeric Torriorthents, sandy-skeletal, mixed (calcareous), mesic, frequently flooded, 0 to 2 percent slopes—3 percent

Characteristics of the Laxal Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Alluvium derived from shale and volcanic rock
Slope: 0 to 2 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in July through September
Permeability: Moderately rapid
Available water capacity: 3.9 to 5.3 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Torriorthents, sandy-skeletal, mixed (calcareous), mesic
Positions on landscape: Areas adjacent to channels

Distinctive present vegetation: Basin big sagebrush, rubber rabbitbrush, spiny hopsage

Inclusion 2

Classification: Xeric Torriorthents, sandy-skeletal, mixed (calcareous), mesic
Positions on landscape: Stable areas adjacent to channels
Distinctive present vegetation: Basin big sagebrush, spiny hopsage, needleandthread

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—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: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Restrictive Features for Selected Practices

Drainage: Deep to water
Irrigation: Droughty, flooding
Terraces and diversions: Too sandy

Interpretive Groups

Land capability classification: Laxal soil—IIIw, irrigated, and VIIw, nonirrigated
Range site: Laxal soil—029X017N; Inclusion 1—028B009N; Inclusion 2—029X008N

212—Laxal-Tomel association

Positions on landscape: Fan piedmonts

Composition

Major components:
Laxal gravelly fine sandy loam, 2 to 4 percent slopes—40 percent
Tomel gravelly fine sandy loam, 2 to 4 percent slopes—25 percent
Laxal gravelly fine sandy loam, occasionally flooded, 2 to 4 percent slopes—20 percent

Contrasting inclusions:
Entic Durorthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—6 percent
Xeric Torriorthents, sandy-skeletal, mixed (calcareous), mesic, 2 to 4 percent slopes—5 percent
Durorthidic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 4 percent slopes—4 percent

Characteristics of the Laxal Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fan remnants
Parent material: Alluvium derived from shale and volcanic rock
Slope: 2 to 4 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 8 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 6 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low

Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Tomel Soil

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Fan piedmont remnants
Parent material: Alluvium derived from limestone, shale, and chert
Slope: 2 to 4 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Galleta, bottlebrush squirreltail, shadscale, Bailey greasewood

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 18 inches
Texture: Very gravelly clay loam, very gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 18 to 33 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 33 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.2 to 2.3 inches
Water-supplying capacity: 5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Laxal Soil, Occasionally Flooded

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Parent material: Alluvium derived from shale and volcanic rock
Slope: 2 to 4 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in July through September
Permeability: Moderately rapid
Available water capacity: 3.9 to 5.3 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low

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

Contrasting Inclusions

Inclusion 1
Classification: Entic Durorthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Black sagebrush, shadscale, bottlebrush squirreltail

Inclusion 2
Classification: Xeric Torriorthents, sandy-skeletal, mixed (calcareous), mesic
Positions on landscape: Adjacent to channels in the higher areas of the unit
Distinctive present vegetation: Black sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 3
Classification: Durorthidic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Adjacent to channels in the lower areas of the unit
Distinctive present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Laxal Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Tomel Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Laxal Soil, Occasionally Flooded
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Laxal Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Tomel Soil
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, too sandy, small stones
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Probable source
Gravel: Probable source

Laxal Soil, Occasionally Flooded
Range seeding: Poor—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: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Restrictive Features for Selected Practices

Laxal Soil
Drainage: Deep to water
Irrigation: Droughty, slope, excess salt
Terraces and diversions: Too sandy

Laxal Soil, Occasionally Flooded
Drainage: Deep to water
Irrigation: Droughty, flooding, slope
Terraces and diversions: Too sandy

Interpretive Groups

Land capability classification: Laxal soil—IVs, irrigated, and VIIs, nonirrigated; Tomel soil—VIIs, nonirrigated; Laxal soil, occasionally flooded—IIIw, irrigated, and VIIw, nonirrigated
Range site: Laxal and Tomel soils—029X017N; Inclusion 1—024X003N; Inclusion 2—029X008N; Inclusion 3—029X009N

220—Blackhawk very fine sandy loam, 2 to 8 percent slopes

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major component:
Blackhawk very fine sandy loam, 2 to 8 percent slopes—85 percent

Contrasting inclusions:
Durorthidic Xeric Torrifluvents, sandy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—10 percent
Broyles very fine sandy loam, moderately saline, 2 to 8 percent slopes—3 percent
Orovada fine sandy loam, 2 to 8 percent slopes—2 percent

Characteristics of the Blackhawk Soil

Classification: Entic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 8 percent
Elevation: 4,800 to 5,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 8 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 14 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 17 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 17 to 38 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 38 to 60
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Xeric Torrifluvents, sandy-skeletal, mixed (calcareous), mesic
Positions on landscape: Narrow inset fans, areas adjacent to channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye, rubber rabbitbrush

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Dissected fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Broad inset fans
Dominant present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid, droughty
Roadfill: Good
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan

Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Blackhawk soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Blackhawk soil—024X002N; Inclusion 1—028B009N; Inclusion 2—024X020N; Inclusion 3—024X003N

221—Blackhawk-Tenabo-Desatoya Variant association

Positions on landscape: Fan piedmonts

Composition

Major components:
Blackhawk very fine sandy loam, 8 to 15 percent slopes—40 percent
Tenabo very fine sandy loam, 2 to 4 percent slopes—25 percent
Desatoya Variant very gravelly sandy loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Grassval gravelly loam, 2 to 4 percent slopes—6 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—5 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—4 percent

Characteristics of the Blackhawk Soil

Classification: Entic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Shoulder slopes of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 8 to 15 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 8 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 14 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 17 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 17 to 38 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 16 to 25 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 38 to 60
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants

Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,500 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 10

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 15 to 28 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.2 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.55; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Desatoya Variant Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 30 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 45 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 13 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 26 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 26 to 60 inches
Texture: Very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None

Permeability: Moderate over rapid
Available water capacity: 2.8 to 4.4 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher summits of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: East-, west-, and north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Dominant present vegetation: Wyoming big sagebrush, pine bluegrass, needleandthread

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Blackhawk Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Desatoya Variant Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Blackhawk Soil
Range seeding: Poor—too arid, droughty
Roadfill: Good
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan, slope
Pond reservoir areas: Severe—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Probable source
Gravel: Probable source

Tenabo Soil
Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Desatoya Variant Soil
Range seeding: Poor—small stones
Roadfill: Fair—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

Land capability classification: Blackhawk and Tenabo soils—IVe, irrigated, and VIIs, nonirrigated; Desatoya Variant soil—VIIs, nonirrigated
Range site: Blackhawk and Tenabo soils—024X002N; Desatoya Variant soil—024X030N; Inclusion 1—024X030N; Inclusion 2—024X045N; Inclusion 3—027X008N

231—Broyles very fine sandy loam, 2 to 4 percent slopes

Positions on landscape: Fan skirts

Composition

Major component:
Broyles very fine sandy loam, 2 to 4 percent slopes—85 percent
Contrasting inclusions:
Entic Durorthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—5 percent
Creemon silt loam, 2 to 4 percent slopes—5 percent
Orovada fine sandy loam, 2 to 4 percent slopes—5 percent

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 11 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 11 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Entic Durorthids, coarse-loamy, mixed, mesic
Positions on landscape: Adjoining fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The lower fan skirt margins near old channels
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

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

Interpretive Groups

Land capability classification: Broyles soil—IIe, irrigated, and VIIc, nonirrigated
Range site: Broyles soil—024X002N; Inclusions 1 and 2—024X002N; Inclusion 3—024X020N

235—Broyles-Creemon association

Positions on landscape: Fan skirts

Composition

Major components:
Broyles silt loam, 0 to 2 percent slopes—45 percent
Creemon silt loam, 0 to 2 percent slopes—40 percent
Contrasting inclusions:
Bubus very fine sandy loam, 0 to 2 percent slopes—7 percent
Beoska silt loam, 0 to 2 percent slopes—6 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher fan skirts
Parent material: Thin loess mantle over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,100 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 11 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The lower fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 18 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 18 to 60 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The lower channeled margins of adjacent alluvial flats
Distinctive present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Inclusion 2
Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Adjacent to the lower fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Broyles Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Creemon Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Broyles soil—IIs, irrigated, and VIIc, nonirrigated; Creemon soil—IIc, irrigated, and VIIc, nonirrigated
Range site: Broyles and Creemon soils—024X002N; Inclusion 1—024X003N; Inclusion 2—024X002N; Inclusion 3—024X020N

236—Broyles association

Positions on landscape: Fan skirts

Composition

Major components:
Broyles very fine sandy loam, 2 to 8 percent slopes—45 percent
Broyles very fine sandy loam, moderately saline, 2 to 4 percent slopes—40 percent
Contrasting inclusions:
Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 2 to 8 percent slopes—5 percent
Creemon very fine sandy loam, 2 to 8 percent slopes—5 percent
Orovada fine sandy loam, 2 to 8 percent slopes—5 percent

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy

Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Broyles Soil, Moderately Saline

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower fan skirt margins near alluvial flats
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 5 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 10 to 20

Depth: 5 to 11 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 10 to 20

Depth: 11 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.1 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Inset fans on the lower part of fan skirts
Distinctive present vegetation: Wyoming big sagebrush, black greasewood, basin wildrye

Inclusion 2
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Convex, lower fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans on the upper part of fan skirts
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Broyles Soil, Moderately Saline
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Broyles Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Broyles Soil, Moderately Saline
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones, excess salt
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Broyles soil—IIIe, irrigated, and VIIc, nonirrigated; Broyles soil, moderately saline—IIIs, irrigated, and VIIs, nonirrigated
Range site: Broyles soil—024X002N; Broyles soil, moderately saline—024X003N; Inclusion 1—024X022N; Inclusion 2—024X002N; Inclusion 3—024X020N

237—Broyles-Beoska-Orovada association

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major components:
Broyles very fine sandy loam, 2 to 4 percent slopes—40 percent
Beoska very fine sandy loam, 2 to 8 percent slopes—30 percent
Orovada fine sandy loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent
Tenabo very fine sandy loam, 2 to 8 percent slopes—5 percent

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,100 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 11 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 11 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants

Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,100 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Adjacent to channels
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 2
Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Broyles Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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

Interpretive Groups

Land capability classification: Broyles soil—IIe, irrigated, and VIIc, nonirrigated; Beoska soil—IIIe, irrigated, and VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Broyles and Beoska soils—024X002N; Orovada soil—028B010N; Inclusion 1—024X020N; Inclusion 2—024X002N

239—Broyles-Tessfive-Perlor association

Positions on landscape: Low, rolling hills

Composition

Major components:
Broyles very fine sandy loam, 4 to 8 percent slopes—40 percent
Tessfive gravelly loam, 2 to 8 percent slopes—25 percent
Perlor fine sandy loam, 8 to 15 percent slopes—20 percent
Contrasting inclusions:
Duric Camborthids, coarse-loamy, mixed, mesic, 4 to 8 percent slopes—7 percent
Puett fine sandy loam, 15 to 30 percent slopes—6 percent
Orovada fine sandy loam, 0 to 2 percent slopes—2 percent

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans between hills
Parent material: Thin loess mantle over mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Tessfive Soil

Classification: Lithic Xeric Torriorthents, loamy, mixed (calcareous), mesic
Positions on landscape: Crests and shoulder slopes of rolling hills
Parent material: Residuum that is derived from tuffaceous sediment and includes loess
Slope: 2 to 8 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 35 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 16 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.8 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Perlor Soil

Classification: Typic Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Side slopes of rolling hills
Parent material: Loess-capped residuum derived from tuffaceous sediment
Slope: 8 to 15 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 14 inches
Texture: Loam, sandy loam, gravelly sandy loam
Structure: Subangular blocky

Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 14 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans dissecting low hills
Distinctive present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Eroded escarpments of hills
Distinctive present vegetation: Black sagebrush, bluegrass, small rabbitbrush, Wyoming big sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent to channels
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Tessfive Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Perlor Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Broyles Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Tessfive Soil
Range seeding: Poor—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: Moderate—depth to rock, frost action
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Perlor Soil
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
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

Land capability classification: Broyles soil—IIIe, irrigated, and VIIc, nonirrigated; Tessfive and Perlor soils—VIIs, nonirrigated
Range site: Broyles soil—024X002N; Tessfive soil—024X030N; Perlor soil—024X002N; Inclusion 1—024X003N; Inclusion 2—025X025N; Inclusion 3—024X020N

249—Bubus association

Positions on landscape: Basin floors

Composition

Major components:
Bubus very fine sandy loam, slightly saline, 2 to 4 percent slopes—65 percent
Bubus very fine sandy loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Typic Torriorthents, sandy-skeletal, mixed, mesic, 0 to 4 percent slopes—7 percent
Batan silt loam, 0 to 2 percent slopes—5 percent
Playas—3 percent

Characteristics of the Bubus Soil, Slightly Saline

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Convex, higher lake plain terraces
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 2 to 4 percent
Elevation: 5,800 to 6,300 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 6 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 10 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Bubus Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Concave, lower lake plain terraces
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 6 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 10 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Offshore bars
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats adjacent to areas of Playas
Distinctive present vegetation: Shadscale, black greasewood, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Positions on landscape: Irregularly shaped sink areas
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Bubus Soil, Slightly Saline
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Bubus Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Bubus Soil, Slightly Saline
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
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, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Bubus Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Bubus soil, slightly saline—IIc, irrigated, and VIIc, nonirrigated; Bubus soil—VIIs, nonirrigated
Range site: Bubus soil, slightly saline—024X002N; Bubus soil—024X003N; Inclusion 1—024X002N; Inclusion 2—024X003N; Inclusion 3—none

260—Umberland-Wendane association

Positions on landscape: Lake plains, alluvial flats

Composition

Major components:
Umberland silt loam, 0 to 2 percent slopes—50 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—40 percent
Contrasting inclusions:
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—7 percent
Wendane silt loam, strongly sodic, 0 to 2 percent slopes—3 percent

Characteristics of the Umberland Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: Smooth lake plains
Parent material: Silty lacustrine sediment derived from various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, alkali sacaton, sickle saltbush

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 60 to 80

Depth: 11 to 60 inches
Texture: Clay, silty clay, silty clay loam
Structure: Angular blocky

Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 30 to 60 inches
Frequency of flooding: Rare
Permeability: Very slow
Available water capacity: 9.1 to 12.0 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Slightly dissected, convex alluvial flats
Distinctive present vegetation: Black greasewood, inland saltgrass

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Concave, narrow, linear areas bordering recent channels
Distinctive present vegetation: Silver buffaloberry, Torrey quailbush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated pasture

Suitability for Wildlife Habitat Elements

Umberland Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Umberland Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium, too clayey

Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Umberland Soil

Drainage: Percs slowly, frost action, excess salt
Irrigation: Wetness, percs slowly
Terraces and diversions: Erodes easily, wetness, percs slowly

Interpretive Groups

Land capability classification: Umberland and Wendane soils—VIIw, nonirrigated
Range site: Umberland soil—024X010N; Wendane soil—024X007N; Inclusion 1—024X011N; Inclusion 2—028B057N

261—Umberland-Wendane-Ocala association

Positions on landscape: Lake plains, alluvial flats

Composition

Major components:
Umberland silt loam, 0 to 2 percent slopes—35 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—35 percent
Ocala silt loam, rarely flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Wendane silt loam, strongly sodic, 0 to 2 percent slopes—6 percent
Playas—4 percent

Characteristics of the Umberland Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: Smooth lake plains
Parent material: Silty lacustrine sediment derived from various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, alkali sacaton, sickle saltbush

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 60 to 80

Depth: 7 to 60 inches
Texture: Clay, silty clay, silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 30 to 60 inches
Frequency of flooding: Rare
Permeability: Very slow
Available water capacity: 9 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Ponded
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches

Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye, rubber rabbitbrush, Torrey quailbush

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Slightly dissected alluvial flats around small Playas
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 40 to 50 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 4 to 16 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 16 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Concave, narrow areas adjacent to channels
Distinctive present vegetation: Silver buffaloberry, Torrey quailbush, basin wildrye

Inclusion 2

Positions on landscape: Small, irregularly shaped sink areas

Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated pasture

Suitability for Wildlife Habitat Elements

Umberland Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Ocala Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Umberland Soil
Range seeding: Poor—excess salt, excess sodium, too crusty
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium, too clayey
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ocala Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Umberland Soil
Drainage: Percs slowly, frost action, excess salt
Irrigation: Wetness, percs slowly
Terraces and diversions: Erodes easily, wetness, percs slowly

Interpretive Groups

Land capability classification: Umberland, Wendane, and Ocala soils—VIIw, nonirrigated
Range site: Umberland soil—024X010N; Wendane soil—024X007N; Ocala soil—024X011N; Inclusion 1—028B057N; Inclusion 2—none

262—Umberland silt loam, frequently flooded, 0 to 2 percent slopes

Positions on landscape: Alluvial flats

Composition

Major component:
Umberland silt loam, frequently flooded, 0 to 2 percent slopes—90 percent
Contrasting inclusions:
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—6 percent
Needle Peak silt loam, occasionally flooded, 0 to 2 percent slopes—3 percent
Wendane silt loam, strongly sodic, 0 to 2 percent slopes—1 percent

Characteristics of the Umberland Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty lacustrine sediment derived from various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,500 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Alkali sacaton, alkali cordgrass, inland saltgrass

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Granular

Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 7 to 60 inches
Texture: Silty clay, silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: 30 to 60 inches
Frequency of flooding: Frequent for long periods in December through June
Permeability: Very slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 11 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Convex alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Aquic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Fan skirts over alluvial flats
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 3
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Narrow linear areas adjacent to recent channels
Distinctive present vegetation: Silver buffaloberry, Torrey quailbush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated pasture

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium, too clayey
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness, flooding
Local roads and streets: Severe—low strength, flooding, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Drainage: Percs slowly, frost action, flooding
Irrigation: Wetness, percs slowly
Terraces and diversions: Erodes easily, wetness, percs slowly

Interpretive Groups

Land capability classification: Umberland soil—VIIw, nonirrigated
Range site: Umberland soil—028B002N; Inclusion 1—024X007N; Inclusion 2—024X006N; Inclusion 3—028B057N

270—Tomel-Laxal association

Positions on landscape: Fan piedmonts

Composition

Major components:
Tomel very gravelly sandy loam, 2 to 8 percent slopes—60 percent
Laxal gravelly loam, 2 to 8 percent slopes—30 percent
Contrasting inclusions:
Izo gravelly sandy loam, 4 to 8 percent slopes—5 percent
Entic Durorthids, loamy-skeletal, mixed, mesic, 4 to 8 percent slopes—5 percent

Characteristics of the Tomel Soil

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Fan piedmont remnants
Parent material: Alluvium derived from limestone, shale, and chert

Slope: 2 to 8 percent
Elevation: 5,600 to 6,200 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Galleta, bottlebrush squirreltail, shadscale, Bailey greasewood

Typical Profile

Rock fragments on surface: 65 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 3 to 12 inches
Texture: Very gravelly clay loam, very gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 12 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 1.4 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Laxal Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Parent material: Alluvium derived from shale and volcanic rock
Slope: 2 to 8 percent
Elevation: 5,600 to 6,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, galleta

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly loamy coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 8 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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: Low

Contrasting Inclusions

Inclusion 1

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Areas adjacent to active channels

Distinctive present vegetation: Basin big sagebrush, burrobrush, bluegrass

Inclusion 2

Classification: Entic Durorthids, loamy-skeletal, mixed, mesic

Positions on landscape: Convex, higher areas on fan piedmont remnants

Distinctive present vegetation: Black sagebrush, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Tomel Soil

Wild herbaceous plants (nonirrigated): Poor

Shrubs (nonirrigated): Poor

Laxal Soil

Wild herbaceous plants (nonirrigated): Very poor

Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Tomel Soil

Range seeding: Poor—too arid, droughty, small stones

Roadfill: Poor—cemented pan

Topsoil: Poor—cemented pan, too sandy, small stones

Daily cover for landfill: Poor—cemented pan, seepage, too sandy

Shallow excavations: Severe—cemented pan, cutbanks cave

Local roads and streets: Severe—cemented pan

Pond reservoir areas: Severe—seepage, cemented pan

Embankments, dikes, and levees: Severe—seepage, excess salt

Sand: Probable source

Gravel: Probable source

Laxal Soil

Range seeding: Poor—too arid

Roadfill: Good

Topsoil: Poor—small stones, area reclaim

Daily cover for landfill: Poor—small stones

Shallow excavations: Severe—cutbanks cave

Local roads and streets: Moderate—flooding

Pond reservoir areas: Severe—seepage

Embankments, dikes, and levees: Severe—seepage, excess salt

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Tomel soil—VIIs, nonirrigated; Laxal soil—IVe, irrigated, and VIIs, nonirrigated

Range site: Tomel and Laxal soils—029X017N; Inclusion 1—029X009N; Inclusion 2—029X008N

280—Chiara-Filiran association

Positions on landscape: Fan piedmonts

Composition

Major components:

Chiara gravelly loam, 2 to 8 percent slopes—45 percent

Filiran very gravelly loam, 2 to 4 percent slopes—40 percent

Contrasting inclusions:

Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—7 percent

Entic Durorthids, loamy, mixed, mesic, shallow, 2 to 4 percent slopes—4 percent

Duric Camborthids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—4 percent

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow

Positions on landscape: The higher summits of fan piedmont remnants

Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium

Slope: 2 to 8 percent

Elevation: 5,200 to 5,700 feet

Average annual precipitation: About 9 inches

Average annual air temperature: About 48 degrees F

Frost-free season: About 110 days

Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 5 inches

Texture: Gravelly loam

Structure: Platy

Consistence: Soft, very friable

Reaction: Moderately alkaline

Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 16 inches

Texture: Silt loam, loam

Structure: Subangular blocky

Consistence: Slightly hard, friable

Reaction: Moderately alkaline

Salinity: 2 to 4 millimhos per centimeter

Depth: 16 inches

Material: Indurated hardpan

Structure: Massive

Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.3 to 2.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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 Filiran Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: The lower, broad summits of slightly dissected fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,200 to 5,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 12 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 33 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 33 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 4.5 to 5.5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, narrow inset fans
Distinctive present vegetation: Wyoming big sagebrush, bluegrass, Thurber needlegrass

Inclusion 2

Classification: Entic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Toe slopes of fan piedmont remnants at the lower elevations
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3

Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, shadscale, bluegrass, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Chiara Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Filiran Soil

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Chiara Soil

Range seeding: Poor—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

Filiran Soil

Range seeding: Poor—small stones, excess sodium
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—shrink-swell, low strength
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Chiara soil—IVe, irrigated, and VIIs, nonirrigated; Filiran soil—VIIs, nonirrigated
Range site: Chiara and Filiran soils—028B010N; Inclusion 1—028B010N; Inclusion 2—024X002N; Inclusion 3—024X045N

284—Chiara-Dewar association

Positions on landscape: Fan piedmonts

Composition

Major components:
Chiara gravelly loam, 2 to 8 percent slopes—55 percent
Dewar gravelly loam, 2 to 8 percent slopes—30 percent
Contrasting inclusions:
Orovada gravelly loam, 2 to 8 percent slopes—9 percent
Typic Durargids, loamy, mixed, mesic, shallow, 2 to 8 percent slopes—3 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—3 percent

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: The lower fan piedmont remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

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

Depth: 5 to 16 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Depth: 16 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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 Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher fan piedmont remnants
Parent material: Loess and mixed silty alluvium that include volcanic ash

Slope: 2 to 8 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 14 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 to 50 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 13 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.7 to 2.3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.37; 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: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, Thurber needlegrass, bluegrass

Inclusion 2
Classification: Typic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex, dissected fan aprons
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Toe slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, needlegrass, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Chiara Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Dewar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Chiara Soil
Range seeding: Poor—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

Dewar Soil
Range seeding: Poor—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

Interpretive Groups

Land capability classification: Chiara and Dewar soils—IVe, irrigated, and VIIs, nonirrigated
Range site: Chiara and Dewar soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B017N; Inclusion 3—028B010N

290—Creemon silt loam, 0 to 2 percent slopes

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major component:
Creemon silt loam, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Broyles very fine sandy loam, 0 to 2 percent slopes—5 percent
Relley silt loam, 0 to 2 percent slopes—5 percent
Wholan very fine sandy loam, 0 to 2 percent slopes—5 percent

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 6,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 10 to 15 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 15 to 60 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Duric Camborthids, fine-silty, mixed, mesic
Positions on landscape: The lower fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan aprons, inset fans
Distinctive present vegetation: Winterfat, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Drainage: Deep to water

Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Creemon soil—IIc, irrigated, and VIIc, nonirrigated
Range site: Creemon soil—024X002N; Inclusions 1 and 2—024X002N; Inclusion 3—024X004N

291—Creemon-Wholan association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Creemon silt loam, 0 to 2 percent slopes—50 percent
Wholan silt loam, 0 to 2 percent slopes—20 percent
Wholan silt loam, alkaline, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Caphor very fine sandy loam, 0 to 2 percent slopes—7 percent
Batan silt loam, 0 to 2 percent slopes—4 percent
Rasille silt loam, 0 to 2 percent slopes—4 percent

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Smooth fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 15 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 15 to 60 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Smooth inset fans
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Characteristics of the Wholan Soil, Alkaline

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Slightly dissected
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Adjacent alluvial flat remnants near the lower lying areas
Distinctive present vegetation: Shadscale, black greasewood

Inclusion 3
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Shallow fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, bluegrass, needlegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Wholan Soil, Alkaline
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Creemon Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt

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

Wholan Soil
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wholan Soil, Alkaline
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Wholan Soil
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Wholan Soil, Alkaline
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Creemon, Wholan, and Wholan, alkaline, soils—IIc, irrigated, and VIIc, nonirrigated
Range site: Creemon soil—024X002N; Wholan soil—024X004N; Wholan soil, alkaline—024X012N; Inclusion 1—028B017N; Inclusion 2—024X003N; Inclusion 3—028B010N

295—Creemon-Cren association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Creemon silt loam, 0 to 2 percent slopes—55 percent
Cren silt loam, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Typic Torriorthents, coarse-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 10 to 15 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 15 to 60 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None

Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Characteristics of the Cren Soil

Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Inset fans
Parent material: Mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 26 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 2
Classification: Typic Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: The lower margins of fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Active channel banks
Distinctive present vegetation: Big sagebrush, black greasewood, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Cren Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Creemon Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Cren Soil
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Fair—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Cren Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Creemon and Cren soils—IIc, irrigated, and VIIc, nonirrigated
Range site: Creemon and Cren soils—024X002N; Inclusion 1—024X006N; Inclusion 2—024X003N; Inclusion 3—024X041N

296—Creemon-Hessing association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Creemon silt loam, 0 to 2 percent slopes—65 percent
Hessing silt loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Durixerollic Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—8 percent
Duric Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—4 percent
Typic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—3 percent

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Convex fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 10 to 15 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 15 to 60 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Characteristics of the Hessing Soil

Classification: Typic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Broad inset fans
Parent material: Loess and silty alluvium that include volcanic ash
Slope: 0 to 2 percent

Elevation: 5,100 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 11 inches
Texture: Silty clay loam, silt loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 11 to 18 inches
Texture: Very fine sandy loam, silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 18 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 30 to 60
Texture: Very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6.4 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—3; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Channel banks
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirt margins
Distinctive present vegetation: Shadscale, winterfat, bud sagebrush

Inclusion 3
Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Channels
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Hessing Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Creemon Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Hessing Soil
Range seeding: Poor—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, excess salt
Sand: Probable source
Gravel: Probable source

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Hessing Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily, too sandy

Interpretive Groups

Land capability classification: Creemon soil—IIc, irrigated, and VIIc, nonirrigated; Hessing soil—IIs, irrigated, and VIIs, nonirrigated
Range site: Creemon and Hessing soils—024X002N; Inclusion 1—024X020N; Inclusion 2—024X014N; Inclusion 3—024X002N

297—Creemon-Rasille-Tulase association

Positions on landscape: Fan skirts, the lower fan piedmonts

Composition

Major components:
Creemon silt loam, 0 to 2 percent slopes—45 percent
Rasille very fine sandy loam, 0 to 2 percent slopes—20 percent
Tulase very fine sandy loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Batan very fine sandy loam, 0 to 2 percent slopes—5 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—5 percent

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The lower fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 15 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 15 to 60 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Concave inset fans
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent

Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tulase Soil

Classification: Durorthidic Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: The upper fan skirts
Parent material: Mixed silty alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 6 to 60 inches
Texture: Very fine sandy loam, silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Convex, lower fan skirt margins
Distinctive present vegetation: Shadscale

Inclusion 2
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Big sagebrush, bluegrass, rabbitbrush

Inclusion 3
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Adjacent remnant beaches and offshore bars
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Tulase Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Creemon Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
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

Tulase Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Good
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

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Rasille Soil
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily
Terraces and diversions: Erodes easily, soil blowing

Tulase Soil
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Creemon soil—IIc, irrigated, and VIIc, nonirrigated; Rasille and Tulase soils—IIc, irrigated, and VIc, nonirrigated
Range site: Creemon soil—024X003N; Rasille soil—024X0041N; Tulase soil—024X020N; Inclusion 1—024X003N; Inclusion 2—024X041N; Inclusion 3—024X020N

298—Creemon-Misad association

Positions on landscape: Bolson floors

Composition

Major components:
Creemon silt loam, 0 to 2 percent slopes—60 percent
Misad gravelly sandy loam, 2 to 4 percent slopes—25 percent
Contrasting inclusions:
Broyles very fine sandy loam, 0 to 2 percent slopes—5 percent
Batan silt loam, 0 to 2 percent slopes—5 percent
Orovada fine sandy loam, 0 to 2 percent slopes—3 percent
Durorthidic Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Smooth beach plain terraces
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches

Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 10 to 15 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 15 to 45 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 45 to 60 inches
Texture: Stratified gravelly very fine sandy loam to fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—high
Potential for frost action: Low

Characteristics of the Misad Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Offshore bars
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 31 inches
Texture: Stratified fine sandy loam to very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 31 to 60 inches
Texture: Stratified very gravelly loamy sand to extremely gravelly coarse sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 3.0 to 4.2 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats between bars
Distinctive present vegetation: Shadscale, black greasewood, bud sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Channels
Dominant present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Inclusion 4
Classification: Durorthidic Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Concave lagoons
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Misad Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Creemon Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Misad Soil
Range seeding: Poor—too arid, excess salt
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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Creemon soil—IIc, irrigated, and VIIc, nonirrigated; Misad soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Creemon and Misad soils—024X002N; Inclusion 1—024X002N; Inclusion 2—024X003N; Inclusions 3 and 4—024X020N

301—Cren-Ocala-Playas association

Positions on landscape: Fan skirts, bolson floors

Composition

Major components:
Cren silt loam, strongly saline-alkali, 0 to 2 percent slopes—40 percent
Ocala silt loam, rarely flooded, 0 to 2 percent slopes—30 percent
Playas—15 percent
Contrasting inclusions:
Ocala silt loam, occasionally flooded, 0 to 2 percent slopes—7 percent
Batan silt loam, 0 to 2 percent slopes—6 percent
Isolde fine sand, 4 to 30 percent slopes—2 percent

Characteristics of the Cren Soil

Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush, black greasewood

Typical Profile
Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable

Reaction: Strongly alkaline
Salinity: 25 to 30 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 26 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 25 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 26 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye

Typical Profile

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

Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 4 to 16 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 16 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Playas

Positions on landscape: Dry lake extensions; small, irregularly shaped sink areas
Slope: Less than 1 percent
Elevation: 5,100 to 5,200 feet

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower lake plains
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Shadscale, black greasewood

Inclusion 3
Classification: Typic Torripsamments, mixed, mesic
Positions on landscape: Sand dunes

Distinctive present vegetation: Fourwing saltbush, rubber rabbitbrush, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Cren Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Ocala Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Cren Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ocala Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Cren Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Cren soil—IIs, irrigated, and VIIs, nonirrigated; Ocala soil—VIIw, nonirrigated; Playas—VIIIw, nonirrigated
Range site: Cren soil—024X003N; Ocala soil—024X011N; Playas—none; Inclusion 1—024X007N; Inclusion 2—024X003N; Inclusion 3—027X016N

310—Yobe-Kawich-Playas association

Positions on landscape: Alluvial flats

Composition

Major components:
Yobe silt loam, 0 to 2 percent slopes—45 percent
Kawich fine sand, 4 to 30 percent slopes—35 percent
Playas—10 percent
Contrasting inclusions:
Typic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—6 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—4 percent

Characteristics of the Yobe Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Mixed silty lacustrine sediment
Slope: 0 to 2 percent
Elevation: 5,500 to 5,600 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye, rubber rabbitbrush, alkali sacaton

Typical Profile

Depth: 0 to 16 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 16 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 16 to 25 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 36 to 60 inches
Frequency of flooding: Occasional for brief to long periods in January through April
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—4L

Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Kawich Soil

Classification: Typic Torripsamments, mixed, mesic
Positions on landscape: Convex dunes over alluvial flats
Parent material: Eolian sand derived from various kinds of rock
Slope: 4 to 30 percent
Elevation: 5,500 to 5,600 feet
Average annual precipitation: About 6 inches
Average annual air temperature: About 53 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Needleandthread, Indian ricegrass, fourwing saltbush, black greasewood

Typical Profile

Depth: 0 to 4 inches
Texture: Fine sand
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter

Depth: 4 to 42 inches
Texture: Fine sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter

Depth: 42 to 60 inches
Texture: Fine sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very rapid
Available water capacity: 3.0 to 4.2 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: A
Erosion factors (upper layer): K value—0.15; T value—5; wind erodibility group—1
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Playas

Positions on landscape: Small, irregularly shaped sink areas
Slope: Less than 1 percent
Elevation: 5,500 to 5,550 feet

Contrasting Inclusions

Inclusion 1
Classification: Typic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower alluvial flats
Distinctive present vegetation: Black sagebrush, rabbitbrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Yobe Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Kawich Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Yobe Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Kawich Soil
Range seeding: Poor—too arid, droughty, too sandy
Roadfill: Fair—slope
Topsoil: Poor—too sandy, slope

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

Interpretive Groups

Land capability classification: Yobe soil—VIIw, nonirrigated; Kawich soil—VIIs, nonirrigated; Playas—VIIIw, nonirrigated
Range site: Yobe soil—024X011N; Kawich soil—027X016N; Playas—none; Inclusion 1—024X003N; Inclusion 2—024X007N

320—Newpass-Jung association

Positions on landscape: Foothills

Composition

Major components:
Newpass very gravelly fine sandy loam, 15 to 30 percent slopes, very stony—60 percent
Jung very cobbly loam, 15 to 30 percent slopes—30 percent
Contrasting inclusions:
Haplic Durargids, clayey-skeletal, mixed, mesic, 15 to 30 percent slopes—5 percent
Rock outcrop—3 percent
Haploxerollic Durargids, fine, montmorillonitic, mesic, 8 to 15 percent slopes—2 percent

Characteristics of the Newpass Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: North-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 5,200 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 75 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 14 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 14 to 24 inches
Texture: Very cobbly silty clay, very gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 26 inches
Material: Cemented hardpan

Depth: 26 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 20 to 29 inches
Depth to bedrock: 21 to 36 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.6 to 3.2 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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: Low

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 5,500 to 7,000 feet

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 19 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Haplic Durargids, clayey-skeletal, mixed, mesic
Positions on landscape: Concave side slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Positions on landscape: Rimrock along shoulder slopes of foothills
Distinctive present vegetation: None

Inclusion 3
Classification: Haploxerollic Durargids, fine, montmorillonitic, mesic
Positions on landscape: Crests and shoulder slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush, needleandthread, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Newpass Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Newpass Soil
Range seeding: Poor—rooting depth, small stones, excess sodium
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
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—shrink-swell, low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Jung Soil
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Land capability classification: Newpass and Jung soils—VIIs, nonirrigated
Range site: Newpass soil—027X008N; Jung soil—027X032N; Inclusion 1—024X025N; Inclusion 2—none; Inclusion 3—027X008N

321—Newpass-Old Camp association

Positions on landscape: Foothills

Composition

Major components:
Newpass very gravelly fine sandy loam, 8 to 15 percent slopes, very stony—45 percent
Old Camp gravelly loam, 8 to 15 percent slopes—25 percent
Old Camp very gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—6 percent
Xerollic Haplargids, fine, montmorillonitic, mesic, 8 to 30 percent slopes—4 percent

Characteristics of the Newpass Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: North-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 8 to 15 percent
Elevation: 6,000 to 7,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 2 percent stones and boulders, 10 percent cobbles, 75 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 14 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 14 to 24 inches
Texture: Very cobbly silty clay, very gravelly clay, gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 26 inches
Material: Cemented hardpan

Depth: 26 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 20 to 29 inches
Depth to bedrock: 21 to 36 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.6 to 3.2 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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: Low

Characteristics of the Old Camp Soil, Strongly Sloping

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Summits and shoulder slopes of foothills
Parent material: Residuum that is derived from basalt and andesite and includes some volcanic ash
Slope: 8 to 15 percent
Elevation: 6,000 to 7,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 2 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 2 to 11 inches

Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.2 to 1.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Old Camp Soil, Moderately Steep

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum that is derived from basalt and andesite and includes some volcanic ash
Slope: 15 to 30 percent
Elevation: 6,000 to 7,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; 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

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Channel banks, narrow inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye, bluegrass

Inclusion 2
Classification: Xerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Concave shoulder slopes of foothills
Distinctive present vegetation: Singleleaf pinyon, Utah juniper, Wyoming big sagebrush, pine bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Newpass Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Old Camp Soil, Strongly Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Old Camp Soil, Moderately Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Newpass Soil

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

Old Camp Soil, Strongly Sloping

Range seeding: Poor—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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Old Camp Soil, Moderately Steep

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

Interpretive Groups

Land capability classification: Newpass and Old Camp soils—VIIs, nonirrigated
Range site: Newpass soil—027X008N; Old Camp soils—027X007N; Inclusion 1—024X006N; Inclusion 2—025X062N

360—Eastwell-Blackhawk-Pineval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Eastwell gravelly loam, 4 to 15 percent slopes—45 percent
Blackhawk very fine sandy loam, 2 to 8 percent slopes—25 percent
Pineval gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Durixerollic Haplargids, coarse-loamy, mixed, mesic, 4 to 8 percent slopes—6 percent
Xerollic Durorthids, loamy, mixed, mesic, shallow, 8 to 15 percent slopes—4 percent

Characteristics of the Eastwell Soil

Classification: Haploxerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: The highest summits and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 4 to 15 percent
Elevation: 5,500 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 17 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Very hard, very firm

Depth: 17 to 60 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.5 to 3.5 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—2; 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: Low

Characteristics of the Blackhawk Soil

Classification: Entic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 to 30 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 30 to 48 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 48 to 60
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 15 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 30 percent
Elevation: 5,500 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable

Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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: Durixerollic Haplargids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, pine bluegrass

Inclusion 2
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Convex, south-facing shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Singleleaf pinyon, Utah juniper, Wyoming big sagebrush, pine bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Eastwell Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Blackhawk Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Eastwell Soil
Range seeding: Poor—droughty
Roadfill: Fair—large stones
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: Moderate—cemented pan, slope, large stones
Pond reservoir areas: Severe—seepage, cemented pan, slope
Embankments, dikes, and levees: Moderate—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Blackhawk Soil
Range seeding: Poor—too arid, droughty
Roadfill: Good
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Probable source
Gravel: Probable source

Pineval Soil
Range seeding: Fair—too arid
Roadfill: Fair—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—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Eastwell soil—VIIs, nonirrigated; Blackhawk soil—IVe, irrigated, and VIIs, nonirrigated; Pineval soil—VIe, nonirrigated
Range site: Eastwell soil—027X032N; Blackhawk soil—024X002N; Pineval soil—027X008N; Inclusions 1 and 2—027X008N

404—Glean-Gando association

Positions on landscape: Mountains

Composition

Major components:
Glean very gravelly loam, 50 to 75 percent slopes—50 percent
Gando very cobbly loam, 50 to 75 percent slopes—35 percent
Contrasting inclusions:
Rock outcrop and rubble land—8 percent
Welch loam, drained, 8 to 15 percent slopes—3 percent
Welch loam, 8 to 15 percent slopes—2 percent
Lithic Cryoborolls, 15 to 50 percent slopes—2 percent

Characteristics of the Glean Soil

Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium derived from various kinds of rock
Slope: 50 to 75 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 39 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 39 to 51 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 51 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 3 to 5 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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 Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests and ridges of mountains
Parent material: Residuum derived from sedimentary rock
Slope: 50 to 75 percent
Elevation: 6,500 to 8,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, Idaho fescue, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Very gravelly loam, extremely gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 10 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.1 to 1.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D

Erosion factors (upper layer): K value—0.20; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks and screes on side slopes
Distinctive present vegetation: None

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Entrenched narrow drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Narrow drainageways, canyon bottoms
Distinctive present vegetation: Willow, sedge, tufted hairgrass

Inclusion 4
Classification: Lithic Cryoborolls
Positions on landscape: Convex, windswept, north-facing crests on mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Glean Soil
Wild herbaceous plants (nonirrigated): Good
Shrubs (nonirrigated): Good

Gando Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Glean Soil
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

Gando Soil
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—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Glean and Gando soils—VIIs, nonirrigated
Range site: Glean soil—024X023N; Gando soil—028B034N; Inclusion 1—none; Inclusion 2—028B024N; Inclusion 3—025X005N; Inclusion 4—028B038N

441—Gund-Umberland association

Positions on landscape: Bolson floors

Composition

Major components:
Gund silt loam, 0 to 2 percent slopes—50 percent
Umberland silt loam, 0 to 2 percent slopes—35 percent
Contrasting inclusions:
Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—8 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—4 percent
Playas—3 percent

Characteristics of the Gund Soil

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: The upper lake plain remnants
Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, basin big sagebrush, black greasewood, rubber rabbitbrush

Typical Profile
Depth: 0 to 4 inches

Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 23 to 60 inches
Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 15 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 36 to 42 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Characteristics of the Umberland Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: The lower lake plain remnants
Parent material: Silty lacustrine sediment derived from various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 30 to 50

Depth: 7 to 60 inches
Texture: Clay, silty clay, silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: The highest lake plain remnants
Distinctive present vegetation: Black greasewood, Indian ricegrass

Inclusion 2

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Lake plain margins
Distinctive present vegetation: Black greasewood, basin wildrye, rubber rabbitbrush

Inclusion 3

Positions on landscape: Dry lake extensions; isolated, irregularly shaped sink areas
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Gund Soil

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wetland plants: Very poor
Shallow water areas: Fair

Umberland Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Gund Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Umberland Soil
Range seeding: Poor—excess salt, excess sodium, too crusty
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium, too clayey
Daily cover for landfill: Poor—too clayey, hard to pack, excess sodium
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Gund soil—VIIw, nonirrigated; Umberland soil—VIIs, nonirrigated
Range site: Gund soil—024X006N; Umberland soil—024X003N; Inclusion 1—024X008N; Inclusion 2—024X007N; Inclusion 3—none

442—Gund-Bubus-Wendane association

Positions on landscape: Bolson floors

Composition

Major components:
Gund silt loam, strongly saline-alkali, drained, 0 to 2 percent slopes—35 percent
Bubus very fine sandy loam, 0 to 2 percent slopes—30 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Aquic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—7 percent
Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—4 percent
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—4 percent

Characteristics of the Gund Soil

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: Lake plain terraces
Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Basin wildrye, black greasewood, rubber rabbitbrush

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 75 to 99 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 15 to 30 millimhos per centimeter
Sodicity (SAR): 50 to 80

Depth: 23 to 60 inches
Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 60 to 72 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 8.6 to 11.0 inches
Water-supplying capacity: 8 inches

Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Characteristics of the Bubus Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 6 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 10 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 40

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aquic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Adjacent inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood

Inclusion 2
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Shorelines, offshore bars
Distinctive present vegetation: Black greasewood, shadscale

Inclusion 3
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower lake plains
Distinctive present vegetation: Black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Gund Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Very poor
Shallow water areas: Fair

Bubus Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Gund Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Bubus Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Gund and Wendane soils—VIIw, nonirrigated; Bubus soil—VIIs, nonirrigated
Range site: Gund soil—024X008N; Bubus soil—024X003N; Wendane soil—024X007N; Inclusion 1—024X006N; Inclusion 2—024X008N; Inclusion 3—024X011N

443—Gund-Batan association

Positions on landscape: Bolson floors

Composition

Major components:
Gund silt loam, strongly saline-alkali, drained, 0 to 2 percent slopes—65 percent
Batan silt loam, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Aeric Halaquepts, fine, montmorillonitic, mesic, 0 to 2 percent slopes—5 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—3 percent
Ocala Variant silt loam, 0 to 2 percent slopes—2 percent

Characteristics of the Gund Soil

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: Lake plain terraces

Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, black greasewood, rubber rabbitbrush

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 75 to 100 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 50 to 80

Depth: 23 to 60 inches
Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 60 to 72 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 8.6 to 11.0 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine, montmorillonitic, mesic
Positions on landscape: Ponded lake plains
Distinctive present vegetation: Black greasewood

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Channeled lake plains
Distinctive present vegetation: Black greasewood, basin wildrye, rubber rabbitbrush

Inclusion 3
Classification: Aeric Halaquepts, fine, montmorillonitic, mesic

Positions on landscape: Lake plains that have a static water table
Distinctive present vegetation: Alkali rabbitbrush, alkaligrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Gund Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Very poor
Shallow water areas: Fair

Batan Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Gund Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Gund soil—VIIw, nonirrigated; Batan soil—VIIs, nonirrigated
Range site: Gund soil—024X008N; Batan soil—024X003N; Inclusion 1—024X011N; Inclusion 2—024X007N; Inclusion 3—024X044N

444—Gund association

Positions on landscape: Lake plains

Composition

Major components:
Gund silt loam, 0 to 2 percent slopes—60 percent
Gund silt loam, drained, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Orovada fine sandy loam, 0 to 2 percent slopes—5 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—5 percent

Characteristics of the Gund Soil

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: The lower lake plains
Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, black greasewood, basin big sagebrush, western wheatgrass

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 23 to 60 inches

Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 36 to 42 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 8.6 to 11.0 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Characteristics of the Gund Soil, Drained

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: The higher lake plains
Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black greasewood, basin wildrye, seepweed

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 75 to 100 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 50 to 80

Depth: 23 to 60 inches
Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 60 to 72 inches
Frequency of flooding: Rare
Permeability: Very slow
Available water capacity: 8.6 to 11.0 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Dissected lake plains
Distinctive present vegetation: Wyoming big sagebrush, black greasewood

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent fan skirts
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass, bluegrass

Inclusion 3
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Channeled, lower lake plains
Distinctive present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Gund Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Very poor
Shallow water areas: Fair

Gund Soil, Drained
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Very poor
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Gund Soil

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Gund Soil, Drained

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Gund soils—VIIw, nonirrigated
Range site: Gund soil—024X006N; Gund soil, drained—024X008N; Inclusion 1—024X022N; Inclusion 2—028B010N; Inclusion 3—024X007N

461—Hapgood-Packer-Layview association

Positions on landscape: Mountains

Composition

Major components:
Hapgood very gravelly loam, 30 to 50 percent slopes—40 percent
Packer extremely gravelly loam, 15 to 50 percent slopes—25 percent
Layview very gravelly sandy loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Entic Cryumbrepts, loamy-skeletal, mixed, 30 to 50 percent slopes—8 percent
Rock outcrop and Rubble land—7 percent
Argic Cryoborolls, loamy-skeletal, mixed, 15 to 30 percent slopes—4 percent
Hackwood bouldery loam, 30 to 50 percent slopes—1 percent

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave back slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 8,000 to 9,800 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.8 to 6.0 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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

Characteristics of the Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex, windswept shoulder slopes and upper side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 15 to 50 percent
Elevation: 8,000 to 9,800 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.6 to 5.4 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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 Layview Soil

Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex, windswept crests of mountains
Parent material: Residuum derived from andesite, rhyolite, and tuff
Slope: 8 to 15 percent
Elevation: 8,500 to 9,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 50 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 12 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 12 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Entic Cryumbrepts, loamy-skeletal, mixed
Positions on landscape: Concave snow pockets below the ridgeline
Distinctive present vegetation: Lupine, Letterman needlegrass

Inclusion 2

Positions on landscape: Scattered peaks, rimrock, stripes below areas of Rock outcrop
Distinctive present vegetation: None

Inclusion 3
Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave back slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 4
Classification: Pachic Cryoborolls, fine-loamy, mixed
Positions on landscape: Concave snow pockets
Distinctive present vegetation: Quaking aspen

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Packer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Layview Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Packer Soil
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, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

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

Interpretive Groups

Land capability classification: Hapgood, Packer, and Layview soils—VIIs, nonirrigated
Range site: Hapgood soil—024X032N; Packer and Layview soils—024X016N; Inclusion 1—025X028N; Inclusion 2—none; Inclusion 3—024X027N; Inclusion 4—025X065N

463—Hapgood-Packer-Rubble land association

Positions on landscape: Mountains

Composition

Major components:
Hapgood gravelly loam, 50 to 75 percent slopes—45 percent
Packer extremely cobbly sandy loam, 30 to 50 percent slopes—20 percent
Rubble land—20 percent
Contrasting inclusions:
Layview very cobbly loam, 8 to 30 percent slopes—6 percent
Walti very cobbly loam, 15 to 30 percent slopes—5 percent
Pachic Cryoborolls, loamy-skeletal, mixed, 15 to 30 percent slopes—4 percent

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave, north-facing side slopes of mountains in areas where snow accumulates
Parent material: Colluvium that includes loess and volcanic ash
Slope: 50 to 75 percent
Elevation: 8,200 to 9,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: East-, west-, and south-facing side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 7,800 to 9,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Depth: 0 to 10 inches
Texture: Extremely cobbly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.6 to 5.4 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; 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 Rubble Land

Positions on landscape: Side slopes below sharp shoulder scarps of mountains
Slope: 50 to 75 percent

Contrasting Inclusions

Inclusion 1

Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests, shoulder slopes, and convex, upper side slopes of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Inclusion 2

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex, lower side slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Foot slopes below areas on side slopes of mountains where snow accumulates and areas of Rubble land

Distinctive present vegetation: Oceanspray, mountain brome

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Packer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Packer Soil
Range seeding: Poor—large stones
Roadfill: Poor—slope, large stones
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope, large stones
Local roads and streets: Severe—slope, large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Land capability classification: Hapgood soil—VIIe, nonirrigated; Packer soil—VIIs, nonirrigated; Rubble land—VIIIs, nonirrigated
Range site: Hapgood soil—024X032N; Packer soil—024X016N; Rubble land—none; Inclusion 1—024X016N; Inclusion 2—024X027N; Inclusion 3—024X034N

465—Hapgood-Halacan-Hatur association

Positions on landscape: Mountains

Composition

Major components:
Hapgood gravelly loam, 30 to 50 percent slopes—55 percent
Halacan very gravelly loam, 8 to 15 percent slopes—20 percent
Hatur very gravelly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Cryic Lithic Rendolls, loamy-skeletal, carbonatic, 8 to 30 percent slopes—4 percent
Rock outcrop—3 percent
Cumulic Cryoborolls, fine-loamy, mixed, drained, 2 to 4 percent slopes—2 percent
Rubble land—1 percent

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave side slopes of mountains in areas where snow accumulates
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 8,800 to 9,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate

Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Halacan Soil

Classification: Cryic Lithic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: Crests and shoulder slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope: 8 to 15 percent
Elevation: 8,200 to 9,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 38 degrees F
Frost-free season: About 40 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 5 to 17 inches
Texture: Extremely channery loam, very channery loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 17 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1.0 to 1.6 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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 Hatur Soil

Classification: Cryic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: Side slopes of mountains
Parent material: Colluvium and residuum derived from limestone
Slope: 30 to 50 percent
Elevation: 8,000 to 9,300 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 60 days
Dominant present vegetation: Idaho fescue, mountain brome, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 90 percent pebbles

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 29 inches
Texture: Extremely gravelly loam, extremely gravelly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 29 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.0 to 3.6 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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

Classification: Cryic Lithic Rendolls, loamy-skeletal, carbonatic

Positions on landscape: Windswept crests of mountains
Distinctive present vegetation: Black sagebrush, Idaho fescue

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Cryoborolls, fine-loamy, mixed
Positions on landscape: Mountain drainageways, canyon bottoms
Distinctive present vegetation: Basin wildrye, basin big sagebrush, rose, willow

Inclusion 4
Positions on landscape: Side slopes of mountains below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Halacan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hatur Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Halacan Soil
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—seepage, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hatur Soil
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, seepage, 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—seepage
Sand: Improbable source—small stones
Gravel: Improbable source—thin layer

Interpretive Groups

Land capability classification: Hapgood soil—VIIe, nonirrigated; Halacan and Hatur soils—VIIs, nonirrigated
Range site: Hapgood soil—024X032N; Halacan soil—024X016N; Hatur soil—028B029N; Inclusion 1—024X042N; Inclusion 2—none; Inclusion 3—025X003N; Inclusion 4—none

491—Enko-Orovada association, gently sloping

Positions on landscape: Piedmont slopes

Composition

Major components:
Enko sandy loam, 2 to 4 percent slopes—55 percent
Orovada fine sandy loam, 2 to 4 percent slopes—30 percent
Contrasting inclusions:
Pineval gravelly loam, 2 to 4 percent slopes—6 percent
Zineb gravelly loam, 2 to 4 percent slopes—5 percent
Duric Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—4 percent

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,000 to 6,400 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F

Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 18 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 18 to 60 inches
Texture: Sandy loam, fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.1 to 8.2 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans, margins of fan skirts
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,000 to 6,400 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.5 to 10.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan piedmont remnants

Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans near stream channels
Distinctive present vegetation: Annuals

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated cropland

Suitability for Wildlife Habitat Elements

Enko Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Enko Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—excess salt
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

Orovada Soil
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

Interpretive Groups

Land capability classification: Enko soil—IIe, irrigated, and VIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Enko and Orovada soils—028B010N; Inclusions 1 and 2—028B010N

492—Enko-Glyphs association

Positions on landscape: Fan piedmonts

Composition

Major components:
Enko sandy loam, gravelly substratum, 0 to 2 percent slopes—60 percent
Glyphs fine sandy loam, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Orovada very fine sandy loam, 0 to 2 percent slopes—9 percent
Orovada gravelly fine sandy loam, gravelly substratum, 0 to 2 percent slopes—6 percent

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan aprons
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 6,300 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 14 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 53 inches
Texture: Loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 53 to 63 inches
Texture: Very gravelly loamy sand, extremely gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Mildly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.5 to 8.5 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—4; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Glyphs Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium that is derived from volcanic rock and includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 6,200 to 6,400 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4.5 to 7.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Adjacent fan skirts
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated cropland

Suitability for Wildlife Habitat Elements

Enko Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Glyphs Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Enko Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, area reclaim
Daily cover for landfill: Fair—thin layer

Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Probable source
Gravel: Probable source

Glyphs Soil
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

Restrictive Features for Selected Practices

Enko Soil
Drainage: Deep to water
Irrigation: Percs slowly, soil blowing
Terraces and diversions: Soil blowing

Glyphs Soil
Drainage: Deep to water
Irrigation: Rooting depth, excess salt
Terraces and diversions: Too sandy

Interpretive Groups

Land capability classification: Enko soil—IIs, irrigated, and VIs, nonirrigated; Glyphs soil—IIIs, irrigated, and VIc, nonirrigated
Range site: Enko and Glyphs soils—028B010N; Inclusions 1 and 2—028B010N

493—Enko-Orovada association, nearly level

Positions on landscape: Piedmont slopes

Composition

Major components:
Enko sandy loam, 0 to 2 percent slopes—45 percent
Orovada fine sandy loam, 0 to 2 percent slopes—40 percent
Contrasting inclusions:
Glyphs gravelly fine sandy loam, 0 to 4 percent slopes—5 percent
Orovada fine sandy loam, gullied, 0 to 4 percent slopes—5 percent
Aridic Haploxerolls, fine-loamy, mixed, mesic, 0 to 2 percent slopes—5 percent

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 6,600 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 18 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 18 to 60 inches
Texture: Sandy loam, fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: C

Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,600 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 8 to 10 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B

Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Big sagebrush, rabbitbrush

Inclusion 3
Classification: Aridic Haploxerolls, fine-loamy, mixed, mesic
Positions on landscape: Areas adjacent to active channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated cropland

Suitability for Wildlife Habitat Elements

Enko Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Enko Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—excess salt
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—excess fines
Gravel: Improbable—excess fines

Orovada Soil
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, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Enko Soil
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly
Terraces and diversions: Erodes easily, soil blowing

Orovada Soil
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Land capability classification: Enko soil—IIs, irrigated, and VIs, nonirrigated; Orovada soil—IIc, irrigated, and VIc, nonirrigated
Range site: Enko and Orovada soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B009N; Inclusion 3—028B003N

512—Hessing-Relley association

Positions on landscape: Fan skirts, basin floors

Composition

Major components:
Hessing gravelly silt loam, 0 to 2 percent slopes—55 percent
Relley silt loam, frequently flooded, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Typic Camborthids, sandy-skeletal, mixed, mesic, 0 to 2 percent slopes—5 percent
Creemon very fine sandy loam, 0 to 2 percent slopes—5 percent
Durorthidic Torriorthents, coarse-loamy, mixed, mesic, occasionally flooded, 0 to 2 percent slopes—5 percent

Characteristics of the Hessing Soil

Classification: Typic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts at the higher elevations
Parent material: Loess and silty alluvium that include volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 11 inches
Texture: Silty clay loam, silt loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 11 to 18 inches
Texture: Very fine sandy loam, silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 18 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 30 to 60 inches
Texture: Very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.3 inches
Water-supplying capacity: 7 inches

Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—3; 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: Low

Characteristics of the Relley Soil

Classification: Duric Camborthids, fine-silty, mixed, mesic
Positions on landscape: Broad inset fans, the lower fan skirts
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, sickle saltbush

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 16 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 28 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 28 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Frequent for very brief periods in December through June
Permeability: Moderate
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Smooth stream terraces adjacent to flood plains
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Flood plain remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Durorthidic Torriorthents, coarse-loamy, mixed, mesic
Positions on landscape: Flood plains
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hessing Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Relley Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Hessing Soil
Range seeding: Poor—too arid, excess salt
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, excess salt
Sand: Probable source
Gravel: Probable source

Relley Soil
Range seeding: Poor—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Fair—thin layer
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Hessing Soil
Drainage: Deep to water
Irrigation: Excess salt
Terraces and diversions: Erodes easily, too sandy

Relley Soil
Drainage: Deep to water
Irrigation: Erodes easily, flooding, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Hessing soil—IIs, irrigated, and VIIs, nonirrigated; Relley soil—IIIw, irrigated, and VIIw, nonirrigated
Range site: Hessing soil—024X002N; Relley soil—024X012N; Inclusions 1 and 2—024X002N; Inclusion 3—024X006N

560—Jesse Camp silt loam

Positions on landscape: Stream terraces

Composition

Major component:
Jesse Camp silt loam, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Xeric Torriorthents, coarse-loamy, mixed (calcareous), frigid, 0 to 4 percent slopes—8 percent
Fenster silt loam, slightly alkali, 0 to 4 percent slopes—4 percent
Jesse Camp silt loam, occasionally flooded, 0 to 2 percent slopes—3 percent

Characteristics of the Jesse Camp Soil

Classification: Xerollic Camborthids, fine-silty, mixed, frigid
Positions on landscape: Stream terraces
Parent material: Silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Basin wildrye, basin big sagebrush, western wheatgrass

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; 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: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), frigid
Positions on landscape: The higher parts of stream terraces
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Inclusion 2

Classification: Typic Torriorthents, fine-silty, mixed (calcareous), frigid
Positions on landscape: Outer margins of stream terraces
Distinctive present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Inclusion 3

Classification: Xerollic Camborthids, fine-silty, mixed, frigid
Positions on landscape: The lowest parts of stream terraces
Distinctive present vegetation: Basin big sagebrush, rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Range seeding: Fair—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Jesse Camp soil—IIc, irrigated, and VIc, nonirrigated
Range site: Jesse Camp soil—028B003N; Inclusion 1—028B010N; Inclusion 2—028B017N; Inclusion 3—028B009N

621—Loncan-Gando-Glean association

Positions on landscape: Mountains

Composition

Major components:
Loncan gravelly loam, 15 to 50 percent slopes—40 percent
Gando very gravelly loam, 15 to 30 percent slopes—25 percent
Glean very gravelly loam, 15 to 30 percent slopes—25 percent
Contrasting inclusions:
Rock outcrop and Rubble land—4 percent
Welch loam, drained, 4 to 15 percent slopes—3 percent
Argic Pachic Cryoborolls, 15 to 30 percent slopes—2 percent
Welch loam, 4 to 15 percent slopes—1 percent

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: The intermediate and lower side slopes of mountains
Parent material: Residuum and colluvium derived from chert
Slope: 15 to 50 percent
Elevation: 6,500 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 30 percent pebbles

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 22 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 22 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.9 to 2.7 inches

Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; 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 Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests and the upper side slopes of mountains
Parent material: Residuum derived from mixed sedimentary rock
Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, Idaho fescue, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Very gravelly loam, extremely gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 10 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.6 to 1.0 inch
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Glean Soil

Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing, concave side slopes of mountains
Parent material: Colluvium derived from various kinds of rock
Slope: 15 to 30 percent
Elevation: 7,500 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 39 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 39 to 51 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 51 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 3.1 to 5.1 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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
Positions on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Narrow, entrenched mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Argic Pachic Cryoborolls
Positions on landscape: The higher, concave, north-facing back slopes of mountains
Distinctive present vegetation: Common chokecherry, snowberry, Idaho fescue

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Narrow mountain drainageways and canyon bottoms
Distinctive present vegetation: Sedge, willow, tufted hairgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Loncan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Gando Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Glean Soil
Wild herbaceous plants (nonirrigated): Good
Shrubs (nonirrigated): Good

Suitability and Limitations for Selected Uses

Loncan Soil
Range seeding: Fair—erodes easily, too arid, droughty
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

Gando Soil
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

Glean Soil
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—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Loncan and Glean soils—VIIe, nonirrigated; Gando soil—VIIs, nonirrigated
Range site: Loncan and Glean soils—028B030N; Gando soil—024X016N; Inclusion 1—none; Inclusion 2—025X003N; Inclusion 3—028B026N; Inclusion 4—025X005N

632—McConnel-Orovada-Misad association

Positions on landscape: Bolson floors, fan piedmonts

Composition

Major components:
McConnel gravelly loam, 2 to 8 percent slopes—50 percent
Orovada fine sandy loam, 2 to 4 percent slopes—20 percent
Misad gravelly very fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Typic Camborthids, sandy-skeletal, mixed, mesic, 4 to 15 percent slopes—6 percent
Duric Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—6 percent
Duric Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—3 percent

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Beach terrace remnants
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 2 to 8 percent
Elevation: 6,100 to 6,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans, areas between beach terrace remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,100 to 6,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9.0 to 10.5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Misad Soil

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: The lower areas on offshore bars
Parent material: Mixed alluvium that includes loess that is high in content of ash
Slope: 2 to 4 percent
Elevation: 6,100 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 31 inches
Texture: Stratified fine sandy loam to very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 31 to 60 inches
Texture: Stratified very gravelly loamy sand to extremely gravelly coarse sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 2.9 to 4.1 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Convex barrier bars and offshore bars adjacent to lake plains
Distinctive present vegetation: Wyoming big sagebrush, black greasewood, basin wildrye

Inclusion 2
Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The higher remnant barrier and offshore bars
Distinctive present vegetation: Shadscale, bud sagebrush, black greasewood

Inclusion 3
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Remnant lagoons and fan skirts
Distinctive present vegetation: Annuals

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Misad Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

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

Orovada Soil
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

Misad Soil

Range seeding: Poor—too arid, excess salt
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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: McConnel and Misad soils—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: McConnel soil—024X005N; Orovada soil—028B010N; Misad soil—024X002N; Inclusion 1—024X022N; Inclusion 2—024X003N; Inclusion 3—024X004N

633—McConnel-Rasille-Wholan association

Positions on landscape: The lower fan piedmonts, beach terraces

Composition

Major components:
McConnel gravelly loam, 2 to 8 percent slopes—35 percent
Rasille silt loam, 0 to 2 percent slopes—25 percent
Wholan silt loam, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Orovada fine sandy loam, 2 to 4 percent slopes—8 percent
Defler gravelly fine sandy loam, 0 to 4 percent slopes—5 percent
Xerollic Haplargids, fine, montmorillonitic, mesic, 0 to 2 percent slopes—2 percent

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Beach terrace remnants that follow the contour of the shoreline
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 2 to 8 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts, areas between beach terrace remnants
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Moderate

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The highest parts of inset fans and fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Convex inset fans dissecting remnant shorelines
Distinctive present vegetation: Winterfat, bud sagebrush, Indian ricegrass

Inclusion 3
Classification: Xerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Remnant lagoons
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

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

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
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

Wholan Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fine
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Rasille Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Wholan Soil
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: McConnel soil—IVe, irrigated, and VIIs, nonirrigated; Rasille soil—IIIc, irrigated, and VIc, nonirrigated; Wholan soil—IIc, irrigated, and VIIc, nonirrigated
Range site: McConnel soil—024X005N; Rasille soil—028B010N; Wholan soil—024X004N; Inclusion 1—028B010N; Inclusion 2—028B013N; Inclusion 3—024X006N

635—McConnel-Rasille association

Positions on landscape: The lower fan piedmonts

Composition

Major components:
McConnel gravelly loam, 2 to 4 percent slopes—55 percent
Rasille silt loam, gravelly substratum, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Orovada fine sandy loam, 0 to 2 percent slopes—8 percent
Allor fine sandy loam, 2 to 4 percent slopes—4 percent
Durixerollic Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—3 percent

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Beach terrace remnants that follow the contour of the shoreline

Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 2 to 4 percent
Elevation: 5,800 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Areas between beach terrace remnants and fan skirts
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,800 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 41 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 41 to 60 inches
Texture: Stratified fine sandy loam to very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 7.6 to 9.3 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B

Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Nonburied fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Sickle saltbush, halogeton, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—area reclaim, excess salt
Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Rasille Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: McConnel soil—IVe, irrigated, and VIIs, nonirrigated; Rasille soil—IIIc, irrigated, and VIc, nonirrigated
Range site: McConnel soil—024X005N; Rasille soil—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—024X012N

636—McConnel-Defler-Rasille association

Positions on landscape: The lower fan piedmonts and fan skirts

Composition

Major components:
McConnel gravelly loam, 2 to 4 percent slopes—40 percent
Defler gravelly fine sandy loam, 2 to 4 percent slopes—30 percent
Rasille silt loam, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Typic Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—9 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—4 percent
Broyles very fine sandy loam, 0 to 2 percent slopes—2 percent

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Beach terrace remnants that follow the contour of the shoreline
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 2 to 4 percent

Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Defler Soil

Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Convex inset fans
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,200 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 35 inches
Texture: Very gravelly fine sandy loam, very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 35 to 70 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately rapid
Available water capacity: 2.9 to 4.4 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Smooth fan skirts

Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 11 to 12 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower inset fans
Distinctive present vegetation: Bud sagebrush, winterfat

Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Defler Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Defler Soil
Range seeding: Poor—droughty, too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
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

Restrictive Features for Selected Practices

Rasille Soil
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: McConnel soil—IVe, irrigated, and VIIs, nonirrigated; Defler soil—IVe, irrigated, and VIIc, nonirrigated; Rasille soil—IIIc, irrigated, and VIc, nonirrigated
Range site: McConnel soil—024X005N; Defler soil—024X004N; Rasille soil—028B010N; Inclusion 1—024X004N; Inclusion 2—028B010N; Inclusion 3—024X002N

637—McConnel-Orovada association

Positions on landscape: Fan skirts, inset fans

Composition

Major components:
McConnel fine sandy loam, 0 to 2 percent slopes—35 percent
Orovada very fine sandy loam, rarely flooded, 0 to 2 percent slopes—25 percent
McConnel gravelly fine sandy loam, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Duric Camborthids, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—6 percent
Orovada fine sandy loam, 0 to 4 percent slopes—6 percent
Wholan silt loam, gravelly substratum, 0 to 2 percent slopes—3 percent

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Broad inset fan remnants
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 0 to 2 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirt remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium

Slope: 0 to 2 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 9.5 to 11.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; 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

Characteristics of the McConnel Soil, Gravelly

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Outer margins of inset fan remnants near fan skirts
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 0 to 2 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.7 to 4.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirt remnants

Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent to channeled areas on the lower inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Convex, occasionally flooded inset fans
Distinctive present vegetation: Bottlebrush squirreltail, winterfat

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

McConnel Soil, Gravelly
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Orovada Soil
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, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Interpretive Groups

Land capability classification: McConnel soil—IVs, irrigated, and VIs, nonirrigated; Orovada soil—IIc, irrigated, and VIc, nonirrigated; McConnel soil, gravelly—IVs, irrigated, and VIIs, nonirrigated
Range site: McConnel and Orovada soils—028B010N; Inclusion 1—028B017N; Inclusion 2—028B010N; Inclusion 3—028B013N

638—McConnel-Wholan association

Positions on landscape: Fan skirts, inset fans

Composition

Major components:
McConnel fine sandy loam, 0 to 2 percent slopes—75 percent
Wholan silt loam, occasionally flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusion:
Orovada very fine sandy loam, 0 to 4 percent slopes—5 percent

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 0 to 2 percent
Elevation: 6,200 to 6,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile
Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Narrow inset fans
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 6,200 to 6,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in December through April
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Contrasting Inclusion

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Broad areas on inset fans
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

McConnel Soil
Range seeding: Fair—too arid, droughty
Roadfill: Good
Topsoil: Poor—too sandy, small stones, area reclaim

Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Probable source
Gravel: Probable source

Wholan Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Wholan Soil
Drainage: Deep to water
Irrigation: Erodes easily, flooding
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: McConnel soil—IVs, irrigated, and VIIs, nonirrigated; Wholan soil—IIw, irrigated, and VIIw, nonirrigated
Range site: McConnel soil—028B010N; Wholan soil—028B013N; Inclusion—028B010N

670—Filiran-Pineval-Kingingham association

Positions on landscape: Fan piedmonts

Composition

Major components:
Filiran silt loam, 2 to 4 percent slopes—40 percent
Pineval gravelly fine sandy loam, 4 to 8 percent slopes—30 percent
Kingingham gravelly very fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Allor gravelly loam, 4 to 15 percent slopes—8 percent
Orovada fine sandy loam, 2 to 4 percent slopes—7 percent

Characteristics of the Filiran Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 12 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 10

Depth: 12 to 33 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 33 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 4.5 to 5.5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan aprons
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.0 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
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 Kingingham Soil

Classification: Typic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Thin loess mantle over alluvium derived from various kinds of rock
Slope: 2 to 4 percent
Elevation: 5,600 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 7 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 22 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 22 to 60 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 3.5 to 4.2 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Indian ricegrass, bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Filiran Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Kingingham Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Filiran Soil
Range seeding: Poor—excess sodium
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—shrink-swell, low strength
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Kingingham Soil
Range seeding: Poor—excess sodium, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess salt
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—shrink-swell, low strength
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Filiran and Kingingham soils—VIIs, nonirrigated; Pineval soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Filiran and Pineval soils—028B010N; Kingingham soil—024X002N; Inclusions 1 and 2—028B010N

674—Filiran-Buffaran association

Positions on landscape: Fan piedmonts

Composition

Major components:
Filiran very gravelly loam, 2 to 4 percent slopes—50 percent
Buffaran extremely gravelly loam, 8 to 30 percent slopes—35 percent
Contrasting inclusions:
Pineval gravelly loam, 2 to 8 percent slopes—8 percent
Allor gravelly loam, 4 to 8 percent slopes—4 percent
Haplic Nadurargids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Filiran Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F

Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 12 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 33 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 33 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 4.5 to 5.5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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—high
Potential for frost action: Low

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Shoulder slopes and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 30 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, big sagebrush

Typical Profile

Rock fragments on surface: 65 percent pebbles

Depth: 0 to 5 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; T value—1; 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

Contrasting Inclusions

Inclusion 1

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

Positions on landscape: Foot slopes of fan piedmonts
Distinctive present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower side slopes of fan piedmont remnants
Distinctive present vegetation: Bottlebrush squirreltail, Wyoming big sagebrush

Inclusion 3
Classification: Haplic Nadurargids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower summits and shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Filiran Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Filiran Soil
Range seeding: Poor—small stones, excess sodium
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—shrink-swell, low strength
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Buffaran Soil
Range seeding: Poor—droughty, rooting depth, small stones
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack, slope
Shallow excavations: Severe—cemented pan, slope
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
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

Land capability classification: Filiran and Buffaran soils—VIIs, nonirrigated
Range site: Filiran and Buffaran soils—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—024X002N

675—Filiran-Buffaran-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Filiran very gravelly loam, 2 to 4 percent slopes—40 percent
Buffaran gravelly loam, 4 to 8 percent slopes—25 percent
Orovada fine sandy loam, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Chiara gravelly loam, 4 to 15 percent slopes—8 percent
Pineval gravelly loam, 4 to 8 percent slopes—7 percent

Characteristics of the Filiran Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 12 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 33 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 33 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 4.5 to 5.5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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—high
Potential for frost action: Low

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy

Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches

Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9.0 to 11.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The higher parts of inset fans
Distinctive present vegetation: Bluegrass, rabbitbrush, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Filiran Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Filiran Soil
Range seeding: Poor—small stones, excess sodium
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—shrink-swell, low strength
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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

Interpretive Groups

Land capability classification: Filiran and Buffaran soils—

VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Filiran, Buffaran, and Orovada soils—028B010N; Inclusions 1 and 2—028B010N

680—Skullwak-Umberland-Wendane association

Positions on landscape: Bolson floors

Composition

Major components:
Skullwak silt loam, frequently flooded, 0 to 2 percent slopes—35 percent
Umberland silt loam, occasionally flooded, 0 to 2 percent slopes—35 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Playas—7 percent
Batan silt loam, 0 to 2 percent slopes—5 percent
Dune land, clay—3 percent

Characteristics of the Skullwak Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: The higher lake plains
Parent material: Lacustrine sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Inland saltgrass, Nuttall alkaligrass, alkali rabbitbrush, rubber rabbitbrush

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 40 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 10 to 60 inches
Texture: Silty clay loam, silty clay
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: 18 to 36 inches
Frequency of flooding: Frequent for brief periods in December through June
Permeability: Very slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 10 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Characteristics of the Umberland Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: The lower lake plains with coppice mounds
Parent material: Silty lacustrine sediment derived from various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 40 to 60 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 7 to 60 inches
Texture: Silty clay, silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 30 to 46

Soil and Water Features

Depth to a seasonal high water table: 30 to 60 inches
Frequency of flooding: Occasional for long periods in December through June
Permeability: Very slow
Available water capacity: 9 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: D

Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in December through June
Permeability: Moderately slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Positions on landscape: Sink areas
Distinctive present vegetation: None

Inclusion 2
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Dissected lake plain remnants
Distinctive present vegetation: Black greasewood, shadscale, bud sagebrush

Inclusion 3
Positions on landscape: Near Playas
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Skullwak Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Poor

Umberland Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Poor

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Poor

Suitability and Limitations for Selected Uses

Skullwak Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—shrink-swell, low strength
Topsoil: Poor—too clayey, excess salt
Daily cover for landfill: Poor—too clayey, hard to pack
Shallow excavations: Severe—wetness
Local roads and streets: Severe—shrink-swell, low strength, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness, excess salt

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

Umberland Soil

Range seeding: Poor—excess salt, excess sodium, too crusty
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium, too clayey
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness, flooding
Local roads and streets: Severe—low strength, flooding, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Skullwak, Umberland, and Wendane soils—VIIw, nonirrigated
Range site: Skullwak soil—024X044N; Umberland soil—024X011N; Wendane soil—024X007N; Inclusion 1—none; Inclusion 2—024X003N; Inclusion 3—none

683—Ocala-Sonoma-Paranat association

Positions on landscape: Flood plains, alluvial flats

Composition

Major components:
Ocala silt loam, occasionally flooded, 0 to 2 percent slopes—40 percent
Sonoma silt loam, occasionally flooded, strongly saline, 0 to 2 percent slopes—25 percent
Paranat silt loam, strongly saline, 0 to 2 percent slopes—20 percent

Contrasting inclusions:
Aquic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—8 percent
Aeric Halaquepts, fine-silty, mixed, mesic, 0 to 2 percent slopes—5 percent
Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic, 2 to 4 percent slopes—2 percent

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, alkali sacaton

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 30 to 46

Depth: 4 to 36 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 20 to 46

Depth: 36 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 35

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in February through May
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 inches

Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Stream flood plains
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Alkali sacaton, alkali cordgrass, inland saltgrass, basin wildrye

Typical Profile

Depth: 0 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 12 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: 18 to 36 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Paranat Soil

Classification: Fluvaquentic Haplaquolls, fine-silty, mixed (calcareous), mesic
Positions on landscape: Adjacent to channels and depressional areas
Parent material: Silty fluvial deposits
Slope: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Alkali sacaton, alkali cordgrass, alkali bluegrass, western wheatgrass

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 13 to 20

Depth: 11 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: 18 to 42 inches
Frequency of flooding: Frequent for brief to long periods in December through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 12 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aquic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Flood plain remnants
Distinctive present vegetation: Basin wildrye, basin big sagebrush, black greasewood

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed, mesic
Positions on landscape: Stream flood plain remnants, braided channels
Distinctive present vegetation: Basin wildrye, inland saltgrass, basin big sagebrush

Inclusion 3
Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Fan skirt margins adjacent to alluvial flats and flood plains
Distinctive present vegetation: Wyoming big sagebrush, rubber rabbitbrush, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat, native pasture

Suitability for Wildlife Habitat Elements

Ocala Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Fair
Shallow water areas: Fair

Sonoma Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor
Wetland plants: Fair
Shallow water areas: good

Paranat Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair
Wetland plants: Good
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Ocala Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Sonoma Soil
Range seeding: Poor—excess salt
Roadfill: Poor—low strength
Topsoil: Fair—excess salt, too clayey
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Paranat Soil
Range seeding: Poor—excess salt
Roadfill: Poor—low strength
Topsoil: Poor—excess salt
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess salt, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Sonoma Soil
Drainage: Frost action, flooding
Irrigation: Wetness, erodes easily
Terraces and diversions: Wetness, erodes easily

Paranat Soil
Drainage: Flooding, frost action, excess salt
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Land capability classification: Ocala, Sonoma, and Paranat soils—VIIw, nonirrigated
Range site: Ocala soil—024X007N; Sonoma and Paranat soils—024X009N; Inclusion 1—024X006N; Inclusion 2—024X010N; Inclusion 3—024X022N

700—Orovada-Rasille-Wholan association

Positions on landscape: Piedmont slopes

Composition

Major components:
Orovada fine sandy loam, 0 to 2 percent slopes—35 percent
Rasille silt loam, 0 to 2 percent slopes—30 percent
Wholan silt loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Duric Haplargids, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—7 percent
Aquic Duric Haploxerolls, fine-loamy, mixed, mesic, 0 to 2 percent slopes—4 percent

Xerollic Camborthids, sandy-skeletal, mixed, mesic, 0 to 4 percent slopes—2 percent
Cumulic Haploxerolls, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fan remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,900 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 26 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 61 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,900 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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 Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 5,900 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Beach terrace remnants
Distinctive present vegetation: Shadscale, bottlebrush squirreltail, halogeton

Inclusion 2
Classification: Aquic Duric Haploxerolls, fine-loamy, mixed, mesic
Positions on landscape: Fan skirt margins
Distinctive present vegetation: Basin wildrye, basin big sagebrush, black greasewood

Inclusion 3
Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Offshore bars
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 4
Classification: Cumulic Haploxerolls, loamy-skeletal, mixed, mesic
Positions on landscape: Banks adjacent to deeply entrenched channels
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Orovada Soil
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
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—excess salt
Daily cover for landfill: Good

Shallow excavations: Slight
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

Wholan Soil
Range seeding: Fair—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Rasille Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Wholan Soil
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Orovada and Wholan soils—IIc, irrigated, and VIc, nonirrigated; Rasille soil—IIIc, irrigated, and VIc, nonirrigated
Range site: Orovada and Rasille soils—028B010N; Wholan soil—024X004N; Inclusion 1—024X002N; Inclusion 2—024X006N; Inclusion 3—028B010N; Inclusion 4—028B003N

701—Orovada fine sandy loam, 2 to 4 percent slopes

Positions on landscape: Fan skirts, inset fans

Composition

Major component:
Orovada fine sandy loam, 2 to 4 percent slopes—85 percent
Contrasting inclusions:
Broyles very fine sandy loam, 2 to 4 percent slopes—5 percent
Creemon silt loam, 2 to 4 percent slopes—5 percent
Davey fine sandy loam, 2 to 4 percent slopes—5 percent

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts, inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 4,800 to 5,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher fan skirt remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The slightly dissected, lower inset fans
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Xerollic Camborthids, sandy, mixed, mesic
Positions on landscape: Sand sheets
Distinctive present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Interpretive Groups

Land capability classification: Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Orovada soil—028B010N; Inclusions 1 and 2—024X002N; Inclusion 3—024X017N

702—Orovada-Creemon association

Positions on landscape: Fan skirts, inset fans

Composition

Major components:
Orovada fine sandy loam, 2 to 4 percent slopes—55 percent
Creemon fine sandy loam, strongly saline, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—8 percent
Duric Camborthids, coarse-loamy, mixed, mesic, 0 to 4 percent slopes—4 percent
Typic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—3 percent

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Broad inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,500 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9.0 to 10.5 inches
Water-supplying capacity: 8 inches

Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Creemon Soil

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, black greasewood, Indian ricegrass

Typical Profile

Depth: 0 to 10 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 10 to 20

Depth: 10 to 15 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 15 to 45 inches
Texture: Stratified very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 30

Depth: 45 to 60 inches
Texture: Stratified gravelly very fine sandy loam to fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirt margins bordering fan piedmont remnants
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirt margins bordering alluvial flat
Distinctive present vegetation: Fourwing saltbush, winterfat, bud sagebrush

Inclusion 3
Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Areas adjacent to active channels
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Creemon Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Orovada Soil
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

Creemon Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Creemon Soil
Drainage: Deep to water
Irrigation: Erodes easily, excess salt, soil blowing
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Land capability classification: Orovada soil—IIe, irrigated, and VIc, nonirrigated; Creemon soil—IIs, irrigated, and VIIs, nonirrigated
Range site: Orovada soil—028B010N; Creemon soil—024X003N; Inclusion 1—024X006N; Inclusion 2—028B014N; Inclusion 3—024X002N

703—Orovada fine sandy loam, 0 to 2 percent slopes

Positions on landscape: Inset fans

Composition

Major component:
Orovada fine sandy loam, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Chedehap sandy loam, 0 to 2 percent slopes—10 percent
Xeric Torriorthents, loamy-skeletal, mixed, mesic—3 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic—2 percent

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 9.0 to 10.5 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: The lower inset fans
Distinctive present vegetation: Spiny hopsage, needlegrass, Wyoming big sagebrush

Inclusion 2

Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic
Positions on landscape: The lower areas adjacent to channels
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 3

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher channel banks
Distinctive present vegetation: Basin wildrye, western wheatgrass, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Orovada soil—IIc, irrigated, and VIc, nonirrigated
Range site: Orovada soil—028B010N; Inclusion 1—028B052N; Inclusion 2—028B009N; Inclusion 3—024X006N

704—Orovada-McConnel association

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major components:
Orovada fine sandy loam, 2 to 4 percent slopes—50 percent
McConnel gravelly fine sandy loam, 2 to 4 percent slopes—35 percent
Contrasting inclusions:
Duric Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—6 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 4 percent slopes—5 percent
Fluventic Haploxerolls, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—4 percent

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts, the lower inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9.0 to 10.5 inches
Water-supplying capacity: 8 inches

Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Beach terraces, the higher inset fan remnants
Parent material: Alluvium that includes some loess and volcanic ash over lacustrine sediment
Slope: 2 to 4 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 2.9 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower margins of fan skirts
Distinctive present vegetation: Bud sagebrush, bottlebrush squirreltail, winterfat

Inclusion 2
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Fluventic Haploxerolls, loamy-skeletal, mixed, mesic
Positions on landscape: Intermountain valley fans and drainageways
Distinctive present vegetation: Basin big sagebrush, rubber rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Orovada Soil
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

McConnel Soil

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

Interpretive Groups

Land capability classification: Orovada soil—IIe, irrigated, and VIc, nonirrigated; McConnel soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Orovada soil—028B010N; McConnel soil—024X005N; Inclusion 1—024X004N; Inclusion 2—028B010N; Inclusion 3—028B003N

705—Orovada-Valmy association

Positions on landscape: Piedmont slopes

Composition

Major components:
Orovada fine sandy loam, 2 to 4 percent slopes—45 percent
Valmy very fine sandy loam, 0 to 2 percent slopes—40 percent
Contrasting inclusions:
Gund silt loam, 0 to 2 percent slopes—7 percent
Zineb gravelly loam, 0 to 4 percent slopes—5 percent
Haploxerollic Durorthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirt remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Valmy Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Inset fans, fan skirts
Parent material: Loess cap that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, black greasewood, basin big sagebrush

Typical Profile

Depth: 0 to 3 inches
Texture: Very fine sandy loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 3 to 43 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 43 to 66 inches
Texture: Gravelly sand, very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 5 to 7 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—4; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: Alluvial flats
Distinctive present vegetation: Basin big sagebrush, black greasewood

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Narrow, higher inset fans
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Inclusion 3
Classification: Haploxerollic Durorthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Valmy Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Orovada Soil
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

Valmy Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Fair—small stones, thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—thin layer, seepage, piping
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Orovada soil—IIe, irrigated, and VIc, nonirrigated; Valmy soil—IIs, irrigated, and VIIc, nonirrigated
Range site: Orovada soil—028B010N; Valmy soil—024X022N; Inclusion 1—024X006N; Inclusions 2 and 3—028B010N

740—Playas

Positions on landscape: Basin floors

Composition

Major component:
Playas—100 percent

Characteristics of the Playas

Positions on landscape: Depressions and sink areas on basin floors
Parent material: Lacustrine sediment veneered by fine-textured sediment
Frequency of flooding: Frequent for brief to long periods in September through July
Runoff: Ponded
Hydrologic group: D

Interpretive Groups

Land capability classification: VIIIw, nonirrigated
Range site: None

751—Poorcal-Lopwash association

Positions on landscape: Inset fans

Composition

Major components:
Poorcal loam, 0 to 4 percent slopes—55 percent
Lopwash loam, 0 to 4 percent slopes—40 percent
Contrasting inclusions:
Bubus loam, 0 to 4 percent slopes—2 percent
Durixerollic Haplargids, fine-loamy, mixed, frigid, 0 to 4 percent slopes—2 percent
Shipley fine sandy loam, occasionally flooded, 0 to 4 percent slopes—1 percent

Characteristics of the Poorcal Soil

Classification: Durixerollic Calciorthids, coarse-loamy, mixed, frigid
Positions on landscape: Broad inset fans
Parent material: Alluvium that is derived from sedimentary rock and includes loess and volcanic ash
Slope: 0 to 4 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 5 percent pebbles

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 9 to 30 inches
Texture: Loam, gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 30 to 62 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.5 to 6.0 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lopwash Soil

Classification: Typic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Narrow inset fans adjacent to channels
Parent material: Alluvium derived from various kinds of rock and loess
Slope: 0 to 4 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 12 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 12 to 60 inches

Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.5 to 5.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Stream terraces
Distinctive present vegetation: Black greasewood

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, frigid
Positions on landscape: Nonburied fan piedmont remnants
Distinctive present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Inclusion 3
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), frigid
Positions on landscape: Concave inset fans that are subject to run-on
Distinctive present vegetation: Bottlebrush squirreltail, winterfat

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Poorcal Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Lopwash Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Poorcal Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—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: Improbable source—excess fines
Gravel: Improbable source—excess fines

Lopwash Soil
Range seeding: Poor—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

Interpretive Groups

Land capability classification: Poorcal and Lopwash soils—IVe, irrigated, and VIIc, nonirrigated
Range site: Poorcal soil—028B010N; Lopwash soil—028B017N; Inclusion 1—024X003N; Inclusion 2—028B010N; Inclusion 3—028B013N

811—Ravenswood-Itca-Walti association

Positions on landscape: Mountains

Composition

Major components:
Ravenswood gravelly loam, 15 to 50 percent slopes, very stony—50 percent
Itca stony loam, 15 to 50 percent slopes—20 percent
Walti cobbly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—8 percent
Robson very gravelly loam, 8 to 15 percent slopes—4 percent
Cleavage very gravelly fine sandy loam, 8 to 30 percent slopes—3 percent

Characteristics of the Ravenswood Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: North- and east-facing side slopes of mountains

Parent material: Colluvium and residuum derived from metavolcanic and volcanic rock
Slope: 15 to 50 percent
Elevation: 6,200 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, mountain big sagebrush, singleleaf pinyon
Site index for singleleaf pinyon: 55

Typical Profile

Rock fragments on surface: 3 percent stones and boulders, 10 percent cobbles, 65 percent pebbles

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 13 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 13 to 36 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 36 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 5 to 6 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; 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 Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South- and west-facing side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 50 percent
Elevation: 6,200 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 5 percent cobbles, 5 percent pebbles

Depth: 0 to 2 inches
Texture: Stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.0 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Summits and shoulder slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 8 to 15 percent
Elevation: 6,800 to 8,200 feet

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 10 percent pebbles

Depth: 0 to 4 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.7 to 4.7 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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
Positions on landscape: Scattered peaks, rimrock
Distinctive present vegetation: None

Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The lower shoulder slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, bluegrass, low sagebrush

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Windswept crests and nose slopes of mountains
Distinctive present vegetation: Bluegrass, black sagebrush, low sagebrush

Major Current Uses

Livestock grazing, wildlife habitat, cordwood production

Suitability for Wildlife Habitat Elements

Ravenswood Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Ravenswood Soil
Range seeding: Poor—erodes easily
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones, slope
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Walti Soil

Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell, 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

Interpretive Groups

Land capability classification: Ravenswood and Itca soils—VIIe, nonirrigated; Walti soil—VIIs, nonirrigated
Range site: Ravenswood and Itca soils—025X061N; Walti soil—024X027N; Inclusion 1—none; Inclusion 2—024X018N; Inclusion 3—024X016N

812—Ravenswood-Shagnasty-Walti association

Positions on landscape: Mountains

Composition

Major components:
Ravenswood gravelly loam, 15 to 30 percent slopes, extremely stony—40 percent
Shagnasty very cobbly loam, 15 to 30 percent slopes—25 percent
Walti very cobbly loam, 8 to 15 percent slopes—20 percent
Contrasting inclusions:
Welch loam, drained, 2 to 8 percent slopes—5 percent
Aridic Argixerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—5 percent
Rock outcrop—4 percent
Rubble land—1 percent

Characteristics of the Ravenswood Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, south- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from metavolcanic and volcanic rock
Slope: 15 to 30 percent
Elevation: 6,000 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, mountain big sagebrush, singleleaf pinyon
Site index for singleleaf pinyon: 55

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 35 percent pebbles

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 13 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 13 to 36 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 36 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 5 to 6 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; 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 Shagnasty Soil

Classification: Typic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Concave, north- and east-facing side slopes of mountains
Parent material: Colluvium over residuum derived from rhyolite, andesite, or quartzite
Slope: 15 to 30 percent
Elevation: 6,000 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F

Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, singleleaf pinyon
Site index for singleleaf pinyon: 55

Typical Profile

Rock fragments on surface: 30 percent cobbles, 15 percent pebbles

Depth: 0 to 15 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 15 to 36 inches
Texture: Clay, clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 36 to 57 inches
Texture: Cobbly clay loam, cobbly silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 57 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 50 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.2 to 8.5 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—3; 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 Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Crests of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 8 to 15 percent
Elevation: 6,800 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.8 to 5.0 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—2; 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
Positions on landscape: Narrow intermountain drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Foot slopes of mountains

Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 3
Positions on landscape: Shoulder slopes and scattered peaks of mountains
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Below areas of Rock outcrop
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Ravenswood Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Shagnasty Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Ravenswood Soil
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: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Shagnasty Soil
Range seeding: Poor—large stones
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell
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

Walti Soil
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell, 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

Interpretive Groups

Land capability classification: Ravenswood soil—VIs, nonirrigated; Shagnasty and Walti soils—VIIs, nonirrigated
Range site: Ravenswood and Shagnasty soils—025X061N; Walti soil—024X027N; Inclusion 1—028B024N; Inclusion 2—028B030N; Inclusion 3—none; Inclusion 4—none

850—Relley silt loam, 0 to 2 percent slopes

Positions on landscape: Piedmont slopes

Composition

Major component:
Relley silt loam, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Batan silt loam, 0 to 2 percent slopes—4 percent
Bubus very fine sandy loam, 0 to 2 percent slopes—3 percent
Wholan very fine sandy loam, 0 to 2 percent slopes—3 percent

Characteristics of the Relley Soil

Classification: Duric Camborthids, fine-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 16 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 28 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 28 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 11 to 13 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Slightly convex fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Black greasewood, shadscale, bud sagebrush

Inclusion 3
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants near channels
Distinctive present vegetation: Black greasewood, shadscale, bud sagebrush

Inclusion 4
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Indian ricegrass, winterfat, halogeton

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Fair—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—low strength, shrink-swell
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Relley soil—IIc, irrigated; VIIc, nonirrigated
Range site: Relley soil—024X002N; Inclusion 1—024X002N; Inclusions 2, 3, and 4—024X003N

854—Relley silt loam, frequently flooded, 0 to 2 percent slopes

Positions on landscape: Piedmont slopes

Composition

Major component:
Relley silt loam, frequently flooded, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Durorthidic Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—9 percent
Duric Camborthids, fine-loamy, mixed, mesic, 0 to 2 percent slopes—4 percent
Creemon silt loam, 0 to 2 percent slopes—2 percent

Characteristics of the Relley Soil

Classification: Duric Camborthids, fine-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, sickle saltbush

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 16 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 28 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 28 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Frequent for very brief periods in December through June
Permeability: Moderate
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Active inset fans
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush, basin big sagebrush

Inclusion 2
Classification: Duric Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fan remnants
Dominant present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Fair—thin layer
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage

Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Relley soil—IIIw, irrigated; VIIw, nonirrigated
Range site: Relley soil—024X012N; Inclusion 1—024X006N; Inclusions 2 and 3—024X002N

910—Rutab loam, 0 to 2 percent slopes

Positions on landscape: Piedmont slopes

Composition

Major component:
Rutab loam, 0 to 2 percent slopes—90 percent
Contrasting inclusions:
Fluventic Haploxerolls, loamy-skeletal, mixed, frigid, 0 to 4 percent slopes—5 percent
Glyphs fine sandy loam, 0 to 4 percent slopes—5 percent

Characteristics of the Rutab Soil

Classification: Xerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,300 to 7,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 5 percent pebbles

Depth: 0 to 8 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 21 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 21 to 60 inches
Texture: Extremely gravelly sandy loam
Structure: Single grain
Consistence: Loose
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.2 to 5.3 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; 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: Fluventic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Inset fans
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Bluegrass, needlegrass, Wyoming big sagebrush, small rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Rutab soil—IIIs, irrigated: VIIc, nonirrigated

Range site: Rutab soil—028B010N; Inclusion 1—028B003N; Inclusion 2—028B010N

931—Shagnasty-Roca-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Shagnasty very cobbly loam, 30 to 50 percent slopes—45 percent
Roca very cobbly loam, 30 to 50 percent slopes—25 percent
Rock outcrop—15 percent
Contrasting inclusions:
Walti very cobbly loam, 8 to 30 percent slopes—8 percent
Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 15 to 50 percent slopes—5 percent
Welch loam, drained, 2 to 8 percent slopes—2 percent

Characteristics of the Shagnasty Soil

Classification: Typic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex, north-, east-, and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and quartzite
Slope: 30 to 50 percent
Elevation: 6,800 to 7,600 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, singleleaf pinyon
Site index for singleleaf pinyon: 55

Typical Profile

Rock fragments on surface: 30 percent cobbles, 15 percent pebbles

Depth: 0 to 15 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 15 to 36 inches
Texture: Clay, clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 36 to 57 inches
Texture: Cobbly clay loam, cobbly silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 57 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 50 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.0 to 8.5 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—3; 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 Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 30 to 50 percent
Elevation: 6,800 to 7,500 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 24 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 24 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.6 to 3.4 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Rock Outcrop

Positions on landscape: Scattered peaks on mountains
Elevation: 7,200 to 7,700 feet

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Crests of mountains
Distinctive present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Mountain ridge nose slopes
Distinctive present vegetation: Black sagebrush, low sagebrush, bluegrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, willows, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Shagnasty Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Shagnasty Soil
Range seeding: Poor—large stones
Roadfill: Poor—low strength, shrink-swell, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell
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

Roca Soil
Range seeding: Poor—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

Interpretive Groups

Land capability classification: Shagnasty and Roca soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Shagnasty soil—025X061N; Roca soil—024X028N; Rock outcrop—none; Inclusion 1—028B037N; Inclusion 2—028B038N; Inclusion 3—028B024N

932—Shagnasty-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Shagnasty very cobbly loam, 30 to 50 percent slopes—50 percent
Softscrabble very cobbly fine sandy loam, 15 to 30 percent slopes—35 percent
Contrasting inclusions:
Walti extremely stony loam, 8 to 15 percent slopes—6 percent
Pachic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—4 percent

Welch loam, drained, 2 to 8 percent slopes—4 percent
Welch loam, 2 to 8 percent slopes—1 percent

Characteristics of the Shagnasty Soil

Classification: Typic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Colluvium over residuum derived from rhyolite, andesite, and quartzite
Slope: 30 to 50 percent
Elevation: 6,500 to 8,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, singleleaf pinyon
Site index for singleleaf pinyon: 55

Typical Profile

Rock fragments on surface: 40 percent stones and boulders, 30 percent cobbles, 15 percent pebbles

Depth: 0 to 15 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 15 to 36 inches
Texture: Clay, clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 36 to 57 inches
Texture: Cobbly clay loam, cobbly silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 57 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 50 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.2 to 8.3 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—3; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains in areas where snow accumulates
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,500 to 8,200 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Depth: 0 to 16 inches
Texture: Very cobbly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.0 to 7.8 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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
Positions on landscape: Stable, convex side slopes of mountains
Distinctive present vegetation: Idaho fescue, needlegrass, low sagebrush

Inclusion 2
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Side slopes of mountains in small areas where snow accumulates
Distinctive present vegetation: Chokecherry

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Entrenched intermountain drainageways and canyon bottoms
Distinctive present vegetation: Basin wildrye, bluegrass, basin big sagebrush

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Smooth intermountain drainageways
Distinctive present vegetation: Tufted hairgrass, sedge, iris, willow

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Shagnasty Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Shagnasty Soil
Range seeding: Poor—large stones
Roadfill: Poor—low strength, shrink-swell, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell
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

Softscrabble Soil
Range seeding: Poor—large stones
Roadfill: Fair—large stones, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Shagnasty and Softscrabble soils—VIIs, nonirrigated
Range site: Shagnasty soil—025X061N; Softscrabble soil—024X021N; Inclusion 1—024X027N; Inclusion 2—024X035N; Inclusion 3—028B024N; Inclusion 4—025X005N

942—Shipley silt loam, occasionally flooded, 0 to 2 percent slopes

Positions on landscape: Inset fans

Composition

Major component:
Shipley silt loam, occasionally flooded, 0 to 2 percent slopes—90 percent
Contrasting inclusions:
Shipley silt loam, gravelly substratum, gullied, 0 to 4 percent slopes—5 percent
Rutab gravelly sandy loam, 0 to 4 percent slopes—5 percent

Characteristics of the Shipley Soil

Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), frigid
Positions on landscape: Inset fans
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 6,400 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat

Typical Profile

Rock fragments on surface: 5 percent pebbles

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 5 to 41 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in January through May
Permeability: Moderate
Available water capacity: 6.5 to 9.0 inches
Water-supplying capacity: 11 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—4; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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), frigid
Positions on landscape: Areas adjacent to recently entrenched channels
Distinctive present vegetation: Wyoming big sagebrush, basin wildrye

Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Inset fan remnants
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—excess salt, too arid, excess sodium
Roadfill: Good
Topsoil: Poor—area reclaim
Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Shipley soil—IIIw, irrigated; VIw, nonirrigated
Range site: Shipley soil—028B013N; Inclusion 1—028B009N; Inclusion 2—028B010N

950—Silverado sandy loam, 0 to 2 percent slopes

Positions on landscape: Inset fans

Composition

Major component:
Silverado sandy loam, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Xeric Torriorthents, coarse-loamy, mixed (calcareous), frigid, 0 to 2 percent slopes—6 percent
Xerollic Haplargids, fine-loamy, mixed, frigid, 0 to 2 percent slopes—5 percent
Typic Camborthids, loamy-skeletal, mixed, frigid, 0 to 2 percent slopes—4 percent

Characteristics of the Silverado Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Positions on landscape: Inset fans
Parent material: Mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent

Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 2 inches
Texture: Sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 2 to 19 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 19 to 38 inches
Texture: Sandy loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 38 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.0 to 5.5 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), frigid
Positions on landscape: Areas adjacent to narrow active channels
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 2
Classification: Xerollic Haplargids, fine-loamy, mixed, frigid
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, needlegrass

Inclusion 3
Classification: Typic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Inset fans in the lower areas near fan skirts
Distinctive present vegetation: Shadscale, black greasewood, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Interpretive Groups

Land capability classification: Silverado soil—IVs, irrigated; VIIc, nonirrigated
Range site: Silverado soil—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—024X022N

990—Sonoma-Wendane association

Positions on landscape: Stream flood plains, alluvial flats

Composition

Major components:
Sonoma silt loam, drained, occasionally flooded, 0 to 2 percent slopes—65 percent

Wendane silt loam, frequently flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes—5 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 0 to 4 percent slopes—5 percent
Paranat silt loam, 0 to 2 percent slopes—5 percent

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Outer margins of flood plains
Parent material: Silty mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, alkali sacaton, basin big sagebrush, black greasewood

Typical Profile

Depth: 0 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 12 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 35 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirt remnants
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Wyoming big sagebrush, black greasewood

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-silty, mixed (calcareous), mesic
Positions on landscape: Active flood plains adjacent to channels
Distinctive present vegetation: Saltgrass, alkali sacaton

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Sonoma Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor
Wetland plants: Fair
Shallow water areas: Fair

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Sonoma Soil
Range seeding: Poor—excess salt
Roadfill: Poor—low strength
Topsoil: Fair—excess salt
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—wetness, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Sonoma Soil
Drainage: Deep to water
Irrigation: Erodes easily, flooding, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Sonoma soil—IIIw, irrigated, and VIw, nonirrigated; Wendane soil—VIIw, nonirrigated
Range site: Sonoma soil—024X006N; Wendane soil—024X007N; Inclusion 1—025X003N; Inclusion 2—024X022N; Inclusion 3—025X001N

998—Sonoma-Paranat association

Positions on landscape: Stream flood plains

Composition

Major components:
Sonoma silt loam, frequently flooded, 0 to 2 percent slopes—45 percent
Paranat silt loam, 0 to 2 percent slopes—20 percent
Sonoma silt loam, drained, occasionally flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Duric Camborthids, fine-loamy, mixed, mesic, 0 to 2 percent slopes—6 percent
Durorthidic Torriorthents, fine-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—4 percent
Duric Camborthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—3 percent
Typic Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Sonoma Soil, Frequently Flooded

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Smooth outer margins of broad flood plains
Parent material: Silty mixed alluvium that includes volcanic ash

Slope: 0 to 2 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Creeping wildrye, bluegrass, rush, sedge

Typical Profile

Depth: 0 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 12 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: 18 to 36 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 11 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Paranat Soil

Classification: Fluvaquentic Haplaquolls, fine-silty, mixed (calcareous), mesic
Positions on landscape: Slightly concave flood plains
Parent material: Silty fluvial deposits
Slope: 0 to 2 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Rush, sedge, creeping wildrye, bluegrass, basin wildrye

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 20 to 48 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 48 to 60 inches
Texture: Stratified very fine sandy loam to silty clay
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: 18 to 42 inches
Frequency of flooding: Frequent for brief to long periods in December through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Sonoma Soil, Occasionally Flooded

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Stream terraces
Parent material: Silty mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, inland saltgrass, basin big sagebrush, black greasewood

Typical Profile

Depth: 0 to 12 inches

Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 12 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 9 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Stream terrace remnants
Distinctive present vegetation: Rubber rabbitbrush, basin wildrye, black greasewood

Inclusion 2
Classification: Durorthidic Torriorthents, fine-loamy, mixed (calcareous), mesic
Positions on landscape: Small fanlettes adjacent to fan piedmont remnants
Distinctive present vegetation: Basin big sagebrush, basin wildrye, rubber rabbitbrush, bluegrass

Inclusion 3
Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Areas adjacent to channels on stream terraces
Distinctive present vegetation: Rubber rabbitbrush, black greasewood, basin wildrye

Inclusion 4
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts adjacent to fan piedmont remnants
Distinctive present vegetation: Black greasewood, basin wildrye, inland saltgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Sonoma Soil, Frequently Flooded
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor
Wetland plants: Good
Shallow water areas: Fair

Paranat Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair
Wetland plants: Good
Shallow water areas: Good

Sonoma Soil, Occasionally Flooded
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor
Wetland plants: Fair
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Sonoma Soil, Frequently Flooded
Range seeding: Poor—excess salt
Roadfill: Poor—low strength
Topsoil: Fair—excess salt
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Paranat Soil
Range seeding: Fair—excess salts
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, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Sonoma Soil, Occasionally Flooded
Range seeding: Poor—excess salt
Roadfill: Poor—low strength

Topsoil: Fair—excess salt
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—wetness, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Sonoma Soil, Frequently Flooded
Drainage: Frost action, flooding
Irrigation: Wetness, erodes easily
Terraces and diversions: Wetness, erodes easily

Paranat Soil
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Sonoma Soil, Occasionally Flooded
Drainage: Deep to water
Irrigation: Erodes easily, flooding, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Sonoma, frequently flooded; Paranat; and Sonoma, occasionally flooded, soils—IIIw, irrigated, and VIw, nonirrigated
Range site: Sonoma, frequently flooded, and Paranat soils—025X001N; Sonoma soil, occasionally flooded—024X006N; Inclusion 1—024X007N; Inclusion 2—028B003N; Inclusion 3—024X007N; Inclusion 4—024X015N

999—Sonoma-Wendane-Paranat association

Positions on landscape: Stream flood plains, alluvial flats

Composition

Major components:
Sonoma silt loam, drained, occasionally flooded, 0 to 2 percent slopes—45 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—25 percent
Paranat silt loam, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—8 percent
Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic, 0 to 4 percent slopes—5 percent
Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Outer margins of flood plains
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, basin big sagebrush, black greasewood

Typical Profile

Depth: 0 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 12 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 9 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash

Slope: 0 to 2 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Paranat Soil

Classification: Fluvaquentic Haplaquolls, fine-silty, mixed (calcareous), mesic
Positions on landscape: Active flood plains near channels
Parent material: Silty fluvial deposits
Slope: 0 to 2 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Rush, sedge, creeping wildrye, basin wildrye, bluegrass, willow

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 20 to 48 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 48 to 60 inches
Texture: Stratified very fine sandy loam to silty clay
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: 18 to 42 inches
Frequency of flooding: Frequent for brief to long periods in December through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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), mesic
Positions on landscape: Inactive, partially backfilled channels
Distinctive present vegetation: Rush, sedge, inland saltgrass, basin wildrye

Inclusion 2
Classification: Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Fanlettes adjacent to fan piedmont remnants
Distinctive present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Inclusion 3
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Stream terraces
Distinctive present vegetation: Black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Sonoma Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor
Wetland plants: Fair
Shallow water areas: Fair

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Paranat Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair
Wetland plants: Good
Shallow water areas: Good

Suitability and Limitations for Selected Uses

Sonoma Soil
Range seeding: Poor—excess salt
Roadfill: Poor—low strength
Topsoil: Fair—excess salt
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—wetness, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—low strength
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Paranat Soil
Range seeding: Fair—excess salt
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, frost action, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Sonoma Soil
Drainage: Frost action, flooding
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Paranat Soil
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Land capability classification: Sonoma soil—IIIw, irrigated, and VIw, nonirrigated; Wendane soil—VIIw, nonirrigated; Paranat soil—IIIw, irrigated, and VIw, nonirrigated
Range site: Sonoma soil—024X006N; Wendane soil—024X007N; Paranat soil—025X001N; Inclusion 1—025X001N; Inclusion 2—028B003N; Inclusion 3—024X011N

1011—Stampede-Handy-Caniwe association

Positions on landscape: Fan piedmonts, mountain valley fans

Composition

Major components:
Stampede gravelly loam, 4 to 8 percent slopes—50 percent

Handy gravelly loam, 8 to 15 percent slopes—30 percent
Caniwe very fine sandy loam, 2 to 4 percent slopes—10 percent
Contrasting inclusions:
Buffaran gravelly loam, 4 to 15 percent slopes—7 percent
Pachic Haploxerolls, fine-loamy, mixed, frigid, 0 to 2 percent slopes—3 percent

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Positions on landscape: Summits of fan piedmont remnants and mountain valley fan remnants
Parent material: Alluvium and colluvium derived from various kinds of rock
Slope: 4 to 8 percent
Elevation: 5,500 to 7,100 feet
Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, friable
Reaction: Neutral

Depth: 10 to 31 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 31 to 60 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 20 to 36 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.4 to 5.3 inches
Water-supplying capacity: 11 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; 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 Handy Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Side slopes of fan piedmont remnants and mountain valley fan remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 5,500 to 7,100 feet
Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, western wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 4 to 30 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 30 to 60 inches
Texture: Stratified gravelly loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 5.7 to 7.4 inches
Water-supplying capacity: 11 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Caniwe Soil

Classification: Aridic Duric Haploxerolls, fine-silty, mixed, mesic

Positions on landscape: Inset fans
Parent material: Loess, mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,800 feet
Average annual precipitation: About 11 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 17 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 17 to 60 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 11 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The lower parts of summits and shoulder slopes of fan remnants
Distinctive present vegetation: Indian ricegrass, bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Pachic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Along stream and channel banks
Distinctive present vegetation: Basin big sagebrush, basin wildrye, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Stampede Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Handy Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Caniwe Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Stampede Soil
Range seeding: Fair—droughty
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—shrink-swell, low strength
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

Handy Soil
Range seeding: Poor—rooting depth
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Caniwe Soil
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—too clayey
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Stampede soil—IVe, irrigated, and VIc, nonirrigated; Handy soil—VIIs, nonirrigated; Caniwe soil—IIe, irrigated, and VIc, nonirrigated
Range site: Stampede soil—025X014N; Handy and Caniwe soils—028B007N; Inclusion 1—028B010N; Inclusion 2—028B003N

1041—Tenabo-Orovada-Buffaran association

Positions on landscape: Fan piedmonts

Composition

Major components:
Tenabo gravelly very fine sandy loam, 4 to 8 percent slopes—50 percent
Orovada fine sandy loam, 2 to 4 percent slopes—20 percent
Buffaran gravelly loam, 4 to 8 percent slopes—15 percent
Contrasting inclusions:
Typic Torriorthents, fine-loamy, mixed, mesic, 8 to 30 percent slopes—8 percent
Broyles fine sandy loam, 2 to 4 percent slopes—4 percent
Typic Torriorthents, fine-loamy, mixed, mesic, 8 to 15 percent slopes—3 percent

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 15 to 28 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.5 to 2.9 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky

Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 26 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 61 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The higher summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Torriorthents, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower inset fans near scarp breaks
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Typic Torriorthents, fine-loamy, mixed, mesic
Positions on landscape: Fan toe slopes, scarp breaks
Distinctive present vegetation: Big sagebrush, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Tenabo Soil
Range seeding: Poor—droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Orovada Soil
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

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
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

Land capability classification: Tenabo soil—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated; Buffaran soil—VIIs, nonirrigated
Range site: Tenabo soil—024X002N; Orovada and Buffaran soils—028B010N; Inclusions 1 and 2—024X002N; Inclusion 3—024X022N

1042—Tenabo-Ricert-Desatoya association

Positions on landscape: Fan piedmonts

Composition

Major components:
Tenabo gravelly very fine sandy loam, 4 to 8 percent slopes—45 percent
Ricert very gravelly very fine sandy loam, 2 to 4 percent slopes—25 percent
Desatoya gravelly fine sandy loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—7 percent
Haploxerollic Durargids, loamy, mixed, mesic, shallow, 4 to 8 percent slopes—4 percent
Allor gravelly loam, 2 to 4 percent slopes—4 percent

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher summits and shoulder slopes of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches

Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 15 to 28 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.5 to 2.9 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower summits and shoulder slopes of fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Desatoya Soil

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days

Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 60 inches
Texture: Stratified extremely gravelly sandy loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 3.0 to 5.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
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 Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits on the upper part of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 3
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Adjacent fan aprons
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Desatoya Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Tenabo Soil
Range seeding: Poor—droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Ricert Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Desatoya Soil

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

Interpretive Groups

Land capability classification: Tenabo soil—IVe, irrigated, and VIIs, nonirrigated; Ricert soil—IVs, irrigated, and VIIs, nonirrigated; Desatoya soil—VIIs, nonirrigated
Range site: Tenabo and Ricert soils—024X002N; Desatoya soil—024X030N; Inclusion 1—024X005N; Inclusion 2—024X020N; Inclusion 3—024X005N

1092—Tulase-Bubus-McConnel association

Positions on landscape: Basin floors, fan skirts

Composition

Major components:
Tulase silt loam, 2 to 8 percent slopes—40 percent
Bubus very fine sandy loam, slightly saline, 2 to 4 percent slopes—30 percent
McConnel loam, 0 to 4 percent slopes—15 percent
Contrasting inclusions:
Duric Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—5 percent
Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent

Characteristics of the Tulase Soil

Classification: Durorthidic Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: The higher fan skirts and lagoons
Parent material: Mixed silty alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Very fine sandy loam, silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bubus Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 2 to 4 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 6 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 25 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 10 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the McConnel Soil

Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Offshore bars
Parent material: Alluvium that includes some loess and ash over lacustrine sediment
Slope: 0 to 4 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 12 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid over very rapid
Available water capacity: 3.0 to 6.4 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fan remnants
Distinctive present vegetation: Black greasewood, shadscale

Inclusion 2
Classification: Xeric Torriorthents, coarse-silty, mixed (calcareous), mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Offshore bars
Distinctive present vegetation: Wyoming big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Irrigated cropland

Suitability for Wildlife Habitat Elements

Tulase Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Bubus Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

McConnel Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Tulase Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Good
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

Bubus Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
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, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Restrictive Features for Selected Practices

Tulase Soil
Drainage: Deep to water
Irrigation: Erodes easily, slope
Terraces and diversions: Erodes easily

Bubus Soil
Drainage: Deep to water
Irrigation: Slope, erodes easily, excess salt
Terraces and diversions: Erodes easily

McConnel Soil
Drainage: Deep to water
Irrigation: Droughty
Terraces and diversions: Erodes easily, too sandy

Interpretive Groups

Land capability classification: Tulase soil—IIIe, irrigated, and VIc, nonirrigated; Bubus soil—IIc, irrigated, and VIIc, nonirrigated; McConnel soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Tulase and McConnel soils—024X005N; Bubus soil—024X002N; Inclusion 1—024X003N; Inclusions 2 and 3—024X005N

1131—Fortank gravelly loam, 4 to 8 percent slopes

Positions on landscape: Foothills

Composition

Major component:
Fortank gravelly loam, 4 to 8 percent slopes, extremely stony—85 percent
Contrasting inclusions:
Abruptic Xerollic Durargids, fine, montmorillonitic, mesic, 4 to 15 percent slopes—8 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 2 to 8 percent slopes—5 percent
Haploxerollic Durorthids, fine-loamy, mixed, mesic, 4 to 8 percent slopes—2 percent

Characteristics of the Fortank Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Side slopes of foothills
Parent material: Residuum derived from rhyolite, andesite, and quartzite
Slope: 4 to 8 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 15 percent cobbles, 40 percent pebbles

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

Depth: 6 to 30 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Angular blocky

Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 30 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 3 to 4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Abruptic Xerollic Durargids, fine, montmorillonitic, mesic
Positions on landscape: Concave fan piedmont remnants
Distinctive present vegetation: Indian ricegrass, black sagebrush

Inclusion 2
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Inset fans between foothills
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Inclusion 3
Classification: Haploxerollic Durorthids, fine-loamy, mixed, mesic
Positions on landscape: Convex fan piedmont remnants
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Interpretive Groups

Land capability classification: Fortank soil—VIIs, nonirrigated
Range site: Fortank soil—028B010N; Inclusion 1—028B011N; Inclusions 2 and 3—028B010N

1140—Wendane silt loam, frequently flooded

Positions on landscape: Alluvial flats

Composition

Major component:
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—5 percent
Typic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable

Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11.0 to 12.6 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants near fan skirts
Distinctive present vegetation: Bottlebrush squirreltail, black greasewood, shadscale

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The higher parts of alluvial flats
Distinctive present vegetation: Saltbush, black greasewood, inland saltgrass

Inclusion 3
Classification: Typic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Basin wildrye, basin big sagebrush, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Fair
Shallow water areas: Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Wendane soil—VIIw, nonirrigated
Range site: Wendane soil—024X007N; Inclusion 1—024X003N; Inclusion 2—024X011N; Inclusion 3—024X006N

1141—Wendane-Umberland association

Positions on landscape: Alluvial flats, lake plains

Composition

Major components:
Wendane silt loam, strongly sodic, 0 to 2 percent slopes—45 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—25 percent
Umberland silt loam, rarely flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—4 percent
Playas—1 percent

Characteristics of the Wendane Soil, Strongly Sodic

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Convex alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Basin wildrye, silver buffaloberry, black greasewood

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 30 to 60 millimhos per centimeter
Sodicity (SAR): 60 to 80

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Wendane Soil, Frequently Flooded

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Concave alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Umberland Soil

Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: Lake plain terrace remnants
Parent material: Silty lacustrine sediment derived from various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Iodinebush, rubber rabbitbrush, alkali sacaton, sickle saltbush

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 25 to 40 millimhos per centimeter
Sodicity (SAR): 60 to 80

Depth: 7 to 60 inches
Texture: Clay, silty clay, silty clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: 30 to 60 inches
Frequency of flooding: Rare
Permeability: Very slow
Available water capacity: 9 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Narrow, linear inset fans and channels
Distinctive present vegetation: Basin wildrye, basin big sagebrush, black greasewood

Inclusion 2

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats adjacent to areas of Playas
Distinctive present vegetation: Black greasewood, inland saltgrass

Inclusion 3

Positions on landscape: Small, shallow depressions and sink areas
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wendane Soil, Strongly Sodic

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wendane Soil, Frequently Flooded

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Fair
Shallow water areas: Poor

Umberland Soil

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Poor

Suitability and Limitations for Selected Uses

Wendane Soil, Strongly Sodic

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Fair—wetness, shrink-swell
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wendane Soil, Frequently Flooded

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action

Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Umberland Soil
Range seeding: Poor—excess salt, excess sodium, too crusty
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium, too clayey
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Umberland Soil
Drainage: Percs slowly, frost action, excess salt
Irrigation: Wetness, percs slowly
Terraces and diversions: Erodes easily, wetness, percs slowly

Interpretive Groups

Land capability classification: Wendane and Umberland soils—VIIw, nonirrigated
Range site: Wendane soil, strongly sodic—028B057N; Wendane soil, frequently flooded—024X007N; Umberland soil—024X010N; Inclusion 1—024X006N; Inclusion 2—024X011N; Inclusion 3—none

1142—Wendane-Gund association

Positions on landscape: Alluvial flats, lake plains

Composition

Major components:
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—45 percent
Gund silt loam, 0 to 2 percent slopes—30 percent
Gund silt loam, drained, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—6 percent
Umberland silt loam, 0 to 2 percent slopes—4 percent

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Gund Soil

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: Lake plain terraces
Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, basin big sagebrush, black greasewood

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 23 to 60 inches
Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 36 to 42 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Characteristics of the Gund Soil, Drained

Classification: Aquic Durorthidic Torriorthents, fine-silty over clayey, mixed, nonacid, mesic
Positions on landscape: Lake plain terrace remnants
Parent material: Silty alluvium derived from loess and volcanic ash over lake sediment
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 75 to 10 millimhos per centimeter
Sodicity (SAR): 10 to 25

Depth: 4 to 23 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 50 to 80

Depth: 23 to 60 inches
Texture: Silty clay, clay
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: 60 to 72 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic

Positions on landscape: Alluvial flat margins
Distinctive present vegetation: Black greasewood, inland saltgrass

Inclusion 2
Classification: Aeric Halaquepts, fine, montmorillonitic (calcareous), mesic
Positions on landscape: The lower margins of lake plain terrace remnants
Distinctive present vegetation: Iodinebush, alkali sacaton

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Gund Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Very poor
Shallow water areas: Fair

Gund Soil, Drained
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Gund Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess salt
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Gund Soil, Drained
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength, shrink-swell
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—too clayey, hard to pack, excess sodium
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Wendane and Gund soils—VIIw, nonirrigated
Range site: Wendane soil—024X007N; Gund soil—024X006N; Gund soil, drained—024X008N; Inclusion 1—024X011N; Inclusion 2—024X010N

1143—Wendane silt loam, occasionally flooded

Positions on landscape: Basin floors

Composition

Major component:
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Sonoma silt loam, frequently flooded, strongly saline, 0 to 2 percent slopes—5 percent
Aeric Halaquepts, fine, montmorillonitic, mesic, 0 to 2 percent slopes—5 percent

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Lake plain remnants
Distinctive present vegetation: Rubber rabbitbrush, black greasewood

Inclusion 2
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Flood plains
Distinctive present vegetation: Basin wildrye, black greasewood

Inclusion 3
Classification: Aeric Halaquepts, fine, montmorillonitic, mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Black greasewood, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Wendane soil—VIIw, nonirrigated
Range site: Wendane soil—024X011N; Inclusions 1, 2, and 3—024X007N

1145—Wendane-Playas association

Positions on landscape: Basin floors

Composition

Major components:
Wendane silt loam, occasionally flooded, 0 to 2 percent slopes—70 percent
Playas—15 percent
Contrasting inclusions:
Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—5 percent
Isolde fine sand, 4 to 30 percent slopes—5 percent

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic

Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,100 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Playas

Positions on landscape: Small, irregularly shaped sink areas
Parent material: Fine-textured sediment

Contrasting Inclusions

Inclusion 1
Classification: Aquic Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Inset fans on alluvial flats
Distinctive present vegetation: Iodinebush, alkali sacaton, inland saltgrass

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: The lower parts of alluvial flats
Distinctive present vegetation: Alkali rabbitbrush, black greasewood, basin wildrye

Inclusion 3
Classification: Typic Torripsamments, mixed, mesic
Positions on landscape: Sand dunes
Distinctive present vegetation: Spiny hopsage, black greasewood, needlegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Suitability and Limitations for Selected Uses

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Wendane soil—VIIw, nonirrigated; Playas—VIIIw, nonirrigated
Range site: Wendane soil—024X011N; Playas—none; Inclusion 1—024X010N; Inclusion 2—024X007N; Inclusion 3—027X016N

1146—Wendane-Sonoma-Valmy association

Positions on landscape: Alluvial flats, stream flood plains

Composition

Major components:
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—35 percent
Sonoma silt loam, drained, occasionally flooded, 0 to 2 percent slopes—30 percent
Valmy very fine sandy loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Paranat silt loam, 0 to 2 percent slopes—6 percent
Aeric Halaquepts, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—6 percent
Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 2 to 8 percent slopes—3 percent

Characteristics of the Wendane Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, basin wildrye

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 30 to 50 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 7 to 18 inches
Texture: Silt loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 18 to 60 inches
Texture: Stratified silt loam to clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 25 to 35

Soil and Water Features

Depth to a seasonal high water table: 30 to 48 inches
Frequency of flooding: Frequent for brief to long periods in February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Flood plains
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black greasewood, basin wildrye, basin big sagebrush

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 10 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in March through June
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 9 inches

Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Valmy Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan skirts, inset fans
Parent material: Loess cap that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin wildrye, black greasewood, basin big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 42 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 42 to 60 inches
Texture: Gravelly sand, very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.7 to 6.8 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—4; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, fine-silty, mixed (calcareous), mesic
Positions on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Creeping wildrye, sedge, rush, willow

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Flood plain remnants
Distinctive present vegetation: Torrey quailbush, black greasewood

Inclusion 3
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fanlettes over alluvial flats
Distinctive present vegetation: Black greasewood, shadscale

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wendane Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor
Wetland plants: Poor
Shallow water areas: Fair

Sonoma Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor
Wetland plants: Fair
Shallow water areas: Fair

Valmy Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Wendane Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, excess sodium

Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Wendane soil—VIIw, nonirrigated; Bubus soil—VIIs, nonirrigated
Range site: Wendane soil—024X007N; Bubus soil—024X003N; Inclusion 1—024X006N; Inclusion 2—024X003N; Inclusion 3—024X002N

1169—Whirlo-Broyles association

Positions on landscape: Fan skirts, inset fans

Composition

Major components:
Whirlo gravelly very fine sandy loam, 4 to 8 percent slopes—60 percent
Broyles very fine sandy loam, 2 to 4 percent slopes—25 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—9 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—6 percent

Characteristics of the Whirlo Soil

Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The upper fan skirts
Parent material: Mixed alluvium that includes a large amount of loess
Slope: 4 to 8 percent
Elevation: 5,200 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 12 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 12 to 24 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 60 inches
Texture: Very gravelly coarse sandy loam
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.7 to 6.0 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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: Low

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower fan skirts and inset fans
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,200 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 11 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 11 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable

Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The upper inset fans, areas adjacent to fan skirts
Distinctive present vegetation: Needlegrass, Wyoming big sagebrush

Inclusion 2
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Margins of shallow channels
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Whirlo Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Whirlo Soil
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Broyles Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Whirlo soil—IIIe, irrigated, and VIIc, nonirrigated; Broyles soil—IIe, irrigated, and VIIc, nonirrigated
Range site: Whirlo and Broyles soils—024X002N; Inclusion 1—028B010N; Inclusion 2—024X020N

1173—Wholan silt loam, alkaline

Positions on landscape: Fan skirts

Composition

Major component:
Wholan silt loam, alkaline, 0 to 2 percent slopes—90 percent
Contrasting inclusions:
Broyles very fine sandy loam, 0 to 2 percent slopes—7 percent
Rasille silt loam, 0 to 2 percent slopes—3 percent

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 5,100 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, sickle saltbush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline

Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirt remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Bottlebrush squirreltail, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—too arid, excess salts
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Wholan soil—IIc, irrigated, and VIIc, nonirrigated
Range site: Wholan soil—024X012N; Inclusion 1—024X002N; Inclusion 2—028B010N

1177—Wholan-Rasille association, alkaline

Positions on landscape: Fan skirts, inset fans

Composition

Major components:
Wholan very fine sandy loam, alkaline, 0 to 2 percent slopes—65 percent
Rasille silt loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Kelk silt loam, occasionally flooded, 0 to 2 percent slopes—5 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—5 percent
Creemon very fine sandy loam, 0 to 2 percent slopes—5 percent

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Broad fan skirts
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, sickle saltbush

Typical Profile

Depth: 0 to 5 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 60 inches
Texture: Silt loam, very fine sandy loam

Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans, fan drainageways
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Inset fans on the lower margins of fan skirts
Distinctive present vegetation: Basin big sagebrush, black greasewood

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher areas on inset fans
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 3
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirt remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Rasille Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Wholan Soil

Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Rasille Soil

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
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

Restrictive Features for Selected Practices

Wholan Soil

Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Rasille Soil

Drainage: Deep to water
Irrigation: Erodes easily, excess salt
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Wholan soil—IIc, irrigated, and VIIc, nonirrigated; Rasille soil—IIc, irrigated, and VIc, nonirrigated
Range site: Wholan soil—024X012N; Rasille soil—024X005N; Inclusion 1—024X006N; Inclusion 2—024X020N; Inclusion 3—024X002N

1178—Wholan-Rasille association, nonalkaline

Positions on landscape: Fan skirts

Composition

Major components:
Wholan silt loam, 0 to 2 percent slopes—60 percent
Rasille silt loam, gravelly substratum, 0 to 2 percent slopes—25 percent

Contrasting inclusions:
Wholan silt loam, alkaline, 0 to 2 percent slopes—5 percent
Broyles very fine sandy loam, 0 to 4 percent slopes—5 percent
Orovada fine sandy loam, 0 to 2 percent slopes—5 percent

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Smooth fan skirts
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 5,000 to 5,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Low

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan drainageways
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,000 to 5,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 41 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 41 to 60 inches
Texture: Stratified fine sandy loam to very gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 7.6 to 9.3 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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

Contrasting Inclusions

Inclusion 1
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Convex areas of fan skirts
Distinctive present vegetation: Sickle saltbush

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher fan skirt remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent to channels and fanlettes
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Wholan Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—area reclaim, excess salt

Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Restrictive Features for Selected Practices

Wholan Soil
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Wholan soil—IIc, irrigated, and VIIc, nonirrigated; Rasille soil—IIc, irrigated, and VIc, nonirrigated
Range site: Wholan soil—024X004N; Rasille soil—028B010N; Inclusion 1—024X012N; Inclusion 2—024X002N; Inclusion 3—028B010N

1281—Ricert-Whirlo-Pineval association

Positions on landscape: Piedmont slopes

Composition

Major components:
Ricert gravelly silt loam, 4 to 8 percent slopes—45 percent
Whirlo fine sandy loam, 4 to 8 percent slopes—25 percent
Pineval gravelly fine sandy loam, 4 to 8 percent slopes—15 percent
Contrasting inclusions:
Duric Natrargids, fine, montmorillonitic, mesic, 4 to 15 percent slopes—9 percent
Xeric Torriorthents, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—4 percent
Typic Nadurargids, fine-loamy, mixed, mesic, 4 to 15 percent slopes—2 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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: Low

Characteristics of the Whirlo Soil

Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans, fan skirts
Parent material: Mixed alluvium that includes a large amount of loess
Slope: 4 to 8 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 12 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 24 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 60 inches
Texture: Very gravelly coarse sandy loam
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.2 to 5.4 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan aprons
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.0 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
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: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The higher areas on fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2

Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, shadscale

Inclusion 3
Classification: Typic Nadurargids, fine-loamy, mixed, mesic
Positions on landscape: Shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Whirlo Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Whirlo Soil
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Ricert soil—IVe, irrigated, and VIIs, nonirrigated; Whirlo soil—IIIe, irrigated, and VIIc, nonirrigated; Pineval soil—IVe, irrigated, and VIs, nonirrigated
Range site: Ricert and Whirlo soils—024X002N; Pineval soil—028B010N; Inclusion 1—024X002N; Inclusion 2—024X026N; Inclusion 3—024X002N

1282—Ricert-Broyles association

Positions on landscape: Fan piedmonts

Composition

Major components:
Ricert very fine sandy loam, 2 to 8 percent slopes—60 percent
Broyles very fine sandy loam, 2 to 8 percent slopes—25 percent
Contrasting inclusions:
Typic Camborthids, loamy-skeletal, mixed, mesic, 4 to 8 percent slopes—8 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—4 percent
Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—3 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,200 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan aprons
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,200 to 5,600 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.0 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Broyles Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Ricert soil—IVe, irrigated, and VIIs, nonirrigated; Broyles soil—IIIe, irrigated, and VIIc, nonirrigated
Range site: Ricert and Broyles soils—024X002N; Inclusion 1—024X002N; Inclusion 2—024X020N; Inclusion 3—024X002N

1284—Ricert-Zineb-Pineval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Ricert very gravelly very fine sandy loam, 2 to 4 percent slopes—40 percent
Zineb very gravelly sandy loam, 4 to 8 percent slopes—25 percent
Pineval gravelly fine sandy loam, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—7 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—5 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 4 percent slopes—3 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B

Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Zineb Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Parent material: Mixed alluvium that includes volcanic ash
Slope: 4 to 8 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly loam, gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 19 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 19 to 27 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 27 to 60 inches
Texture: Extremely cobbly coarse sand, extremely cobbly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 3.0 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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 Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The higher summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate slow
Available water capacity: 3.0 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
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: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirts near seeps
Distinctive present vegetation: Wyoming big sagebrush, black greasewood

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Zineb Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Zineb Soil
Range seeding: Poor—small stones, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—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—large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Ricert soil—IVs, irrigated, and VIIs, nonirrigated; Zineb soil—VIIs, nonirrigated; Pineval soil—IVe, irrigated, and VIs, nonirrigated
Range site: Ricert soil—024X002N; Zineb and Pineval soils—028B010N; Inclusion 1—028B017N; Inclusion 2—024X022N; Inclusion 3—028B010N

1285—Ricert-Bubus-Broyles association

Positions on landscape: Piedmont slopes

Composition

Major components:
Ricert gravelly silt loam, 0 to 2 percent slopes—45 percent
Bubus very fine sandy loam, 0 to 2 percent slopes—25 percent
Broyles silt loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Orovada fine sandy loam, 0 to 4 percent slopes—9 percent
Valmy very fine sandy loam, 0 to 2 percent slopes—6 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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: Low

Characteristics of the Bubus Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The lower fan skirt margins and inset fans
Parent material: Mixed alluvium that is high in content of pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 6 to 60 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 10 inches

Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The higher parts of fan skirts
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,200 to 5,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Bottlebrush squirreltail, needlegrass, Wyoming big sagebrush

Inclusion 2
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan skirt margins adjacent to stream terraces
Distinctive present vegetation: Shadscale, Wyoming big sagebrush, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Bubus Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Bubus Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage

Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Broyles Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Ricert soil—IVs, irrigated, and VIIs, nonirrigated; Bubus soil—IIIs, irrigated, and VIIs, nonirrigated; Broyles soil—IIe, irrigated, and VIIc, nonirrigated
Range site: Ricert and Broyles soils—024X002N; Bubus soil—024X003N; Inclusion 1—028B010N; Inclusion 2—024X022N

1286—Ricert-Tenabo-Broyles association

Positions on landscape: Fan piedmonts

Composition

Major components:
Ricert gravelly fine sandy loam, 4 to 8 percent slopes—45 percent
Tenabo gravelly very fine sandy loam, 2 to 4 percent slopes—25 percent
Broyles very fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Orovada fine sandy loam, 2 to 4 percent slopes—7 percent
Chiara gravelly loam, 2 to 8 percent slopes—5 percent
Typic Torriorthents, loamy, mixed (calcareous), mesic, shallow, 15 to 30 percent slopes—3 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Shoulder slopes of fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 7 inches

Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 15 to 28 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.5 to 2.9 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.0 to 7.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Narrow inset fans, the lower side slopes of fan piedmonts
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 2

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow

Positions on landscape: Shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, downy rabbitbrush

Inclusion 3
Classification: Typic Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Convex rock pediment remnants
Distinctive present vegetation: Shadscale, bud sagebrush, downy rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Tenabo Soil
Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Broyles Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Ricert and Tenabo soils—IVe, irrigated, and VIIs, nonirrigated; Broyles soil—IIe, irrigated, and VIIc, nonirrigated
Range site: Ricert, Tenabo, and Broyles soils—024X002N; Inclusions 1 and 2—028B010N; Inclusion 3—024X002N

1287—Ricert-Orovada-Broyles association

Positions on landscape: Piedmont slopes

Composition

Major components:
Ricert very gravelly very fine sandy loam, 2 to 4 percent slopes—50 percent
Orovada gravelly very fine sandy loam, 2 to 4 percent slopes—20 percent
Broyles gravelly very fine sandy loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—5 percent
Zineb gravelly loam, 2 to 8 percent slopes—5 percent
Haplic Durargids, loamy, mixed, mesic, shallow, 2 to 8 percent slopes—5 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 7 inches
Texture: Very gravelly very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 20 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 20 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 7

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8 to 10 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; 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 Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts, inset fan remnants
Parent material: Thin loess mantle over mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,000 to 6,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 13 inches

Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.4 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Bottlebrush squirreltail, black sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The highest part of fan aprons and inset fans near channels
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Haplic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex, highest part of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Orovada Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
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

Broyles Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Ricert soil—IVs, irrigated,

and VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated; Broyles soil—IIIe, irrigated, and VIIc, nonirrigated
Range site: Ricert and Broyles soils—024X002N; Orovada soil—028B010N; Inclusion 1—024X030N; Inclusion 2—028B010N; Inclusion 3—024X002N

1288—Ricert-Orovada-Tenabo association

Positions on landscape: Fan piedmonts

Composition

Major components:
Ricert gravelly fine sandy loam, 2 to 8 percent slopes—40 percent
Orovada fine sandy loam, 2 to 8 percent slopes—30 percent
Tenabo very fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—6 percent
Duric Camborthids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—6 percent
Duric Natrargids, fine, montmorillonitic, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.0 to 9.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The higher summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 10

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 15 to 28 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.2 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.55; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 2
Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The upper part of shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Orovada Soil
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

Tenabo Soil
Range seeding: Poor—too arid, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Ricert and Tenabo soils—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Ricert and Tenabo soils—024X002N; Orovada soil—028B010N; Inclusion 1—024X020N; Inclusions 2 and 3—024X002N

1289—Ricert-Blackhawk-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Ricert gravelly fine sandy loam, 4 to 15 percent slopes—40 percent
Blackhawk very fine sandy loam, 2 to 4 percent slopes—25 percent
Orovada fine sandy loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Duric Camborthids, loamy-skeletal, mixed, mesic, 8 to 30 percent slopes—9 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—3 percent
Duric Camborthids, fine-loamy, mixed, mesic, 8 to 30 percent slopes—2 percent
Aquic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 2 percent slopes—1 percent

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Shoulder slopes and side slopes of fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 0 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches

Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Blackhawk Soil

Classification: Entic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 14 inches
Texture: Loam, very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 30 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 30 to 48 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 48 to 60
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans, fan drainageways
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days

Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing, eroded side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower inset fans
Distinctive present vegetation: Needlegrass, Wyoming big sagebrush

Inclusion 3
Classification: Duric Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Eroded scarps along the southeastern edge of fan piedmont remnants
Distinctive present vegetation: Shadscale, black greasewood

Inclusion 4
Classification: Aquic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Basin big sagebrush, basin wildrye, black greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Blackhawk Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Ricert Soil
Range seeding: Poor—too arid, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Probable source
Gravel: Probable source

Blackhawk Soil
Range seeding: Poor—too arid, droughty
Roadfill: Good
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan

Embankments, dikes, and levees: Severe—seepage, excess salt
Sand: Probable source
Gravel: Probable source

Orovada Soil
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

Interpretive Groups

Land capability classification: Ricert soil—VIIs, nonirrigated; Blackhawk soil—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Ricert and Blackhawk soils—024X002N; Orovada soil—028B010N; Inclusion 1—024X002N; Inclusion 2—028B010N; Inclusion 3—024X003N; Inclusion 4—024X006N

1371—Chad-Gando-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Chad cobbly loam, 15 to 50 percent slopes—45 percent
Gando very gravelly loam, 15 to 30 percent slopes—20 percent
Softscrabble fine sandy loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Walti loam, 8 to 30 percent slopes—5 percent
Rock outcrop—5 percent
Welch loam, drained, 4 to 8 percent slopes—3 percent
Welch loam, 4 to 8 percent slopes—2 percent

Characteristics of the Chad Soil

Classification: Aridic Argixerolls, fine, mixed, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Residuum derived from chert and shale
Slope: 15 to 50 percent
Elevation: 6,200 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Thurber needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 17 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 17 to 42 inches
Texture: Gravelly clay, clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 42 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.6 to 5.9 inches
Water-supplying capacity: 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Mountain crests
Parent material: Residuum derived from mixed sedimentary rock
Slope: 15 to 30 percent
Elevation: 6,800 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, Idaho fescue, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 2 percent stones and boulders, 10 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches

Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 10 inches
Texture: Very gravelly loam, extremely gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 10 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.2 to 1.4 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave mountain side slopes
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,200 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 2 percent stones and boulders, 10 percent pebbles

Depth: 0 to 14 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 27 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 27 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.2 to 7.4 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; T value—5; 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: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Mountain shoulder slopes
Distinctive present vegetation: Idaho fescue, low sagebrush

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Adjacent to entrenched narrow mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye, bluegrass

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Adjacent to narrow mountain drainageways
Distinctive present vegetation: Tufted hairgrass, iris, sedge, willow

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Chad Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Gando Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Chad Soil
Range seeding: Fair—large stones, erodes easily
Roadfill: Poor—slope, shrink-swell
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope, shrink-swell
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Gando Soil
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

Softscrabble Soil
Range seeding: Good
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—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones, seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Chad soil—VIIe, nonirrigated; Gando soil—VIIs, nonirrigated; Softscrabble soil—VIe, nonirrigated
Range site: Chad soil—024X029N; Gando soil—028B034N; Softscrabble soil—028B030N; Inclusion 1—028B037N; Inclusion 2—none; Inclusion 3—028B034N; Inclusion 4—025X005N

1450—Atlow-Stingdorn association

Positions on landscape: Foothills

Composition

Major components:
Atlow very gravelly loam, 15 to 50 percent slopes—45 percent
Atlow very gravelly loam, 8 to 15 percent slopes—20 percent
Stingdorn cobbly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Colbar gravelly loam, 15 to 30 percent slopes—5 percent
Xerollic Durorthids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—5 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 4 to 15 percent slopes—5 percent

Characteristics of the Atlow Soil, Steep

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, north- and east-facing side slopes of foothills
Parent material: Residuum derived from chert, argillite, shale, and altered tuff
Slope: 15 to 50 percent
Elevation: 5,200 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.3 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Atlow Soil, Strongly Sloping

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Crests and shoulder slopes of foothills
Parent material: Residuum derived from chert, argillite, shale, and altered tuff
Slope: 8 to 15 percent
Elevation: 5,500 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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 Stingdorn Soil

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: The lower, south-facing side slopes of foothills
Parent material: Residuum derived from rhyolite, tuff, and andesite
Slope: 15 to 30 percent
Elevation: 5,200 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 15 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 20 inches
Material: Indurated hardpan

Depth: 20 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 20 inches
Depth to bedrock: 8 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.7 to 2.2 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave, north-facing side slopes of foothills
Distinctive present vegetation: Thurber needlegrass, Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic
Positions on landscape: The higher, south-facing side slopes of foothills
Distinctive present vegetation: Black sagebrush

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Atlow Soil, Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Atlow Soil, Strongly Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Stingdorn Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Atlow Soil, Steep
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Atlow Soil, Strongly Sloping
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Interpretive Groups

Land capability classification: Atlow and Stingdorn soils—VIIs, nonirrigated
Range site: Atlow soils—024X030N; Stingdorn soil—024X002N; Inclusion 1—024X005N; Inclusion 2—024X030N; Inclusion 3—024X020N

1600—Dumps and pits

Characteristics of the Dumps and Pits

Positions on landscape: Side slopes of hills and adjacent fan piedmonts
Description of areas: Pits and spoil from mining operations
Kind of material: Mixed fill material, residuum
Elevation: 5,200 to 7,900 feet

Depth to a seasonal high water table: More than 60 inches

Interpretive Groups

Land capability classification: VIIIs, nonirrigated
Range site: None

1670—Wieland-Allor association

Positions on landscape: Fan piedmonts

Composition

Major components:
Wieland loam, 2 to 8 percent slopes—70 percent
Allor very cobbly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Orovada fine sandy loam, 2 to 4 percent slopes—7 percent
Xerollic Haplargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—5 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—3 percent

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of slightly dissected fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 8 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 8 to 20 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; 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 Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 30 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4.7 to 6.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Narrow inset fans near the base of adjacent hills
Distinctive present vegetation: Basin big sagebrush, bluegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Wieland Soil
Range seeding: Poor—rooting depth
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
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil
Range seeding: Poor—large stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—cutbanks cave, 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

Interpretive Groups

Land capability classification: Wieland soil—IIIe, irrigated, and VIs, nonirrigated; Allor soil—VIIs, nonirrigated
Range site: Wieland and Allor soils—024X005N; Inclusion 1—024X005N; Inclusion 2—025X003N; Inclusion 3—024X020N

1680—Zineb gravelly loam, 2 to 8 percent slopes

Positions on landscape: Fan skirts

Composition

Major component:
Zineb gravelly loam, 2 to 8 percent slopes—85 percent
Contrasting inclusions:
Whirlo gravelly very fine sandy loam, 2 to 8 percent slopes—10 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—5 percent

Characteristics of the Zineb Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes volcanic ash
Slope: 2 to 8 percent
Elevation: 5,200 to 5,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly loam, gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 19 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 19 to 27 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 27 to 60
Texture: Extremely cobbly coarse sand, extremely cobbly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; 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

Contrasting Inclusions

Inclusion 1

Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower areas of fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2

Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Range seeding: Poor—droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—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—large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones

Interpretive Groups

Land capability classification: Zineb soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Zineb soil—024X005N; Inclusion 1—024X002N; Inclusion 2—024X005N

1681—Zineb-Chiara-Wieland association

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major components:
Zineb gravelly loam, 2 to 4 percent slopes—35 percent
Chiara gravelly loam, 2 to 8 percent slopes—35 percent
Wieland gravelly loam, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Cumulic Haploxerolls, fine-loamy, mixed, mesic, 0 to 2 percent slopes—5 percent

Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—5 percent

Characteristics of the Zineb Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium that includes volcanic ash
Slope: 2 to 4 percent
Elevation: 5,500 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly loam, gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 19 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 19 to 27 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 27 to 60
Texture: Extremely cobbly coarse sand, extremely cobbly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; 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 Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: The higher summits of fan piedmont remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,500 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 13 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.3 to 2.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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 Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 5,500 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 26 inches
Texture: Gravelly clay, clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 52 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 52 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 5.5 to 9.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; 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: Cumulic Haploxerolls, fine-loamy, mixed, mesic
Positions on landscape: The upper inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower inset fans
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zineb Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Chiara Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zineb Soil

Range seeding: Poor—droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—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—large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones

Chiara Soil

Range seeding: Poor—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

Wieland Soil

Range seeding: Poor—rooting depth
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
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Zineb and Chiara soils—IVe, irrigated, and VIIs, nonirrigated; Wieland soil—IIe, irrigated, and VIs, nonirrigated
Range site: Zineb, Chiara, and Wieland soils—024X005N; Inclusion 1—025X003N; Inclusion 2—024X020N

1682—Zineb-Orovada association

Positions on landscape: Piedmont slopes

Composition

Major components:
Zineb very gravelly sandy loam, 2 to 4 percent slopes—55 percent
Orovada gravelly fine sandy loam, 2 to 4 percent slopes—30 percent
Contrasting inclusions:
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—8 percent
Pineval gravelly loam, 0 to 2 percent slopes—4 percent
Orovada very gravelly sandy loam, 4 to 8 percent slopes—3 percent

Characteristics of the Zineb Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans and fan skirts near fan drainageways
Parent material: Mixed alluvium that includes volcanic ash
Slope: 2 to 4 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly loam, gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 19 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 19 to 27 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter

Sodicity (SAR): 0 to 5

Depth: 27 to 60 inches
Texture: Extremely cobbly coarse sand, extremely cobbly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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 Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Summits of fan skirts
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.2 to 9.4 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Narrow inset fans near the front of mountains
Distinctive present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Nonburied fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan aprons closest to the front of mountains
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zineb Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zineb Soil
Range seeding: Poor—small stones, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—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—large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones

Orovada Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
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

Land capability classification: Zineb soil—VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Zineb and Orovada soils—028B010N; Inclusion 1—028B003N; Inclusions 2 and 3—028B010N

2003—Unius-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Unius gravelly silt loam, 2 to 8 percent slopes—70 percent
Orovada fine sandy loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Xerollic Haplargids, fine-loamy, mixed, mesic, 2 to 4 percent slopes—9 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, flooded, 0 to 4 percent slopes—3 percent
Haploxerollic Nadurargids, fine, montmorillonitic, mesic, 2 to 8 percent slopes—3 percent

Characteristics of the Unius Soil

Classification: Haploxerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,700 to 7,100 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, black sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 12 inches
Texture: Silt loam, loam, gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 44 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Very hard, very firm

Depth: 44 to 60 inches
Texture: Gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.8 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D

Erosion factors (upper layer): K value—0.28; 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 Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,700 to 7,100 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 26 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 61 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Active inset fans, adjacent to channels
Distinctive present vegetation: Basin big sagebrush

Inclusion 3
Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: Nonburied fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Unius Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Unius Soil
Range seeding: Poor—droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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, flooding
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Unius soil—VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Unius soil—028B011N; Orovada soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B009N; Inclusion 3—028B017N

2010—Glyphs-Silverado association

Positions on landscape: Fan piedmonts

Composition

Major components:
Glyphs fine sandy loam, 2 to 4 percent slopes—55 percent
Silverado gravelly sandy loam, 2 to 8 percent slopes—30 percent
Contrasting inclusions:
Xerollic Camborthids, fine-loamy, mixed, frigid, 2 to 4 percent slopes—7 percent
Muni fine sandy loam, 2 to 4 percent slopes—6 percent
Jesse Camp silt loam, occasionally flooded, 0 to 2 percent slopes—2 percent

Characteristics of the Glyphs Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Broad, slightly dissected fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile
Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4.8 to 6.7 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Silverado Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Positions on landscape: Inset fan remnants
Parent material: Mixed alluvium that includes volcanic ash
Slope: 2 to 8 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days

Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 2 to 19 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 19 to 38 inches
Texture: Sandy loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 38 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.4 to 5.6 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xerollic Camborthids, fine-loamy, mixed, frigid
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2

Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The highest part of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3

Classification: Xerollic Camborthids, fine-silty, mixed, frigid
Positions on landscape: Adjacent to intermittent stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Glyphs Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Silverado Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Glyphs Soil

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

Silverado Soil

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

Interpretive Groups

Land capability classification: Glyphs soil—IIIe, irrigated, and VIc, nonirrigated; Silverado soil—IVe, irrigated, and VIIc, nonirrigated
Range site: Glyphs and Silverado soils—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—028B009N

2011—Glyphs-Muni association

Positions on landscape: Fan piedmonts

Composition

Major components:
Glyphs fine sandy loam, 2 to 8 percent slopes—50 percent
Muni fine sandy loam, 2 to 4 percent slopes—35 percent
Contrasting inclusions:
Durixerollic Camborthids, fine-loamy, mixed, mesic, 0 to 4 percent slopes—8 percent
Aquic Argixerolls, fine-loamy, mixed, mesic, 0 to 2 percent slopes—3 percent
Grassval gravelly fine sandy loam, 2 to 4 percent slopes—3 percent
Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic, 0 to 2 percent slopes—1 percent

Characteristics of the Glyphs Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over moderately rapid
Available water capacity: 4.8 to 6.7 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Muni Soil

Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Dissected, convex summits and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,300 to 7,300 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 3 inches

Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 18 inches
Texture: Sandy clay loam, clay loam, loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 18 to 49 inches
Material: Cemented hardpan

Depth: 49 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.7 to 3.5 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Thurber needlegrass, Wyoming big sagebrush

Inclusion 2
Classification: Aquic Argixerolls, fine-loamy, mixed, mesic
Positions on landscape: Adjacent to intermittent stream channels
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 3
Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The highest part of fan piedmont remnants
Distinctive present vegetation: Indian ricegrass, black sagebrush

Inclusion 4
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Near springs and intermittent stream channels
Distinctive present vegetation: Rush, sedge, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Glyphs Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Muni Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Glyphs Soil
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

Muni Soil
Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Glyphs soil—IIIe, irrigated, and VIc, nonirrigated; Muni soil—IIIe, irrigated, and VIIs, nonirrigated
Range site: Glyphs and Muni soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B003N; Inclusion 3—028B011N; Inclusion 4—028B001N

2012—Glyphs-Muni-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Glyphs fine sandy loam, 2 to 8 percent slopes—40 percent
Muni fine sandy loam, 2 to 4 percent slopes—30 percent
Orovada fine sandy loam, gravelly substratum, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 4 to 15 percent slopes—9 percent
Durorthidic Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 2 to 8 percent slopes—6 percent

Characteristics of the Glyphs Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower part of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Sodicity (SAR): 2 to 10 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4.8 to 6.7 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Muni Soil

Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The upper part of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 3 inches

Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 18 inches
Texture: Sandy clay loam, clay loam, loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 49 inches
Material: Cemented hardpan

Depth: 49 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.7 to 3.5 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 5 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 15 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 40 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 40 to 60 inches
Texture: Stratified gravelly sandy loam to very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 7 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; 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:28 Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Small rabbitbrush, horsebrush

Inclusion 2
Classification: Durorthidic Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Adjacent to channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Glyphs Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Muni Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Glyphs Soil
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

Muni Soil
Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—area reclaim
Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Probable source
Gravel: Improbable source—too sandy

Interpretive Groups

Land capability classification: Glyphs soil—IIIe, irrigated, and VIc, nonirrigated; Muni soil—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—IIIc, irrigated, and VIc, nonirrigated
Range site: Glyphs, Muni, and Orovada soils—028B010N; Inclusion 1—025X025N; Inclusion 2—028B003N

2015—Glyphs-Enko association

Positions on landscape: Fan piedmonts

Composition

Major components:
Glyphs fine sandy loam, 2 to 4 percent slopes—40 percent
Glyphs fine sandy loam, 15 to 30 percent slopes—25 percent
Enko gravelly loamy sand, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Orovada fine sandy loam, 2 to 8 percent slopes—6 percent
Durixerollic Haplargids, fine, montmorillonitic, mesic, 0 to 2 percent slopes—5 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 15 to 30 percent slopes—4 percent

Characteristics of the Glyphs Soil, Gently Sloping

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4.8 to 6.7 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Glyphs Soil, Moderately Steep

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The upper side slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 15 to 30 percent
Elevation: 6,000 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4 to 6 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—severe
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
Positions on landscape: Fan aprons, the higher inset fans

Parent material: Mixed alluvium that includes some loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 5,600 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loamy sand
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 18 inches
Texture: Loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 18 to 60 inches
Texture: Sandy loam, loam, fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.1 to 8.2 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; 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, coarse-loamy, mixed, mesic
Positions on landscape: The lower inset fans
Distinctive present vegetation: Bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Distinctive present vegetation: Bluegrass, Wyoming big sagebrush

Inclusion 3
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower side slopes of fan piedmont remnants
Distinctive present vegetation: Needleandthread, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Glyphs Soil, Gently Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Glyphs Soil, Moderately Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Enko Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Glyphs Soil, Gently Sloping
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

Glyphs Soil, Moderately Steep
Range seeding: Fair—too arid
Roadfill: Fair—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

Enko Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Glyphs soil, gently sloping—IIIe, irrigated, and VIc, nonirrigated; Glyphs soil, moderately steep—VIe, nonirrigated; Enko soil—IIe, irrigated, and VIs, nonirrigated
Range site: Glyphs soils—028B010N; Enko soil—024X017N; Inclusions 1 and 2—028B010N; Inclusion 3—028B005N

2021—Rotinom-Wholan association

Positions on landscape: Stream terraces, inset fans

Composition

Major components:
Rotinom silt loam, 0 to 2 percent slopes—50 percent
Wholan very fine sandy loam, 0 to 2 percent slopes—20 percent
Wholan very fine sandy loam, alkaline, 0 to 2 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Camborthids, fine-loamy, mixed, mesic, gullied, 0 to 4 percent slopes—5 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, gullied, 0 to 4 percent slopes—5 percent
Orovada very fine sandy loam, 0 to 4 percent slopes—5 percent

Characteristics of the Rotinom Soil

Classification: Durorthidic Torrifluvents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Stream terraces
Parent material: Loess and mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 6,400 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 9 to 60 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 20

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief periods in November through April
Permeability: Moderately slow
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Wholan Soil

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The lower parts of inset fans adjacent to stream terraces
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 6,400 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, bluegrass, winterfat

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy

Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in December through April
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Wholan Soil, Alkaline

Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The higher parts of inset fans adjacent to stream terraces
Parent material: Loess mantle over silty alluvium
Slope: 0 to 2 percent
Elevation: 6,400 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, sickle saltbush

Typical Profile

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 60 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for very brief periods in December through April
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Slightly convex stream terraces
Distinctive present vegetation: Wyoming big sagebrush, basin wildrye

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Linear channel banks
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Needleandthread, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Rotinom Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Wholan Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Wholan Soil, Alkaline
Wild herbaceous plants (nonirrigated): Poor

Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Rotinom Soil
Range seeding: Poor—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wholan Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wholan Soil, Alkaline
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—excess salt
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Rotinom soil—IIIw, irrigated, and VIIw, nonirrigated; Wholan and Wholan, alkaline, soils—IIw, irrigated, and VIIw, nonirrigated
Range site: Rotinom soil—028B017N; Wholan soil—028B013N; Wholan soil, alkaline—024X012N; Inclusion 1—028B003N; Inclusion 2—028B009N; Inclusion 3—028B010N

2022—Rotinom-Orovada association

Positions on landscape: Stream terraces, fan skirts

Composition

Major components:
Rotinom silt loam, 0 to 2 percent slopes—50 percent
Orovada very fine sandy loam, rarely flooded, 0 to 2 percent slopes—35 percent
Contrasting inclusions:
Orovada gravelly fine sandy loam, gravelly substratum, 0 to 2 percent slopes—5 percent
Rotinom silt loam, frequently flooded, 0 to 4 percent slopes—5 percent
Enko sandy loam, 0 to 2 percent slopes—5 percent

Characteristics of the Rotinom Soil

Classification: Durorthidic Torrifluvents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Stream terraces
Parent material: Loess and mixed alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 9 to 60 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 20

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief periods in November through April
Permeability: Moderately slow
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts adjacent to stream terraces
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 9 to 10 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; 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

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts over gravel bars
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durorthidic Torrifluvents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Channel bank margins
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts adjacent to fan piedmonts
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Rotinom Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Rotinom Soil
Range seeding: Poor—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Rotinom soil—IIIw, irrigated, and VIIw, nonirrigated; Orovada soil—IIc, irrigated, and VIc, nonirrigated
Range site: Rotinom soil—028B017N; Orovada soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B009N; Inclusion 3—028B010N

2031—Muni-Orovada-Unius association

Positions on landscape: Fan piedmonts

Composition

Major components:
Muni fine sandy loam, 2 to 8 percent slopes—45 percent
Orovada fine sandy loam, gravelly substratum, 2 to 4 percent slopes—30 percent
Unius gravelly silt loam, 4 to 15 percent slopes—10 percent
Contrasting inclusions:
Defler fine sandy loam, 0 to 4 percent slopes—8 percent
Durixerollic Camborthids, sandy-skeletal, mixed, mesic, 4 to 15 percent slopes—5 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 0 to 4 percent slopes—2 percent

Characteristics of the Muni Soil

Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,500 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 18 inches
Texture: Sandy clay loam, clay loam, loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 18 to 49 inches
Material: Cemented hardpan

Depth: 49 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.3 to 4.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,500 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 5 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 15 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 40 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 40 to 60 inches
Texture: Stratified gravelly sandy loam to very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.4 to 6.6 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Unius Soil

Classification: Haploxerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Summits near scarp breaks and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 4 to 15 percent
Elevation: 6,500 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, black sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 12 inches
Texture: Silt loam, loam, gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 44 inches
Material: Cemented hardpan
Structure: Massive
Consistence: Very hard, very firm

Depth: 44 to 60 inches
Texture: Gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; 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: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Adjacent to fan skirts and fan aprons
Distinctive present vegetation: Indian ricegrass, winterfat

Inclusion 2
Classification: Durixerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Galleta, shadscale

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Areas adjacent to channels

Distinctive present vegetation: Needleandthread, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Muni Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Unius Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Muni Soil
Range seeding: Poor—droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—area reclaim
Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Probable source
Gravel: Improbable source—too sandy

Unius Soil
Range seeding: Poor—droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope, seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Muni soil—IVe, irrigated, and VIIs, nonirrigated; Orovada soil—VIc, nonirrigated; Unius soil—VIIs, nonirrigated
Range site: Muni and Orovada soils—028B010N; Unius soil—028B011N; Inclusion 1—028B013N; Inclusion 2—024X045N; Inclusion 3—028B005N

2060—Oxcorel-Beoska-Whirlo association

Positions on landscape: Fan piedmonts

Composition

Major components:
Oxcorel gravelly very fine sandy loam, 2 to 8 percent slopes—40 percent
Beoska silt loam, 0 to 4 percent slopes—30 percent
Whirlo gravelly loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—5 percent
Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—5 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent

Characteristics of the Oxcorel Soil

Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: Convex, upper summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 2 to 8 percent
Elevation: 5,200 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 5 to 34 inches
Texture: Clay, clay loam

Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 34 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6.5 to 8.4 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
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

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Convex, lower summits of fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 0 to 4 percent
Elevation: 5,200 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 9 to 18 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Stratified gravelly very fine sandy loam to gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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: Low

Characteristics of the Whirlo Soil

Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, lower inset fans and fan aprons
Parent material: Mixed alluvium that includes a large amount of loess
Slope: 2 to 8 percent
Elevation: 5,200 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 24 inches

Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 60 inches
Texture: Very gravelly coarse sandy loam
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.2 to 6.0 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Spiny hopsage, bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Adjacent to fan skirts near alluvial flats
Distinctive present vegetation: Shadscale, black greasewood

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: The upper inset fans
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Oxcorel Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Whirlo Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Oxcorel Soil
Range seeding: Poor—too arid, rooting depth, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Whirlo Soil
Range seeding: Poor—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Oxcorel soil—IVe, irrigated, and VIIs, nonirrigated; Beoska soil—IIIe, irrigated, and VIIs, nonirrigated; Whirlo soil—IIIe, irrigated, and VIIc, nonirrigated
Range site: Oxcorel, Beoska, and Whirlo soils—024X002N; Inclusion 1—024X020N; Inclusion 2—024X003N; Inclusion 3—024X005N

2061—Oxcorel-Zaidy-Grassval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Oxcorel gravelly sandy loam, 2 to 8 percent slopes—55 percent
Zaidy very gravelly sandy loam, 2 to 8 percent slopes—15 percent
Grassval very gravelly sandy loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Wieland gravelly sandy loam, 2 to 8 percent slopes—8 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—4 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Oxcorel Soil

Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 8 to 34 inches
Texture: Clay, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 34 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6.5 to 8.5 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Zaidy Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 5 to 25 inches

Texture: Loam, clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 25 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.05; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1 to 2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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 Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fan remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Oxcorel Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Zaldy Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Grassval Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Oxcorel Soil

Range seeding: Poor—too arid, rooting depth, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Zaidy Soil

Range seeding: Poor—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, shrink-swell
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Grassval Soil

Range seeding: Poor—droughty, small stones
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—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Oxcorel soil—IVe, irrigated, and VIIs, nonirrigated; Zaidy soil—IVs, irrigated, and VIIs, nonirrigated; Grassval soil—VIIs, nonirrigated
Range site: Oxcorel soil—028B017N; Zaidy and Grassval soils—028B011N; Inclusion 1—028B010N; Inclusion 2—028B052N; Inclusion 3—028B010N

2063—Oxcorel-Pineval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Oxcorel gravelly very fine sandy loam, 2 to 8 percent slopes—40 percent
Pineval gravelly loam, 15 to 30 percent slopes—25 percent
Pineval gravelly loam, 8 to 15 percent slopes—20 percent
Contrasting inclusions:
Allor gravelly loam, 4 to 15 percent slopes—5 percent
Orovada fine sandy loam, 2 to 8 percent slopes—4 percent
Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 15 to 50 percent slopes—3 percent
Wieland gravelly loam, 2 to 8 percent slopes—3 percent

Characteristics of the Oxcorel Soil

Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 2 to 8 percent
Elevation: 5,300 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 8 to 34 inches
Texture: Clay, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 34 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter

Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6.5 to 8.5 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Pineval Soil, Moderately Steep

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 30 percent
Elevation: 5,300 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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 Pineval Soil, Strongly Sloping

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Shoulder slopes and the upper side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 5,300 to 6,300 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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 Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Bluegrass, needlegrass, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Scarps on side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, galleta, Wyoming big sagebrush

Inclusion 4
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Oxcorel Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Pineval Soil, Moderately Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Pineval Soil, Strongly Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Oxcorel Soil
Range seeding: Poor—too arid, rooting depth, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Pineval Soil, Moderately Steep
Range seeding: Fair—too arid, erodes easily
Roadfill: Fair—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—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Pineval Soil, Strongly Sloping
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—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Oxcorel soil—IVe, irrigated, and VIIs, nonirrigated; Pineval soil, moderately steep—VIe, nonirrigated; Pineval soil, strongly sloping—IVe, irrigated, and VIs, nonirrigated
Range site: Oxcorel soil—024X002N; Pineval soils—

028B010N; Inclusion 1—024X005N; Inclusion 2—024X020N; Inclusion 3—024X045N; Inclusion 4—024X005N

2069—Oxcorel-Wieland-Spasprey association

Positions on landscape: Fan piedmonts

Composition

Major components:
Oxcorel gravelly very fine sandy loam, 2 to 8 percent slopes—40 percent
Wieland gravelly loam, 2 to 8 percent slopes—30 percent
Spasprey gravelly fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Orovada fine sandy loam, 2 to 8 percent slopes—7 percent
Duric Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—5 percent
Duric Camborthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Oxcorel Soil

Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The lower, concave summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 6 to 37 inches
Texture: Clay, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 37 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6.5 to 8.4 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The lower and intermediate areas on convex summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline

Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 25 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 25 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; 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 Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The higher summits of fan piedmont remnants adjacent to the front of mountains
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 33 inches
Material: Cemented hardpan

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Inset fans
Distinctive present vegetation: Bluegrass, spiny hopsage, Wyoming big sagebrush

Inclusion 2

Classification: Duric Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Oxcorel Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Spasprey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Oxcorel Soil
Range seeding: Poor—too arid, rooting depth, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wieland Soil
Range seeding: Poor—rooting depth
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
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Spasprey Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Oxcorel soil—IVe, irrigated, and VIIs, nonirrigated; Wieland soil—IIIe, irrigated, and VIs, nonirrigated; Spasprey soil—IIIs, irrigated, and VIs, nonirrigated
Range site: Oxcorel soil—024X002N; Wieland and Spasprey soils—024X005N; Inclusion 1—024X020N; Inclusions 2 and 3—024X002N

2081—Fenster-Jesse Camp association

Positions on landscape: Semibolson floors

Composition

Major components:
Fenster silt loam—50 percent
Jesse Camp silt loam, occasionally flooded—40 percent
Contrasting inclusions:
Kobeh gravelly loam, 0 to 4 percent slopes—4 percent
Bubus loam, 0 to 4 percent slopes—3 percent
Aeric Halaquepts, fine-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—3 percent

Characteristics of the Fenster Soil

Classification: Typic Torriorthents, fine-silty, mixed (calcareous), frigid
Positions on landscape: Dissected areas of stream terraces
Parent material: Loess and silty, calcareous alluvium
Slope: 0 to 2 percent
Elevation: 6,100 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter

Sodicity (SAR): 5 to 13

Depth: 5 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 10 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 11 to 13 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Characteristics of the Jesse Camp Soil

Classification: Xerollic Camborthids, fine-silty, mixed, frigid
Positions on landscape: Stream terraces
Parent material: Silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 6,100 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Basin wildrye, big sagebrush

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 12 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 60 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief periods in March through June
Permeability: Moderately slow
Available water capacity: 10 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Nonburied fan skirt remnants
Distinctive present vegetation: Indian ricegrass, spiny hopsage, Wyoming big sagebrush

Inclusion 2
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Isolated alluvial flat remnants
Distinctive present vegetation: Shadscale, black greasewood, bud sagebrush

Inclusion 3
Classification: Aeric Halaquepts, fine-loamy, mixed (calcareous), mesic
Positions on landscape: Alluvial flats along stream channels
Distinctive present vegetation: Alkali sacaton, black greasewood, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Fenster Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Jesse Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Fenster Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Jesse Camp Soil
Range seeding: Fair—too arid
Roadfill: Fair—low strength, shrink-swell
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Fenster soil—VIIs, nonirrigated; Jesse Camp soil—IIw, irrigated, and VIw, nonirrigated
Range site: Fenster soil—028B017N; Jesse Camp soil—028B009N; Inclusion 1—028B010N; Inclusion 2—024X003N; Inclusion 3—028B004N

2088—Punchbowl-Jung-Teguro association

Positions on landscape: Foothills

Composition

Major components:
Punchbowl very gravelly loam, 15 to 50 percent slopes—40 percent
Jung very gravelly loam, 15 to 30 percent slopes—30 percent
Teguro very gravelly loam, 30 to 50 percent slopes, extremely stony—15 percent

Contrasting inclusions:
Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 8 to 15 percent slopes—5 percent
Lithic Natrargids, loamy, mixed, mesic, 15 to 50 percent slopes—4 percent
Punchbowl very gravelly loam, 8 to 15 percent slopes—3 percent
Rock outcrop—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: The lower, convex, north-facing shoulder slopes and side slopes of foothills
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 50 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow

Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, south-facing shoulder slopes and back slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Teguro Soil

Classification: Lithic Argixerolls, loamy, mixed, frigid
Positions on landscape: The higher, north-facing side slopes of foothills
Parent material: Residuum derived from tuff
Slope: 30 to 50 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, needlegrass, mountain big sagebrush, singleleaf pinyon, Utah juniper
Site index for common trees: Singleleaf pinyon—30; Utah juniper—30

Typical Profile

Rock fragments on surface: 15 percent stones, 55 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 16 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 16 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; 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, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Toe slopes of foothills
Distinctive present vegetation: Bluegrass, black sagebrush

Inclusion 2
Classification: Lithic Natrargids, loamy, mixed, mesic
Positions on landscape: Convex, south-facing shoulder slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush, small rabbitbrush

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Crests of foothills
Distinctive present vegetation: Black sagebrush

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Minor Inclusion
Kind of material: Rock stripes
Positions on landscape: Below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Teguro Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Teguro Soil
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

Interpretive Groups

Land capability classification: Punchbowl, Jung, and Teguro soils—VIIs, nonirrigated
Range site: Punchbowl and Jung soils—028B016N; Teguro soil—025X062N; Inclusion 1—024X030N; Inclusion 2—024X002N; Inclusion 3—024X016N; Inclusion 4—none

2089—Punchbowl-Jung-Locane association

Positions on landscape: Foothills

Composition

Major components:
Punchbowl very gravelly loam, 15 to 50 percent slopes—35 percent
Jung very gravelly loam, 8 to 30 percent slopes—30 percent
Locane very gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Rock outcrop—6 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 4 to 15 percent slopes—5 percent
Lithic Natrargids, clayey-skeletal, montmorillonitic, mesic, 15 to 50 percent slopes—4 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: The higher, convex side slopes and lower, north-facing side slopes of foothills
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 50 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: The lower, convex side slopes and higher, south-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 8 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The higher, concave, north-facing side slopes of foothills
Parent material: Residuum derived from shale and conglomerate

Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.1 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks, eroded side slopes
Distinctive present vegetation: None

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Concave toe slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Lithic Natrargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: The lower, convex, south-facing side slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

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

Interpretive Groups

Land capability classification: Punchbowl, Jung, and Locane soils—VIIs, nonirrigated
Range site: Punchbowl and Jung soils—028B016N; Locane soil—028B010N; Inclusion 1—none; Inclusion 2—028B010N; Inclusion 3—028B017N

2090—Punchbowl gravelly loam, 4 to 15 percent slopes

Positions on landscape: Foothills

Composition

Major component:
Punchbowl gravelly loam, 4 to 15 percent slopes—85 percent
Contrasting inclusions:
Aridic Argixerolls, loamy-skeletal, mixed, frigid, 8 to 15 percent slopes—7 percent
Robson very cobbly loam, 8 to 15 percent slopes—5 percent
Rock outcrop—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Crests and the upper side slopes of foothills
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 4 to 15 percent
Elevation: 6,800 to 7,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 5 percent cobbles, 25 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes and toe slopes of foothills
Distinctive present vegetation: Mountain big sagebrush

Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, stable, north-facing side slopes of foothills
Distinctive present vegetation: Bluegrass, low sagebrush

Inclusion 3
Positions on landscape: Rims and eroded side slopes of foothills
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Range seeding: Poor—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

Land capability classification: Punchbowl soil—VIIs, nonirrigated
Range site: Punchbowl soil—028B016N; Inclusion 1—028B030N; Inclusion 2—028B045N; Inclusion 3—none

2091—Punchbowl-Teguro-Sumine association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl very gravelly loam, 15 to 30 percent slopes—35 percent
Teguro very gravelly loam, 30 to 50 percent slopes—25 percent
Sumine very gravelly loam, 30 to 50 percent slopes—25 percent
Contrasting inclusions:
Rock outcrop—5 percent
Aridic Argixerolls, loamy-skeletal, mixed, frigid, 50 to 75 percent slopes—5 percent
Cumulic Haploxerolls, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes—5 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex, south- and west-facing side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Teguro Soil

Classification: Lithic Argixerolls, loamy, mixed, frigid
Positions on landscape: Concave, south- and east-facing side slopes of mountains
Parent material: Residuum derived from tuff
Slope: 30 to 50 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, needlegrass, mountain big sagebrush, singleleaf pinyon, Utah juniper
Site index for common trees: Singleleaf pinyon—45; Utah juniper—45

Typical Profile

Rock fragments on surface: 55 percent pebbles

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

Depth: 4 to 16 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 16 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.0 to 2.6 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; 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
Positions on landscape: North- and east-facing side slopes of mountains
Parent material: Colluvium and residuum derived from quartzite and sandstone
Slope: 30 to 50 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical Profile

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Very cobbly clay loam, very gravelly clay loam, very gravelly loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 30 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.5 to 3.6 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Positions on landscape: Rims, escarpments
Distinctive present vegetation: None

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Slightly concave, north-facing side slopes of mountains
Distinctive present vegetation: Idaho fescue, Utah juniper

Inclusion 3
Classification: Cumulic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Below springs, along canyon bottoms
Distinctive present vegetation: Basin wildrye, bluegrass, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Teguro Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Sumine Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Teguro Soil
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

Sumine Soil
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

Land capability classification: Punchbowl, Teguro, and Sumine soils—VIIs, nonirrigated
Range site: Punchbowl soil—024X030N; Teguro soil—024X049N; Sumine soil—024X029N; Inclusion 1—none; Inclusion 2—024X023N; Inclusion 3—028B003N

2092—Punchbowl-Belate-Reluctan association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl gravelly loam, 30 to 50 percent slopes—50 percent
Belate very gravelly loam, 30 to 50 percent slopes—20 percent
Reluctan very gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—6 percent
Xerollic Haplargids, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—4 percent
Durixerollic Camborthids, loamy-skeletal, mixed, frigid, 8 to 15 percent slopes—3 percent
Rubble land—2 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex crests, shoulder slopes, and upper side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 30 to 50 percent
Elevation: 6,400 to 7,700 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Belate Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 30 to 50 percent
Elevation: 6,900 to 7,700 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 14 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6.7 to 7.8 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 6,600 to 7,700 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 to 33 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 33 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.7 to 4.6 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Concave toe slopes of mountains
Distinctive present vegetation: Indian ricegrass, black sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 4
Positions on landscape: Rock stringers below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Belate Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Punchbowl Soil
Range seeding: Poor—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, 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

Belate Soil
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: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Reluctan Soil
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

Land capability classification: Punchbowl soil—VIIe, nonirrigated; Belate and Reluctan soils—VIIs, nonirrigated
Range site: Punchbowl soil—028B016N; Belate soil—024X027N; Reluctan soil—024X021N; Inclusion 1—none; Inclusion 2—028B016N; Inclusion 3—028B003N; Inclusion 4—none

2093—Punchbowl-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl loam, 15 to 30 percent slopes—70 percent
Rock outcrop—15 percent
Contrasting inclusions:
Lithic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—9 percent
Durixerollic Camborthids, loamy-skeletal, mixed, frigid, 8 to 15 percent slopes—3 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), frigid, 8 to 15 percent slopes—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex crests, shoulder slopes, and side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 30 percent
Elevation: 6,600 to 7,600 feet
Average annual precipitation: About 8 inches

Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 2 percent cobbles, 10 percent pebbles

Depth: 0 to 3 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.49; T value—1; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks, escarpments
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Singleleaf pinyon, Utah juniper, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Toe slopes of mountains
Distinctive present vegetation: Black sagebrush

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Bluegrass, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Punchbowl Soil
Range seeding: Poor—droughty, erodes easily
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

Land capability classification: Punchbowl soil—VIIe, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Punchbowl soil—028B016N; Rock outcrop—none; Inclusion 1—025X062N; Inclusion 2—028B016N; Inclusion 3—028B010N

2094—Punchbowl-Simpark-Akerue association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl gravelly loam, 8 to 15 percent slopes—40 percent

Simpark very cobbly loam, 2 to 8 percent slopes—25 percent
Akerue very cobbly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Durixerollic Camborthids, loamy-skeletal, mixed, frigid, 4 to 15 percent slopes—8 percent
Rock outcrop—4 percent
Typic Nadurargids, fine, montmorillonitic, mesic, 8 to 15 percent slopes—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex shoulder slopes above escarpments on mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 8 to 15 percent
Elevation: 6,300 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Simpark Soil

Classification: Xerollic Durargids, loamy-skeletal, mixed, frigid, shallow
Positions on landscape: Convex, broad summits of mountains
Parent material: Residuum that is derived from andesite and rhyolite and includes volcanic ash
Slope: 2 to 8 percent
Elevation: 6,300 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Black sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 13 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 to 18 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 22 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 22 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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 Akerue Soil

Classification: Xerollic Durargids, clayey-skeletal, montmorillonitic, frigid, shallow
Positions on landscape: Side slopes of mountains
Parent material: Residuum derived from andesite, rhyolite, and quartzite
Slope: 15 to 30 percent
Elevation: 6,300 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, needleandthread, Indian ricegrass, small rabbitbrush

Typical Profile

Rock fragments on surface: 35 percent cobbles and stones, 35 percent pebbles

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 15 inches
Texture: Very cobbly clay loam, very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 to 21 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 21 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 15 to 26 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.6 to 2.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Toe slopes of mountains, intermountain drainageways
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Positions on landscape: Rims, cliffs
Distinctive present vegetation: None

Inclusion 3
Classification: Typic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: Slightly concave, south-facing side slopes below escarpments on mountains
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Simpark Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Akerue Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Punchbowl Soil
Range seeding: Poor—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

Simpark Soil

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

Akerue Soil

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

Interpretive Groups

Land capability classification: Punchbowl, Simpark, and Akerue soils—VIIs, nonirrigated
Range site: Punchbowl, Simpark, and Akerue soils—028B016N; Inclusion 1—028B010N; Inclusion 2—none; Inclusion 3—024X002N

2095—Punchbowl-Robson-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl cobbly loam, 8 to 15 percent slopes—40 percent
Robson cobbly loam, 8 to 15 percent slopes—30 percent
Rock outcrop—15 percent

Contrasting inclusions:
Xerollic Haplargids, fine, montmorillonitic, frigid, 2 to 8 percent slopes—8 percent
Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid, 8 to 15 percent slopes—4 percent
Aridic Argixerolls, fine, montmorillonitic, frigid, 8 to 15 percent slopes—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex crests and side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 8 to 15 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.8 inches

Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 8 to 15 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 1 millimhos per centimeter

Depth: 7 to 19 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 1 millimho per centimeter

Depth: 19 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks, eroded side slopes
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Positions on landscape: Concave, upper, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Wyoming big sagebrush

Inclusion 3
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: High summits of mountains
Distinctive present vegetation: Low sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Punchbowl Soil
Range seeding: Poor—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

Robson Soil

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, large 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, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Land capability classification: Punchbowl and Robson soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Punchbowl soil—028B016N; Robson soil—028B045N; Rock outcrop—none; Inclusion 1—028B003N; Inclusion 2—028B007N; Inclusion 3—028B037N

2096—Punchbowl-Locane-Nobuck association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl cobbly loam, 8 to 15 percent slopes—40 percent
Locane cobbly loam, 8 to 15 percent slopes—25 percent
Nobuck very cobbly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—8 percent
Xerollic Haplargids, loamy-skeletal, mixed, frigid, 8 to 15 percent slopes—4 percent
Rock outcrop—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: The upper, west- and south-facing side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 8 to 15 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Residuum derived from shale and conglomerate
Slope: 8 to 15 percent

Elevation: 6,200 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

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

Depth: 5 to 19 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 19 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.0 to 2.6 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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: Low

Characteristics of the Nobuck Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: The lower side slopes of mountains
Parent material: Colluvium derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 20 percent cobbles, 35 percent pebbles

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

Depth: 7 to 42 inches
Texture: Very gravelly clay loam, very gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 42 to 60 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4.6 to 5.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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: Xerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, colluvial side slopes of mountains
Distinctive present vegetation: Bluegrass, black sagebrush

Inclusion 2
Classification: Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Toe slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Wyoming big sagebrush

Inclusion 3
Positions on landscape: Scattered peaks and knobs
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Nobuck Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Punchbowl Soil
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, 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

Locane Soil
Range seeding: Poor—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

Nobuck Soil
Range seeding: Poor—large stones
Roadfill: Fair—large stones, 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

Land capability classification: Punchbowl soil—VIIe, nonirrigated; Locane and Nobuck soils—VIIs, nonirrigated
Range site: Punchbowl and Nobuck soils—028B016N; Locane soil—024X005N; Inclusion 1—028B016N; Inclusion 2—028B007N; Inclusion 3—none

2097—Punchbowl-Itca association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl gravelly loam, 15 to 30 percent slopes—55 percent
Itca cobbly loam, 15 to 30 percent slopes—30 percent
Contrasting inclusions:
Rock outcrop—8 percent
Lithic Xerollic Haplargids, loamy, mixed, frigid, 8 to 15 percent slopes—5 percent
Xerollic Haplargids, fine-loamy, mixed, frigid, 8 to 15 percent slopes—2 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Crests and east- and south-facing side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 30 percent
Elevation: 6,300 to 7,100 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 6,300 to 7,100 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 65

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 9 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Positions on landscape: Escarpments, scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: The upper, south-facing side slopes of mountains
Distinctive present vegetation: Black sagebrush, singleleaf pinyon, Utah juniper

Inclusion 3
Classification: Xerollic Haplargids, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Punchbowl Soil
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, 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

Itca Soil

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, 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

Land capability classification: Punchbowl and Itca soils—VIIe, nonirrigated
Range site: Punchbowl soil—028B016N; Itca soil—025X061N; Inclusion 1—none; Inclusion 2—025X063N; Inclusion 3—028B007N

2099—Punchbowl-Roca-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Punchbowl very gravelly loam, 15 to 30 percent slopes—45 percent
Roca very cobbly loam, 15 to 30 percent slopes—25 percent
Rock outcrop—15 percent
Contrasting inclusions:
Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, frigid, 30 to 50 percent slopes—6 percent
Xerollic Durargids, loamy, mixed, frigid (shallow), 15 to 30 percent slopes—6 percent
Typic Haploxerolls, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes—3 percent

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex summits, shoulder slopes, east- and west-facing side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 30 percent
Elevation: 6,200 to 7,400 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid

Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 15 to 30 percent
Elevation: 6,200 to 7,400 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 27 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 27 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.6 to 3.4 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Rock Outcrop

Positions on landscape: Knobs and eroded side slopes of mountains
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, frigid
Positions on landscape: Convex side slopes of mountains
Distinctive present vegetation: Indian ricegrass, black sagebrush

Inclusion 2
Classification: Xerollic Durargids, loamy, mixed, frigid (shallow)
Positions on landscape: The lower side slopes and toe slopes of mountains
Distinctive present vegetation: Needlegrass, bluebunch wheatgrass, big sagebrush

Inclusion 3
Classification: Typic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Distinctive present vegetation: Idaho fescue, mountain big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Roca Soil
Range seeding: Poor—large 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

Land capability classification: Punchbowl and Roca soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Punchbowl soil—028B016N; Roca soil—024X028N; Rock outcrop—none; Inclusion 1—028B016N; Inclusion 2—025X014N; Inclusion 3—024X021N

2100—Grassval-Grina-Unsel Variant association

Positions on landscape: Fan piedmonts, low rolling hills

Composition

Major components:
Grassval gravelly loam, 4 to 8 percent slopes—35 percent
Grina very gravelly loam, eroded, 15 to 50 percent slopes—30 percent
Unsel Variant very gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Duric Natrargids, fine, montmorillonitic, mixed, 2 to 8 percent slopes—5 percent
Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 2 to 8 percent slopes—4 percent
Xerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—3 percent
Puett fine sandy loam, 30 to 50 percent slopes—3 percent

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic (shallow)
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,300 to 5,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Foothills along the outer margin of fan piedmont remnants
Parent material: Residuum derived from sedimentary rock
Slope: 15 to 50 percent
Elevation: 5,300 to 5,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Utah juniper, black sagebrush
Site index for Utah juniper: 18

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 14 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.7 to 2.5 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Moderate

Characteristics of the Unsel Variant Soil

Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Colluvium over residuum derived from tuffaceous sediment
Slope: 15 to 30 percent
Elevation: 5,300 to 5,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 45 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 2 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 15 to 22 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 22 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.5 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—2; 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: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of hill remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush

Inclusion 4
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Eroded side slopes of hill remnants
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush

Minor Inclusion
Kind of material: Exposed rock
Positions on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Grassval Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Grina Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Unsel Variant Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Grassval Soil
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
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Grina Soil
Range seeding: Poor—droughty, small 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, 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

Unsel Variant Soil
Range seeding: Poor—too arid, small stones
Roadfill: Poor—depth to rock
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—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Grassval, Grina, and Unsel Variant soils—VIIs, nonirrigated
Range site: Grassval soil—024X030N; Grina soil—025X059N; Unsel Variant soil—024X002N; Inclusion 1—024X002N; Inclusion 2—024X020N; Inclusion 3—024X030N; Inclusion 4—025X025N

2101—Grassval-Oxcorel association

Positions on landscape: Fan piedmonts

Composition

Major components:
Grassval fine sandy loam, 8 to 15 percent slopes—50 percent
Oxcorel very gravelly clay loam, eroded, 8 to 15 percent slopes—20 percent
Oxcorel gravelly fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Allor gravelly loam, 2 to 8 percent slopes—7 percent
Duric Natrargids, clayey-skeletal, montmorillonitic, mesic, 15 to 30 percent slopes—4 percent
Typic Durargids, fine, montmorillonitic, mesic, eroded, 30 to 50 percent slopes—4 percent

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 5,800 to 6,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 4 inches

Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; 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 Oxcorel Soil, Eroded

Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 8 to 15 percent
Elevation: 5,800 to 6,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, Wyoming big sagebrush, galleta

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly clay loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline

Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 3 to 30 inches
Texture: Clay, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 30 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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—high
Potential for frost action: Low

Characteristics of the Oxcorel Soil

Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess
Slope: 2 to 4 percent
Elevation: 5,800 to 6,800 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline

Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 8 to 34 inches
Texture: Clay, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 40

Depth: 34 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons, inset fans
Distinctive present vegetation: Bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Duric Natrargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Steepest parts of side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Typic Durargids, fine, montmorillonitic, mesic, eroded
Positions on landscape: Scarps on fan piedmont remnants
Distinctive present vegetation: Shadscale, Wyoming big sagebrush, galleta

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Grassval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Oxcorel Soil, Eroded
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Oxcorel Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Grassval Soil
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: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Oxcorel Soil, Eroded
Range seeding: Poor—too arid, small stones, rooting depth
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Oxcorel Soil
Range seeding: Poor—too arid, rooting depth, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
Daily cover for landfill: Poor—small stones

Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Grassval and Oxcorel, eroded, soils—VIIs, nonirrigated; Oxcorel soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Grassval soil—028B011N; Oxcorel soil, eroded—024X045N; Oxcorel soil—028B017N; Inclusion 1—028B010N; Inclusion 2—024X025N; Inclusion 3—024X045N

2102—Grassval-Wieland association

Positions on landscape: Fan piedmonts

Composition

Major components:
Grassval gravelly loam, 2 to 8 percent slopes—55 percent
Wieland gravelly loam, 2 to 8 percent slopes—40 percent
Contrasting inclusions:
Duric Natrargids, clayey-skeletal, montmorillonitic, mesic, 15 to 30 percent slopes—3 percent
Duric Natrargids, fine, montmorillonitic, mesic, 2 to 8 percent slopes—2 percent

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic (shallow)
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,400 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

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

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,400 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 8 to 20 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 20 to 25 inches
Texture: Gravelly clay loam, gravelly sandy clay loam

Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 25 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; 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: Duric Natrargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, Wyoming big sagebrush

Inclusion 2
Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Grassval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Grassval Soil
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: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wieland Soil
Range seeding: Poor—rooting depth
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
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Grassval soil—VIIs, nonirrigated; Wieland soil—IIIe, irrigated, and VIs, nonirrigated
Range site: Grassval soil—028B011N; Wieland soil—028B010N; Inclusion 1—024X026N; Inclusion 2—028B017N

2104—Grassval-Punchbowl association

Positions on landscape: Foothills, fan piedmonts

Composition

Major components:
Grassval gravelly loam, 4 to 15 percent slopes—60 percent
Punchbowl gravelly fine sandy loam, 15 to 30 percent slopes—25 percent
Contrasting inclusions:
Haplic Nadurargids, loamy, mixed, mesic, shallow, 8 to 30 percent slopes—7 percent
Rock outcrop—4 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—2 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—2 percent

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Fan piedmont remnants

Parent material: Mixed alluvium
Slope: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

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

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Summits and side slopes of foothills
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 30 percent
Elevation: 6,200 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; wind erodibility group—4
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: Haplic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush, small rabbitbrush, Wyoming big sagebrush

Inclusion 2
Positions on landscape: Scattered peaks and eroded side slopes of fan piedmont remnants
Distinctive present vegetation: None

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Bluegrass, basin big sagebrush

Inclusion 4
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower inset fans, narrow fan skirts
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Grassval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Grassval Soil
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: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Punchbowl Soil
Range seeding: Poor—droughty, depth to rock
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

Land capability classification: Grassval soil—VIIs, nonirrigated; Punchbowl soil—VIIe, nonirrigated
Range site: Grassval soil—028B011N; Punchbowl soil—028B016N; Inclusion 1—024X045N; Inclusion 2—none; Inclusion 3—028B003N; Inclusion 4—028B010N

2105—Grassval-Glyphs-Muni association

Positions on landscape: Fan piedmonts

Composition

Major components:
Grassval gravelly loam, 4 to 8 percent slopes—50 percent
Glyphs fine sandy loam, 2 to 8 percent slopes—20 percent
Muni fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Orovada fine sandy loam, 2 to 4 percent slopes—7 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes—5 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,300 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky

Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Glyphs Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower part of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needleandthread, bluegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Gravelly clay loam, gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 37 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 10

Depth: 37 to 60 inches
Texture: Very gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4.7 to 6.5 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Muni Soil

Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The intermediate areas of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 6,300 to 7,100 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Sodicity (SAR): 0 to 2

Depth: 3 to 18 inches
Texture: Sandy clay loam, clay loam, loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 18 to 49 inches
Material: Cemented hardpan

Depth: 49 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.5 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Fan skirts
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Basin big sagebrush, bluegrass

Inclusion 3
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin wildrye, bluegrass, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Grassval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Glyphs Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Muni Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Grassval Soil
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
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Glyphs Soil
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

Muni Soil
Range seeding: Fair—droughty, too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Grassval soil—VIIs, nonirrigated; Glyphs soil—IIIe, irrigated, and VIc,

nonirrigated; Muni soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Grassval soil—028B011N; Glyphs and Muni soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B011N; Inclusion 3—028B003N

2110—Isolde-Davey association

Positions on landscape: Alluvial flats covered by eolian sand

Composition

Major components:
Isolde fine sand, 4 to 30 percent slopes—60 percent
Davey fine sandy loam, 0 to 4 percent slopes—25 percent
Contrasting inclusions:
Orovada fine sandy loam, 0 to 4 percent slopes—6 percent
Creemon silt loam, 0 to 2 percent slopes—5 percent
Xerollic Camborthids, sandy-skeletal, mixed, mesic, 0 to 4 percent slopes—4 percent

Characteristics of the Isolde Soil

Classification: Typic Torripsamments, mixed, mesic
Positions on landscape: Dunes overlying sand sheets
Parent material: Eolian sand derived from various kinds of rock
Slope: 4 to 30 percent
Elevation: 6,000 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, black greasewood, fourwing saltbush, hairy horsebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Fine sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 60 inches
Texture: Fine sand, sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very rapid
Available water capacity: 3.6 to 5.4 inches
Water-supplying capacity: 6 inches
Runoff: Slow
Hydrologic group: A
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—1
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Davey Soil

Classification: Xerollic Camborthids, sandy, mixed, mesic
Positions on landscape: Sand sheets overlying alluvial flats
Parent material: Mixed alluvium
Slope: 0 to 4 percent
Elevation: 6,000 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, needleandthread, Wyoming big sagebrush

Typical Profile

Depth: 0 to 5 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 14 inches
Texture: Fine sandy loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 to 67 inches
Texture: Fine sand, loamy fine sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.2 to 5.7 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B

Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Inclusion 2
Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan skirts near areas of Playas
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Xerollic Camborthids, sandy-skeletal, mixed, mesic
Positions on landscape: Offshore bar remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Isolde Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Davey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Isolde Soil
Range seeding: Poor—soil blowing, too sandy, droughty
Roadfill: Fair—slope
Topsoil: Poor—too sandy, slope
Daily cover for landfill: Poor—seepage, 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: Probable source
Gravel: Improbable source—too sandy

Davey Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too sandy
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Isolde soil—VIIs, nonirrigated; Davey soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Isolde soil—027X023N; Davey soil—024X017N; Inclusion 1—028B010N; Inclusion 2—024X002N; Inclusion 3—028B010N

2540—Buffaran-Wieland association

Positions on landscape: Fan piedmonts

Composition

Major components:
Buffaran cobbly loam, 2 to 8 percent slopes—50 percent
Wieland gravelly loam, 8 to 15 percent slopes—40 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 8 percent slopes—6 percent
Xerollic Haplargids, fine, montmorillonitic, mesic, 2 to 8 percent slopes—4 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Summits and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 15 percent pebbles
Depth: 0 to 4 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 4 to 15 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 to 60 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; 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: Low

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 8 to 15 percent
Elevation: 5,700 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 8 to 20 inches
Texture: Gravelly clay, clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; 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 Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Haplargids, fine, montmorillonitic mesic
Positions on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan

Local roads and streets: Severe—cemented pan, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wieland Soil

Range seeding: Poor—rooting depth
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Buffaran soil—VIIs, nonirrigated; Wieland soil—VIs, nonirrigated
Range site: Buffaran and Wieland soils—024X005N; Inclusions 1 and 2—024X005N

2541—Buffaran-Zoesta association

Positions on landscape: Fan piedmonts

Composition

Major components:
Buffaran gravelly loam, 4 to 8 percent slopes, very stony—60 percent
Zoesta cobbly loam, 8 to 15 percent slopes—25 percent
Contrasting inclusions:
Xerollic Haplargids, fine-loamy, mixed, mesic, 30 to 50 percent slopes—7 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—5 percent
Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid, 4 to 15 percent slopes—3 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The lower summits and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 2 percent stones and boulders, 15 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 4 to 15 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 to 60 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Zoesta Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, frigid
Positions on landscape: The higher summits of fan piedmont remnants
Parent material: Alluvium and colluvium derived from various kinds of rock
Slope: 8 to 15 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, low sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 15 percent pebbles

Depth: 0 to 7 inches

Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 23 to 31 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 31 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 7 to 9 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Needlegrass, bluebunch wheatgrass, big sagebrush

Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Bluegrass, basin wildrye, basin big sagebrush

Inclusion 3
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Fan aprons
Distinctive present vegetation: Needlegrass, bluebunch wheatgrass, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Zoesta Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Zoesta Soil
Range seeding: Poor—rooting depth
Roadfill: Fair—shrink-swell
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Buffaran soil—VIIs, nonirrigated; Zoesta soil—IVs, irrigated, and VIs, nonirrigated
Range site: Buffaran soil—024X005N; Zoesta soil—024X018N; Inclusion 1—024X035N; Inclusion 2—025X003N; Inclusion 3—025X014N

2542—Buffaran-Chiara association

Positions on landscape: Partial ballenas

Composition

Major components:
Buffaran gravelly loam, 2 to 8 percent slopes—40 percent
Buffaran very gravelly fine sandy loam, 8 to 15 percent slopes—30 percent
Chiara very gravelly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Wieland gravelly loam, 4 to 8 percent slopes—8 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—7 percent

Characteristics of the Buffaran Soil, Gravelly

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Summits of partial ballenas
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

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

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Buffaran Soil, Very Gravelly

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Shoulder slopes and north-facing side slopes of partial ballenas
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.2 to 2.0 inches
Water-supplying capacity: 8 inches

Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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: Low

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: South-facing side slopes of partial ballenas
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 8 to 15 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 5 percent cobbles, 40 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 13 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 to 60 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.0 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Foot slopes of partial ballenas
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil, Gravelly
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Buffaran Soil, Very Gravelly
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Chiara Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil, Gravelly
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Buffaran Soil, Very Gravelly
Range seeding: Poor—droughty, rooting depth, small stones
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack

Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Chiara Soil

Range seeding: Poor—droughty, small stones
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

Land capability classification: Buffaran and Chiara soils—VIIs, nonirrigated
Range site: Buffaran and Chiara soils—028B010N; Inclusions 1 and 2—028B010N

2543—Buffaran-Spasprey-Allor association

Positions on landscape: Fan piedmonts

Composition

Major components:
Buffaran gravelly loam, 2 to 8 percent slopes—35 percent
Spasprey gravelly fine sandy loam, 2 to 4 percent slopes—30 percent
Allor gravelly loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Orovada fine sandy loam, 0 to 2 percent slopes—7 percent
Ricert very fine sandy loam, 0 to 2 percent slopes—4 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—4 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

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

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The intermediate areas of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F

Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 26 to 33 inches
Material: Cemented hardpan

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.0 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Convex areas on the lower fan piedmont remnants
Distinctive present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Inclusion 3

Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic

Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Spasprey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Spasprey Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Buffaran soil—VIIs, nonirrigated; Spasprey soil—IIIs, irrigated, and VIs, nonirrigated; Allor soil—IIIe, irrigated, and VIIe, nonirrigated
Range site: Buffaran, Spasprey, and Allor soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B017N; Inclusion 3—028B010N

2545—Buffaran-Pineval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Buffaran gravelly loam, 4 to 15 percent slopes—70 percent
Pineval gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Xerollic Durargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—7 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—5 percent
Durorthidic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 4 to 15 percent slopes—3 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Summits and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

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

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 30 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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: Xerollic Durargids, loamy-skeletal, mixed, mesic
Positions on landscape: Summits on the upper part of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durorthidic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Inset fans near the front of mountains
Distinctive present vegetation: Basin wildrye, bluegrass, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Pineval Soil
Range seeding: Fair—too arid, erodes easily, small stones
Roadfill: Fair—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—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Buffaran soil—VIIs, nonirrigated; Pineval soil—VIe, nonirrigated
Range site: Buffaran and Pineval soils—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—028B003N

2546—Buffaran-Spasprey-Locane association

Positions on landscape: Foothills, fan piedmonts

Composition

Major components:
Buffaran very gravelly fine sandy loam, 2 to 4 percent slopes—45 percent
Spasprey gravelly fine sandy loam, 4 to 8 percent slopes—25 percent
Locane gravelly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—10 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 2 to 4 percent slopes—5 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,400 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow

Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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: Low

Characteristics of the Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 26 to 33 inches
Material: Cemented hardpan

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Side slopes of foothills
Parent material: Residuum derived from shale and conglomerate
Slope: 8 to 15 percent
Elevation: 6,400 to 6,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

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

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.7 to 2.1 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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: Low

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans

Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2

Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Inset fans near the front of foothills
Distinctive present vegetation: Basin wildrye, bluegrass, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Spasprey Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil

Range seeding: Poor—droughty, rooting depth, small stones
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Spasprey Soil

Range seeding: Fair—too arid, small stones
Roadfill: Good
Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Locane Soil

Range seeding: Poor—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

Land capability classification: Buffaran and Locane soils—VIIs, nonirrigated; Spasprey soil—IIIe, irrigated, and VIs, nonirrigated
Range site: Buffaran, Spasprey, and Locane soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B003N

2547—Buffaran-Desatoya association

Positions on landscape: Fan piedmonts

Composition

Major components:

Buffaran gravelly loam, 4 to 8 percent slopes—50 percent
Desatoya very gravelly loam, 8 to 15 percent slopes—35 percent

Contrasting inclusions:

Haploxerollic Durargids, fine-loamy, mixed, mesic, 4 to 8 percent slopes—8 percent
Aridic Argixerolls, fine-loamy, mixed, mesic, 4 to 8 percent slopes—6 percent
Jung very gravelly loam, 15 to 30 percent slopes—1 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The lower summits and south-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,200 to 6,400 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

Depth: 0 to 2 inches

Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 2 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Desatoya Soil

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: The upper summits and north-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 6,200 to 6,400 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 45 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 13 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 to 60 inches
Texture: Stratified extremely gravelly sandy loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.0 to 5.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, mesic
Positions on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Foothill remnants

Distinctive present vegetation: Bluegrass, black sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Desatoya Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Desatoya Soil
Range seeding: Poor—rooting depth, small stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—large stones, slope
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Buffaran and Desatoya soils—VIIs, nonirrigated
Range site: Buffaran soil—027X008N; Desatoya soil—027X032N; Inclusions 1 and 2—027X008N; Inclusion 3—027X032N

2548—Buffaran-Tenabo-Pineval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Buffaran very gravelly fine sandy loam, 4 to 8 percent slopes—45 percent
Tenabo gravelly very fine sandy loam, 4 to 8 percent slopes—25 percent
Pineval gravelly fine sandy loam, 4 to 8 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, fine-loamy, mixed, mesic, 8 to 15 percent slopes—6 percent
Orovada fine sandy loam, 2 to 8 percent slopes—5 percent
Lithic Xerollic Haplargids, clayey, montmorillonitic, mesic, 4 to 15 percent slopes—4 percent

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 45 percent pebbles

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

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan

Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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: Low

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 15 to 28 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.5 to 2.9 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Foot slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable

Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.1 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
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 Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Bottlebrush squirreltail, small rabbitbrush, black sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush

Inclusion 3
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, mesic
Positions on landscape: Low knolls
Distinctive present vegetation: Bottlebrush squirreltail, small rabbitbrush, black sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Buffaran Soil
Range seeding: Poor—droughty, rooting depth, small stones
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Tenabo Soil
Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Buffaran soil—VIIs, nonirrigated; Tenabo soil—IVe, irrigated, and VIIs,

nonirrigated; Pineval soil—IVe, irrigated, and VIs, nonirrigated
Range site: Buffaran and Pineval soils—028B010N; Tenabo soil—024X002N; Inclusion 1—024X030N; Inclusion 2—028B010N; Inclusion 3—024X030N

2554—Laped-Hooplite-Osoll association

Positions on landscape: Foothills

Composition

Major components:
Laped very gravelly fine sandy loam, 8 to 15 percent slopes—40 percent
Hooplite very gravelly fine sandy loam, 8 to 15 percent slopes—30 percent
Osoll very gravelly fine sandy loam, 8 to 15 percent slopes—20 percent
Contrasting inclusions:
Rock outcrop—5 percent
Typic Durorthids, loamy, mixed, mesic, shallow, 8 to 15 percent slopes—5 percent

Characteristics of the Laped Soil

Classification: Typic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex, lower side slopes of foothills
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 8 to 15 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 45 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 18 inches
Texture: Gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 18 to 23 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.8 to 2.3 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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: Low

Characteristics of the Hooplite Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, upper side slopes of foothills
Parent material: Residuum derived from rhyolitic rock
Slope: 8 to 15 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 8 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.6 to 0.8 inch
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Osoll Soil

Classification: Typic Durorthids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Concave toe slopes of foothills
Parent material: Colluvium that includes loess over residuum derived from various kinds of rock
Slope: 8 to 15 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 12 inches
Texture: Very gravelly loam, very gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 35 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 35 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 0.6 to 1.0 inch
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered knobs
Distinctive present vegetation: None

Inclusion 2
Classification: Typic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Eroded, south-facing side slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Laped Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Hooplite Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Osoll Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Laped Soil
Range seeding: Poor—too arid, small stones, droughty
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, slope

Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Hooplite Soil

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

Osoll Soil

Range seeding: Poor—droughty, small stones, too arid
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, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Laped, Hooplite, and Osoll soils—VIIs, nonirrigated
Range site: Laped and Osoll soils—024X002N; Hooplite soil—028B016N; Inclusion 1—none; Inclusion 2—024X002N

2555—Laped-Colbar association

Positions on landscape: Foothills

Composition

Major components:
Laped very cobbly loam, 15 to 30 percent slopes—55 percent
Colbar very cobbly loam, 30 to 50 percent slopes—30 percent
Contrasting inclusions:
Typic Haplargids, fine, montmorillonitic, mesic, 2 to 8 percent slopes—8 percent
Typic Durargids, loamy-skeletal, mixed, mesic, 30 to 50 percent slopes—5 percent
Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow, 30 to 50 percent slopes—2 percent

Characteristics of the Laped Soil

Classification: Typic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex crests, shoulder slopes, and south-facing side slopes of foothills
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 15 to 30 percent
Elevation: 5,200 to 6,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 10 percent pebbles

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 18 inches
Texture: Gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 18 to 23 inches
Material: Indurated hardpan

Depth: 23 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.2 to 3.5 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Colbar Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave, north-facing side slopes of foothills
Parent material: Colluvium over residuum derived from rhyolite and andesite
Slope: 30 to 50 percent
Elevation: 5,200 to 6,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 22 inches
Texture: Cobbly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 22 to 26 inches
Texture: Gravelly loam, cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.3 to 3.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; T value—2; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Colluvial fans between hills
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Typic Durargids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, south-facing side slopes of foothills
Distinctive present vegetation: Shadscale, Wyoming big sagebrush

Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Concave, eroded side slopes of hills
Distinctive present vegetation: Small rabbitbrush, Wyoming big sagebrush, galleta

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Laped Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Colbar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Laped Soil
Range seeding: Poor—large stones, droughty, too arid
Roadfill: Poor—depth to rock
Topsoil: Poor—cemented pan, small stones, slope
Daily cover for landfill: Poor—depth to rock, 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

Colbar Soil

Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, large 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Laped and Colbar soils—VIIs, nonirrigated
Range site: Laped soil—024X002N; Colbar soil—024X005N; Inclusion 1—024X002N; Inclusion 2—024X026N; Inclusion 3—024X045N

2570—Colbar-Atlow-Burrita association

Positions on landscape: Mountains

Composition

Major components:
Colbar gravelly loam, 15 to 30 percent slopes—50 percent
Atlow very cobbly loam, 15 to 30 percent slopes—20 percent
Burrita very cobbly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Burrita very cobbly loam, 4 to 8 percent slopes—7 percent
Rock outcrop—3 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, shallow, 30 to 50 percent slopes—3 percent
Lithic Haplargids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—2 percent

Characteristics of the Colbar Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave east-, west-, and lower south-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite and andesite
Slope: 15 to 30 percent
Elevation: 6,000 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 6 to 16 inches
Texture: Cobbly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 16 to 21 inches
Texture: Gravelly loam, cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 21 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.3 to 3.8 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.24; T value—2; 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 Atlow Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Shoulder slopes and north-facing side slopes of mountains
Parent material: Residuum derived from chert, shale, and altered rhyolitic tuff
Slope: 15 to 30 percent
Elevation: 6,000 to 6,600 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 20 percent cobbles, 20 percent pebbles

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 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
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; 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 Burrita Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, upper, south-facing side slopes of mountains
Parent material: Residuum derived from interbedded chert, quartzite, and sandstone
Slope: 30 to 50 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Needlegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 30 percent pebbles

Depth: 0 to 7 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 7 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.2 to 1.5 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; 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 Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Crests of mountains
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Positions on landscape: Scattered knobs
Distinctive present vegetation: None

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, shallow
Positions on landscape: Erosional balloons
Distinctive present vegetation: Utah juniper, Wyoming big sagebrush

Inclusion 4
Classification: Lithic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex toe slopes of mountains
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Colbar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Atlow Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Burrita Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Colbar Soil
Range seeding: Fair—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, large 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—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Burrita Soil
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

Land capability classification: Colbar soil—VIe, nonirrigated; Atlow and Burrita soils—VIIs, nonirrigated
Range site: Colbar and Burrita soils—024X005N; Atlow soil—024X030N; Inclusion 1—024X005N; Inclusion 2—none; Inclusion 3—024X002N; Inclusion 4—025X062N

2603—Grina-Genaw association

Positions on landscape: Rolling hills

Composition

Major components:
Grina gravelly loam, 15 to 30 percent slopes—45 percent
Genaw gravelly loam, 15 to 30 percent slopes—40 percent
Contrasting inclusions:
Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—7 percent
Aridic Haploxerolls, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 30 to 50 percent slopes—3 percent

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Convex, eroded side slopes of hills
Parent material: Residuum derived from sedimentary rock
Slope: 15 to 30 percent
Elevation: 5,900 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Utah juniper, singleleaf pinyon, ephedra
Site index for Utah juniper: 30

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 14 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Sodicity (SAR): 0 to 2

Depth: 14 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.8 to 2.1 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Genaw Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex, stable side slopes of hills
Parent material: Loess mantle over residuum derived from tuffaceous sediment
Slope: 15 to 30 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, Wyoming big sagebrush, singleleaf pinyon

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 11 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 16 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 16 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Crests of hills
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin wildrye, rubber rabbitbrush

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Concave, eroded side slopes of hills
Distinctive present vegetation: Bluegrass, small rabbitbrush, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Grina Soil
Wild herbaceous plants (nonirrigated): Fair

Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Genaw Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Grina Soil
Range seeding: Poor—droughty.
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

Genaw Soil
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, 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

Interpretive Groups

Land capability classification: Grina and Genaw soils—VIIe, nonirrigated
Range site: Grina soil—025X059N; Genaw soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B003N; Inclusion 3—024X035N

2640—Rasille-Kelk association

Positions on landscape: Inset fans dissecting fan skirts

Composition

Major components:
Rasille silt loam, gravelly substratum, 0 to 2 percent slopes—45 percent
Kelk silt loam, occasionally flooded, 0 to 2 percent slopes—40 percent
Contrasting inclusions:
Batan silt loam, 0 to 2 percent slopes—8 percent
Broyles very fine sandy loam, 0 to 2 percent slopes—4 percent
Wendane silt loam, frequently flooded, 0 to 2 percent slopes—3 percent

Characteristics of the Rasille Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans at margins of fan skirts and alluvial flats
Parent material: Silty alluvium derived from loess and various kinds of rock
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 15 inches
Texture: Silt loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 41 inches
Texture: Silt loam, very fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 41 to 60 inches
Texture: Stratified fine sandy loam to very gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 7.6 to 9.3 inches
Water-supplying capacity: 8 inches

Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; 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—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin big sagebrush, basin wildrye, rubber rabbitbrush, black greasewood

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; 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: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Shadscale, black greasewood

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye, rubber rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Rasille Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Kelk Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Rasille Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—area reclaim, excess salt
Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Kelk Soil
Range seeding: Fair—too arid, excess salt

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

Interpretive Groups

Land capability classification: Rasille soil—IIc, irrigated, and VIc, nonirrigated; Kelk soil—IIw, irrigated, and VIw, nonirrigated
Range site: Rasille soil—028B010N; Kelk soil—024X006N; Inclusion 1—024X003N; Inclusion 2—024X002N; Inclusion 3—024X007N

2672—Zoesta Variant-Jung-Trunk association

Positions on landscape: Foothills

Composition

Major components:
Zoesta Variant gravelly loam, 15 to 30 percent slopes—35 percent
Jung very cobbly fine sandy loam, 8 to 15 percent slopes—30 percent
Trunk cobbly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Aridic Argixerolls, fine, montmorillonitic, frigid, 30 to 50 percent slopes—8 percent
Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 50 to 75 percent slopes—5 percent
Rock outcrop—2 percent

Characteristics of the Zoesta Variant Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, mesic
Positions on landscape: Convex side slopes of foothills
Parent material: Colluvium over residuum derived from metavolcanic rock
Slope: 15 to 30 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, needlegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 45 percent pebbles
Depth: 0 to 8 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Depth: 8 to 27 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Depth: 27 to 36 inches
Texture: Clay, clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Depth: 36 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex crests and shoulder slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 8 to 15 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days

Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 19 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Trunk Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Slightly concave, west-facing, upper side slopes of foothills
Parent material: Colluvium and residuum derived from quartzite and chert
Slope: 30 to 50 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 10 percent pebbles

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 30 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 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
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3 to 4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: The upper, concave, north-facing side slopes of foothills
Distinctive present vegetation: Singleleaf pinyon, Utah juniper, mountain big sagebrush

Inclusion 2

Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Convex, eroded side slopes of foothills
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush, shadscale

Inclusion 3

Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zoesta Variant Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Trunk Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zoesta Variant Soil
Range seeding: Poor—rooting depth
Roadfill: Fair—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, shrink-swell, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Jung Soil
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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
Gravel: Improbable source—excess fines

Trunk Soil
Range seeding: Poor—rooting depth, 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, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Zoesta Variant soil—VIIe, nonirrigated; Jung and Trunk soils—VIIs, nonirrigated
Range site: Zoesta Variant and Jung soils—024X030N; Trunk soil—024X005N; Inclusion 1—025X062N; Inclusion 2—024X045N; Inclusion 3—none

2681—Tessfive-Puett-Grina association

Positions on landscape: Dissected, rolling hills

Composition

Major components:
Tessfive gravelly loam, 8 to 30 percent slopes—40 percent
Puett gravelly sandy loam, 15 to 50 percent slopes—25 percent
Grina gravelly loam, eroded, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Orovada gravelly very fine sandy loam, 2 to 8 percent slopes—6 percent
Unsel Variant very gravelly loam, 15 to 30 percent slopes—5 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 2 to 8 percent slopes—4 percent

Characteristics of the Tessfive Soil

Classification: Lithic Xeric Torriorthents, loamy, mixed (calcareous), mesic
Positions on landscape: Convex, rolling crests and upper side slopes of hills
Parent material: Residuum derived from tuffaceous sediment that includes loess
Slope: 8 to 30 percent
Elevation: 5,300 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 35 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky

Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 16 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.8 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Convex, eroded side slopes of hills
Parent material: Residuum derived from tuff and sandstone
Slope: 15 to 50 percent
Elevation: 5,300 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 15 inches
Texture: Coarse sandy loam, sandy loam, gravelly loam
Structure: Massive
Consistence: Soft, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1.5 to 2.5 inches
Water-supplying capacity: 6 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Concave, lower, rolling side slopes of hills
Parent material: Residuum derived from sedimentary rock
Slope: 15 to 30 percent
Elevation: 5,300 to 5,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Utah juniper, singleleaf pinyon
Site index for Utah juniper: 18

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.8 to 2.1 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans dissecting hills
Distinctive present vegetation: Wyoming big sagebrush, bluegrass

Inclusion 2
Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Convex, south-facing side slopes of hills
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Areas adjacent to channels
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Tessfive Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Puett Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Grina Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Tessfive Soil
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, 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

Puett Soil
Range seeding: Poor—droughty, too arid
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

Grina Soil
Range seeding: Poor—droughty
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

Interpretive Groups

Land capability classification: Tessfive, Puett, and Grina soils—VIIe, nonirrigated
Range site: Tessfive soil—024X030N; Puett soil—025X025N; Grina soil—025X059N; Inclusion 1—028B010N; Inclusion 2—024X002N; Inclusion 3—024X020N

2683—Tessfive-Genaw-Orovada association

Positions on landscape: Dissected, rolling hills

Composition

Major components:
Tessfive gravelly loam, 15 to 30 percent slopes—35 percent
Genaw gravelly loam, 15 to 30 percent slopes—35 percent
Orovada fine sandy loam, 2 to 8 percent slopes—15 percent

Contrasting inclusions:
Xerollic Durargids, loamy, mixed, mesic, shallow, 4 to 15 percent slopes—5 percent
Puett fine sandy loam, 15 to 30 percent slopes—5 percent
Duric Natrargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—5 percent

Characteristics of the Tessfive Soil

Classification: Lithic Xeric Torriorthents, loamy, mixed (calcareous), mesic
Positions on landscape: Convex, higher, north-facing crests and side slopes of rolling hills
Parent material: Residuum derived from tuffaceous sediment that includes loess
Slope: 15 to 30 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 35 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 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
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.8 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Genaw Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Positions on landscape: Slightly concave side slopes of rolling hills
Parent material: Loess mantle over residuum derived from tuffaceous sediment
Slope: 15 to 30 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 11 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 16 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 16 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches

Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans dissecting rolling hills
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,400 to 5,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 8 to 10 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex crests of rolling hills
Distinctive present vegetation: Black sagebrush

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Erosional balloons
Distinctive present vegetation: Indian ricegrass, Wyoming big sagebrush, black sagebrush

Inclusion 3
Classification: Duric Natrargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, south-facing side slopes of hills
Distinctive present vegetation: Indian ricegrass, shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Tessfive Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Genaw Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Tessfive Soil
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, 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

Genaw Soil

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, 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

Orovada Soil

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, flooding
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Tessfive and Genaw soils—VIIe, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Tessfive soil—024X030N; Genaw and Orovada soils—028B010N; Inclusion 1—028B011N; Inclusion 2—025X025N; Inclusion 3—028B017N

2684—Tessfive-Perlor-Orovada association

Positions on landscape: Dissected, rolling hills

Composition

Major components:
Tessfive gravelly loam, 2 to 8 percent slopes—40 percent
Perlor fine sandy loam, 8 to 15 percent slopes—25 percent
Orovada gravelly very fine sandy loam, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Puett fine sandy loam, 15 to 30 percent slopes—8 percent
Durixerollic Haplargids, fine, montmorillonitic, mesic, 4 to 8 percent slopes—4 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—3 percent

Characteristics of the Tessfive Soil

Classification: Lithic Xeric Torriorthents, loamy, mixed (calcareous), mesic
Positions on landscape: Convex, north- and east-facing side slopes of hills
Parent material: Residuum that is derived from tuffaceous sediment and includes loess
Slope: 2 to 8 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 35 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.8 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Perlor Soil

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

Positions on landscape: South-facing side slopes of hills
Parent material: Loess-capped residuum derived from tuffaceous sediment
Slope: 8 to 15 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 4

Depth: 7 to 14 inches
Texture: Loam, sandy loam, gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 14 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.6 to 2.3 inches
Water-supplying capacity: 6 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; 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: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8 to 10 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; 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: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Convex, eroded side slopes of hills

Distinctive present vegetation: Rabbitbrush, bottlebrush squirreltail, Wyoming big sagebrush, black sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of hills
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Toe slopes of hills
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Tessfive Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Perlor Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Tessfive Soil
Range seeding: Poor—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: Moderate—depth to rock, frost action
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Perlor Soil
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
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
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

Land capability classification: Tessfive and Perlor soils—VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Tessfive soil—024X030N; Perlor soil—024X002N; Orovada soil—028B010N; Inclusion 1—025X025N; Inclusions 2 and 3—028B010N

2690—Itca Variant-Reluctan-Handy association

Positions on landscape: Mountains

Composition

Major components:
Itca Variant very gravelly loam, 15 to 30 percent slopes—45 percent
Reluctan very gravelly loam, 15 to 30 percent slopes—25 percent
Handy gravelly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow, 4 to 15 percent slopes—8 percent
Aridic Argixerolls, fine, montmorillonitic, frigid, 4 to 15 percent slopes—4 percent
Pachic Argixerolls, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes—3 percent

Characteristics of the Itca Variant Soil

Classification: Aridic Argixerolls, loamy, mixed, frigid, shallow
Positions on landscape: Convex side slopes of mountains
Parent material: Residuum derived from tuffaceous sediment
Slope: 15 to 30 percent
Elevation: 6,200 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F

Frost-free season: About 90 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, mountain big sagebrush, singleleaf pinyon
Site index for common trees: Singleleaf pinyon—45; Utah juniper—45

Typical Profile

Rock fragments on surface: 5 percent cobbles, 30 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 3 to 12 inches
Texture: Gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 12 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; 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: Moderate

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium over residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 6,200 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 10 percent cobbles, 35 percent pebbles

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3 to 4 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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 Handy Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Mountain valley fan remnants
Parent material: Alluvium and colluvium derived from various kinds of rock
Slope: 8 to 15 percent
Elevation: 6,200 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, western wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable

Reaction: Mildly alkaline

Depth: 4 to 30 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 30 to 60 inches
Texture: Stratified gravelly loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.0 to 7.5 inches
Water-supplying capacity: 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Positions on landscape: Crests of mountains
Distinctive present vegetation: Singleleaf pinyon, Utah juniper, mountain big sagebrush

Inclusion 2
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex, north-facing crests of mountains
Distinctive present vegetation: Needlegrass, low sagebrush

Inclusion 3
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains in areas where snow accumulates
Distinctive present vegetation: Bluebunch wheatgrass, serviceberry, mountain big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Itca Variant Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Handy Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Variant Soil
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—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

Reluctan Soil
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

Handy Soil
Range seeding: Poor—rooting depth
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Itca Variant, Reluctan, and Handy soils—VIIs, nonirrigated
Range site: Itca Variant soil—025X062N; Reluctan

soil—024X021N; Handy soil—025X014N; Inclusion 1—025X062N; Inclusion 2—024X018N; Inclusion 3—024X021N

2730—Pula-Spike-Buffaran association

Positions on landscape: Deeply dissected fan piedmonts

Composition

Major components:
Pula very gravelly sandy loam, 15 to 30 percent slopes—40 percent
Spike very gravelly sandy loam, 30 to 50 percent slopes—30 percent
Buffaran gravelly loam, 4 to 8 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 15 to 50 percent slopes—8 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—4 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 8 to 15 percent slopes—3 percent

Characteristics of the Pula Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 30 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 2 to 24 inches
Texture: Very gravelly clay loam, extremely gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 24 to 60 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 3 to 5 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Spike Soil

Classification: Typic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 30 to 50 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, galleta, shadscale, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 70 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 2 to 6 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 6 to 60 inches
Texture: Extremely gravelly clay loam, very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 27 inches
Material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Material: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: The lowest parts of north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, bottlebrush squirreltail

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Bluegrass, basin wildrye, basin big sagebrush

Inclusion 3
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Toe slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Pula Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Spike Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Pula Soil
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—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Spike Soil
Range seeding: Poor—too arid, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
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

Land capability classification: Pula, Spike, Buffaran soils—VIIs, nonirrigated
Range site: Pula and Buffaran soils—028B010N; Spike soil—024X045N; Inclusion 1—024X030N; Inclusion 2—028B003N; Inclusion 3—028B016N

2731—Pula-Spike association

Positions on landscape: Deeply dissected fan piedmonts

Composition

Major components:
Pula very cobbly loam, 30 to 50 percent slopes—50 percent
Spike very gravelly sandy loam, 30 to 50 percent slopes—35 percent
Contrasting inclusions:
Duric Natrargids, fine, montmorillonitic, mesic, 2 to 8 percent slopes—6 percent
Xeric Torriorthents, loamy, mixed (calcareous), mesic, 15 to 50 percent slopes—4 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—3 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 4 to 15 percent slopes—2 percent

Characteristics of the Pula Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 30 to 50 percent
Elevation: 5,300 to 5,700 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 45 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 2 to 24 inches

Texture: Very gravelly clay loam, extremely gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 24 to 60 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 3 to 5 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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

Characteristics of the Spike Soil

Classification: Typic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 30 to 50 percent
Elevation: 5,200 to 5,700 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, galleta, shadscale, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 70 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 2 to 6 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 6 to 60 inches
Texture: Extremely gravelly clay loam, very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Duric Natrargids, fine, montmorillonitic, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, shallow
Positions on landscape: Eroded side slopes of hills along edges of fan piedmont remnants
Distinctive present vegetation: Shadscale, Wyoming big sagebrush, galleta

Inclusion 3
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Needlegrass, Indian ricegrass, Wyoming big sagebrush

Inclusion 4
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Distinctive present vegetation: Needlegrass, Wyoming big sagebrush, spiny hopsage

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Pula Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Spike Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Pula Soil
Range seeding: Poor—large stones
Roadfill: Poor—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
Sand: Probable source
Gravel: Probable source

Spike Soil
Range seeding: Poor—too arid, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Pula and Spike soils—VIIs, nonirrigated
Range site: Pula soil—028B010N; Spike soil—024X045N; Inclusion 1—024X002N; Inclusion 2—024X045N; Inclusion 3—028B010N; Inclusion 4—024X020N

2740—Spike-Desatoya Variant-Grassval association

Positions on landscape: Deeply dissected fan piedmonts

Composition

Major components:
Spike very gravelly sandy loam, 30 to 50 percent slopes—35 percent
Desatoya Variant very gravelly sandy loam, 15 to 50 percent slopes—35 percent
Grassval gravelly loam, 4 to 8 percent slopes—15 percent
Contrasting inclusions:
Xerollic Durargids, fine, montmorillonitic, mesic, shallow, 4 to 8 percent slopes—8 percent
Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic, 4 to 15 percent slopes—7 percent

Characteristics of the Spike Soil

Classification: Typic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 30 to 50 percent
Elevation: 5,400 to 5,900 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, galleta, shadscale, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 70 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 2 to 6 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 6 to 60 inches
Texture: Extremely gravelly clay loam, very gravelly loam

Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Desatoya Variant Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 15 to 50 percent
Elevation: 5,400 to 5,900 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 45 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 13 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 26 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 26 to 60 inches
Texture: Very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 2.8 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,400 to 5,900 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Sodicity (SAR): 0 to 2

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, fine, montmorillonitic, mesic, shallow
Positions on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, bluegrass

Inclusion 2
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Bluegrass, spiny hopsage, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Spike Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Desatoya Variant Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Grassval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Spike Soil
Range seeding: Poor—too arid, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Desatoya Variant Soil
Range seeding: Poor—small 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

Grassval Soil
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
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Spike, Desatoya Variant, and Grassval soils—VIIs, nonirrigated
Range site: Spike soil—024X045N; Desatoya Variant and Grassval soils—024X030N; Inclusion 1—028B010N; Inclusion 2—024X020N

2771—Kram-Hopeka-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Kram very gravelly very fine sandy loam, 30 to 50 percent slopes—35 percent
Hopeka very gravelly loam, 30 to 50 percent slopes—35 percent
Rock outcrop—15 percent
Contrasting inclusions:
Aridic Calcixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—8 percent
Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 15 to 30 percent slopes—4 percent
Durorthidic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic, 15 to 30 percent slopes—3 percent

Characteristics of the Kram Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Positions on landscape: The lower side slopes of mountains
Parent material: Residuum derived from limestone
Slope: 30 to 50 percent
Elevation: 5,400 to 7,200 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 95 days
Dominant present vegetation: Bluegrass, black sagebrush, singleleaf pinyon, Utah juniper
Site index for common trees: Singleleaf pinyon—45; Utah juniper—45

Typical Profile

Rock fragments on surface: 65 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly very fine sandy loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 10 inches
Texture: Very gravelly loam, very gravelly very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 10 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.0 to 1.3 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hopeka Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, frigid
Positions on landscape: The upper side slopes of mountains
Parent material: Residuum derived from limestone and dolostone
Slope: 30 to 50 percent
Elevation: 6,500 to 7,800 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Bluegrass, black sagebrush, singleleaf pinyon, Utah juniper
Site index for common trees: Singleleaf pinyon—33; Utah juniper—33

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 8 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 10 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.4 to 0.7 inch
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low

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

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks, exposed bedding planes
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush, currant

Inclusion 2
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Convex, lower side slopes of mountains
Distinctive present vegetation: Bluegrass, black sagebrush

Inclusion 3
Classification: Durorthidic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, bluegrass, basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Kram Soil
Wild herbaceous plants (nonirrigated): Poor
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Hopeka Soil
Wild herbaceous plants (nonirrigated): Poor
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Kram Soil
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

Hopeka Soil
Range seeding: Poor—droughty, depth to rock, 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

Interpretive Groups

Land capability classification: Kram and Hopeka soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Kram and Hopeka soils—025X063N; Rock outcrop—none; Inclusion 1—024X021N; Inclusion 2—024X030N; Inclusion 3—025X003N

2780—Desatoya-Tenabo-Pineval association

Positions on landscape: Fan piedmonts

Composition

Major components:
Desatoya gravelly fine sandy loam, 2 to 4 percent slopes—45 percent
Tenabo very gravelly fine sandy loam, 4 to 8 percent slopes—25 percent
Pineval gravelly loam, 4 to 8 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—7 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—6 percent
Xerollic Durargids, clayey, montmorillonitic, mesic, shallow, 2 to 4 percent slopes—2 percent

Characteristics of the Desatoya Soil

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: Slightly dissected fan aprons
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 60 inches
Texture: Stratified extremely gravelly sandy loam, very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.0 to 5.3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
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 Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: Nonburied summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 5 to 17 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 17 to 31 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 31 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.2 to 2.4 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants, fan drainageways

Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,000 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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 Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: East-facing shoulder slopes and scarps of fan piedmonts
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Bluegrass, black sagebrush

Inclusion 3
Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The highest summits of nonburied fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Desatoya Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Desatoya Soil
Range seeding: Poor—rooting depth
Roadfill: Fair—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: Moderate—slope, seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Tenabo Soil
Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave

Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Desatoya soil—VIIs, nonirrigated; Tenabo soil—IVe, irrigated, and VIIs, nonirrigated; Pineval soil—IVe, irrigated, and VIs, nonirrigated
Range site: Desatoya soil—027X032N; Tenabo soil—028B017N; Pineval soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B011N; Inclusion 3—028B010N

2781—Desatoya-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Desatoya gravelly fine sandy loam, 4 to 8 percent slopes—60 percent
Orovada gravelly fine sandy loam, 4 to 8 percent slopes—25 percent
Contrasting inclusions:
Durixerollic Haplargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—7 percent
Duric Natrargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—5 percent
Durixerollic Haplargids, fine, montmorillonitic, mesic, 4 to 15 percent slopes—3 percent

Characteristics of the Desatoya Soil

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 13 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 60 inches
Texture: Stratified extremely gravelly sandy loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.0 to 5.3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 4 to 8 percent

Elevation: 6,000 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.2 to 9.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Distinctive present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Inclusion 3
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Distinctive present vegetation: Bluegrass, Indian ricegrass, black sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Desatoya Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Desatoya Soil
Range seeding: Poor—rooting depth
Roadfill: Fair—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: Moderate—slope, seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
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

Land capability classification: Desatoya soil—VIIs,

nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Desatoya soil—027X032N; Orovada soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B017N; Inclusion 3—027X032N

2782—Desatoya-Pineval-Grassval association

Positions on landscape: Piedmont slopes

Composition

Major components:
Desatoya very gravelly loam, 8 to 15 percent slopes—35 percent
Pineval gravelly loam, 2 to 8 percent slopes—35 percent
Grassval gravelly loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—7 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—4 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 4 to 8 percent slopes—4 percent

Characteristics of the Desatoya Soil

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 6,300 to 6,600 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 14 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 60 inches
Texture: Stratified extremely gravelly sandy loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.0 to 5.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,300 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Salinity: 0 to 2 millimhos per centimeter

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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 Grassval Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: The highest summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,300 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 13 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 13 inches
Material: Indurated hardpan

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The higher side slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, bluegrass, rabbitbrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower summits of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Desatoya Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Grassval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Desatoya Soil
Range seeding: Poor—rooting depth, small stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—large stones, slope
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Grassval Soil
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
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Desatoya and Grassval soils—VIIs, nonirrigated; Pineval soil—IVe, irrigated, and VIs, nonirrigated
Range site: Desatoya soil—024X030N; Pineval soil—028B010N; Grassval soil—028B011N; Inclusion 1—024X030N; Inclusions 2 and 3—028B010N

2783—Desatoya-Spike association

Positions on landscape: Strongly dissected fan piedmonts

Composition

Major components:
Desatoya very gravelly sandy loam, 30 to 50 percent slopes—35 percent
Spike very gravelly sandy loam, 30 to 50 percent slopes—35 percent
Desatoya gravelly sandy loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 15 to 50 percent slopes—8 percent
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 4 to 8 percent slopes—4 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—3 percent

Characteristics of the Desatoya Soil, Steep

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, north- and east-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 30 to 50 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 45 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 14 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 60 inches
Texture: Stratified extremely gravelly sandy loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter

Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.0 to 5.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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 Spike Soil

Classification: Typic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South- and west-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 30 to 50 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, galleta, shadscale, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 70 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 2 to 6 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 6 to 60 inches
Texture: Extremely gravelly clay loam, very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.7 to 5.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Desatoya Soil, Strongly Sloping

Classification: Durixerollic Haplargids, clayey over loamy-skeletal, montmorillonitic, mesic
Positions on landscape: Convex crests and shoulder slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 5,300 to 6,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, needlegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 14 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 60 inches
Texture: Stratified extremely gravelly sandy loam to very gravelly loamy sand

Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 10

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.0 to 5.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
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, mesic
Positions on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Small rabbitbrush, bluegrass, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush

Inclusion 3
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower, concave side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, small rabbitbrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Desatoya Soil, Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Spike Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Desatoya Soil, Strongly Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Desatoya Soil, Steep
Range seeding: Poor—rooting depth, 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

Spike Soil
Range seeding: Poor—small stones, erodes easily, excess salt
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

Desatoya Soil, Strongly Sloping
Range seeding: Poor—rooting depth
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—large stones, slope
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Desatoya and Spike soils—VIIs, nonirrigated
Range site: Desatoya soils—024X030N; Spike soil—024X045N; Inclusion 1—028B010N; Inclusion 2—028B003N; Inclusion 3—028B010N

2791—Old Camp-Colbar-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Old Camp very cobbly loam, 4 to 15 percent slopes—40 percent
Colbar very cobbly loam, 15 to 30 percent slopes—30 percent
Rock outcrop—15 percent
Contrasting inclusions:
Xerollic Durargids, clayey, montmorillonitic, mesic, shallow, 15 to 30 percent slopes—7 percent
McVegas very gravelly loam, 4 to 15 percent slopes—5 percent
Haploxerollic Durargids, fine, montmorillonitic, mesic, 4 to 15 percent slopes—3 percent

Characteristics of the Old Camp Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex crests and shoulder slopes of mountains
Parent material: Residuum derived from basalt and andesite
Slope: 4 to 15 percent
Elevation: 5,400 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.9 to 1.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; 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 Colbar Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite and andesite
Slope: 15 to 30 percent
Elevation: 5,400 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 10 percent pebbles

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 22 inches
Texture: Cobbly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 22 to 26 inches
Texture: Gravelly loam, cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 26 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.3 to 3.8 inches
Water-supplying capacity: 9 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Rock Outcrop

Positions on landscape: Escarpments and severely eroded side slopes of mountains

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Convex, south-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, big sagebrush

Inclusion 2
Classification: Haplic Nadurargids, clayey-skeletal, montmorillonitic, mesic, shallow
Positions on landscape: Convex, broad crests and saddles of mountains
Distinctive present vegetation: Shadscale, small rabbitbrush, bud sagebrush

Inclusion 3
Classification: Haploxerollic Durargids, fine, montmorillonitic, mesic
Positions on landscape: Convex crests and shoulder slopes of mountains
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Old Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Colbar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Old Camp Soil
Range seeding: Poor—large stones, droughty
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, large stones
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Colbar Soil
Range seeding: Poor—large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, large 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Old Camp and Colbar soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Old Camp and Colbar soils—024X005N; Rock outcrop—none; Inclusion 1—024X028N; Inclusion 2—024X002N; Inclusion 3—024X020N

2792—Old Camp-Allor-Puett association

Positions on landscape: Foothills, fan piedmonts

Composition

Major components:
Old Camp gravelly loam, 4 to 15 percent slopes—40 percent
Allor gravelly loam, 2 to 8 percent slopes—30 percent
Puett very gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Duco very cobbly loam, 15 to 30 percent slopes—6 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 0 to 2 percent slopes—5 percent
Jung very cobbly fine sandy loam, 4 to 15 percent slopes—4 percent

Characteristics of the Old Camp Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, north- and west-facing crests and side slopes of foothills

Parent material: Residuum derived from basalt and andesite
Slope: 4 to 15 percent
Elevation: 5,400 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

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

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.2 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,400 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.1 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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
Positions on landscape: South- and east-facing side slopes of foothills
Parent material: Residuum derived from weathered tuff and sandstone
Slope: 15 to 30 percent
Elevation: 5,400 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Coarse sandy loam, sandy loam, gravelly loam
Structure: Massive
Consistence: Soft, friable
Reaction: Moderately alkaline

Depth: 13 inches
Material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1.4 to 1.6 inches
Water-supplying capacity: 6 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Lithic Argixerolls, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, higher side slopes of foothills
Distinctive present vegetation: Singleleaf pinyon, Utah juniper, Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: The upper, south-facing side slopes of foothills
Distinctive present vegetation: Black sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Old Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Puett Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Old Camp Soil
Range seeding: Poor—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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Puett Soil
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—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

Land capability classification: Old Camp and Puett soils—VIIs, nonirrigated; Allor soil—IIIe, irrigated, and VIIc, nonirrigated

Range site: Old Camp soil—027X007N; Allor soil—027X008N; Puett soil—025X025N; Inclusion 1—025X062N; Inclusion 2—027X008N; Inclusion 3—027X032N

2793—Old Camp-Laped association

Positions on landscape: Mountains

Composition

Major components:

Old Camp very cobbly loam, 15 to 30 percent slopes—55 percent

Laped very cobbly loam, 15 to 30 percent slopes—30 percent

Contrasting inclusions:

Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—7 percent

Xerollic Haplargids, fine-loamy, mixed, mesic, 30 to 50 percent slopes—6 percent

Xerollic Camborthids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—2 percent

Characteristics of the Old Camp Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic

Positions on landscape: North- and east-facing side slopes of mountains

Parent material: Residuum derived from basalt and andesite

Slope: 15 to 30 percent

Elevation: 5,400 to 6,200 feet

Average annual precipitation: About 9 inches

Average annual air temperature: About 48 degrees F

Frost-free season: About 110 days

Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.9 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; 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 Laped Soil

Classification: Typic Durargids, loamy, mixed, mesic, shallow

Positions on landscape: South- and west-facing side slopes of mountains

Parent material: Colluvium and residuum derived from tuff and andesite

Slope: 15 to 30 percent

Elevation: 5,400 to 6,200 feet

Average annual precipitation: About 8 inches

Average annual air temperature: About 49 degrees F

Frost-free season: About 110 days

Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 18 inches
Texture: Gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 23 inches
Material: Indurated hardpan

Depth: 23 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 20 to 30 inches

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.1 to 2.7 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, lower, south-facing side slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush, shadscale

Inclusion 2
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Colluvial toe slopes of mountains
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Old Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Laped Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Old Camp Soil
Range seeding: Poor—large stones, droughty
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, slope, large stones
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Laped Soil
Range seeding: Poor—large stones, droughty, too arid
Roadfill: Poor—depth to rock
Topsoil: Poor—cemented pan, small stones, slope
Daily cover for landfill: Poor—depth to rock, 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

Interpretive Groups

Land capability classification: Old Camp and Laped soils—VIIs, nonirrigated
Range site: Old Camp soil—024X005N; Laped soil—024X002N; Inclusion 1—024X026N; Inclusion 2—024X005N; Inclusion 3—024X020N

2797—Old Camp-Colbar association

Positions on landscape: Foothills

Composition

Major components:
Old Camp gravelly loam, 30 to 50 percent slopes—45 percent
Colbar cobbly loam, 15 to 30 percent slopes—25 percent
Old Camp very cobbly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—4 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 30 percent slopes—4 percent
Lithic Haplargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—4 percent
Rock outcrop—3 percent

Characteristics of the Old Camp Soil, Steep

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic

Positions on landscape: Convex, lower side slopes and shoulder slopes of foothills
Parent material: Residuum derived from basalt and andesite
Slope: 30 to 50 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

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

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.2 to 1.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Colbar Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The higher side slopes of foothills
Parent material: Colluvium and residuum derived from rhyolite and andesite
Slope: 15 to 30 percent
Elevation: 5,900 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 22 inches
Texture: Cobbly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 22 to 26 inches
Texture: Gravelly loam, cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 26 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.3 to 3.8 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; 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 Old Camp Soil, Strongly Sloping

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Summits and shoulder slopes of foothills
Parent material: Residuum derived from basalt and andesite
Slope: 8 to 15 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches

Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.9 to 1.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; 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

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave foot slopes of foothills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Slightly convex, higher crests of foothills
Distinctive present vegetation: Black sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Lithic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Old Camp Soil, Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Colbar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Old Camp Soil, Strongly Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Old Camp Soil, Steep
Range seeding: Poor—erodes easily, 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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Colbar Soil
Range seeding: Fair—too arid, large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, large 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Old Camp Soil, Strongly Sloping
Range seeding: Poor—large stones, droughty

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

Interpretive Groups

Land capability classification: Old Camp soil, steep—VIIe, nonirrigated; Colbar soil—VIe, nonirrigated; Old Camp soil, strongly sloping—VIIs, nonirrigated
Range site: Old Camp and Colbar soils—024X005N; Inclusion 1—025X014N; Inclusion 2—024X030N; Inclusion 3—024X002N

2798—Old Camp-Atlow-Osoll association

Positions on landscape: Foothills

Composition

Major components:
Old Camp gravelly loam, 15 to 30 percent slopes—40 percent
Atlow very gravelly loam, 30 to 50 percent slopes—30 percent
Osoll very gravelly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 4 to 15 percent slopes—6 percent
Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 30 to 50 percent slopes—5 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—2 percent
Rock outcrop—2 percent

Characteristics of the Old Camp Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, lower side slopes and shoulder slopes of foothills
Parent material: Residuum derived from basalt and andesite
Slope: 15 to 30 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

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

Depth: 2 to 11 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 11 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.2 to 1.6 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Atlow Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The upper side slopes of foothills
Parent material: Residuum derived from chert, argillite, shale, and altered tuff
Slope: 30 to 50 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.3 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Osoll Soil

Classification: Typic Durorthids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Eroded side slopes of foothills
Parent material: Colluvium that includes loess over residuum
Slope: 30 to 50 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 5 to 12 inches
Texture: Very gravelly loam, very gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Strongly alkaline

Depth: 12 to 35 inches
Material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 35 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 14 inches
Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 0.6 to 1.0 inch
Water-supplying capacity: 6 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Crests of foothills
Distinctive present vegetation: Black sagebrush, bluegrass

Inclusion 2
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Convex, eroded side slopes below areas of Rock outcrop on foothills
Distinctive present vegetation: Wyoming big sagebrush, desert needlegrass

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Interhill drainageways
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 4
Positions on landscape: Scattered peaks

Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Old Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Atlow Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Osoll Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Old Camp Soil
Range seeding: Poor—erodes easily, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Osoll Soil
Range seeding: Poor—droughty, small stones, too arid
Roadfill: Poor—depth to rock, slope
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

Interpretive Groups

Land capability classification: Old Camp, Atlow, and Osoll soils—VIIs, nonirrigated
Range site: Old Camp soil—024X005N; Atlow soil—024X030N; Osoll soil—024X002N; Inclusion 1—024X030N; Inclusion 2—024X045N; Inclusion 3—025X013N; Inclusion 4—none

3001—Barrier-Kobeh association

Positions on landscape: Fan piedmonts

Composition

Major components:
Barrier cobbly loam, 4 to 15 percent slopes—65 percent
Kobeh gravelly fine sandy loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Xerollic Durargids, loamy, mixed, frigid, shallow, 2 to 8 percent slopes—8 percent
Haploxerollic Durorthids, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes—5 percent
Haploxerollic Nadurargids, fine, montmorillonitic, frigid, 2 to 8 percent slopes—2 percent

Characteristics of the Barrier Soil

Classification: Haploxerollic Durorthids, loamy, mixed, frigid
Positions on landscape: Summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 15 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Indian ricegrass, needlegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 15 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 12 inches
Texture: Gravelly loam, gravelly sandy loam, fine sandy loam

Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 12 to 27 inches
Material: Cemented hardpan

Depth: 27 to 60 inches
Texture: Very cobbly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to the hardpan: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Kobeh Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Inset fans
Parent material: Mixed alluvium that includes volcanic ash
Slope: 2 to 8 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 20 inches
Texture: Gravelly sandy loam, gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 60 inches
Texture: Stratified gravelly fine sandy loam to very gravelly sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.6 to 6.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, loamy, mixed, frigid, shallow
Positions on landscape: Slightly convex shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Inclusion 2
Classification: Haploxerollic Durorthids, loamy-skeletal, mixed, frigid
Positions on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Inclusion 3
Classification: Haploxerollic Nadurargids, fine, montmorillonitic, frigid
Positions on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Barrier Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Kobeh Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Barrier Soil
Range seeding: Poor—droughty, excess salt
Roadfill: Good
Topsoil: Poor—cemented pan, large stones
Daily cover for landfill: Poor—cemented pan, large stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Kobeh Soil
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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Barrier soil—VIIs, nonirrigated; Kobeh soil—IVe, irrigated, and VIIc, nonirrigated
Range site: Barrier soil—028B011N; Kobeh soil—028B010N; Inclusions 1 and 2—028B011N; Inclusion 3—028B017N

3011—Defler-Orovada association

Positions on landscape: Broad inset fans and fan skirts

Composition

Major components:
Defler gravelly fine sandy loam, 0 to 2 percent slopes—70 percent
Orovada gravelly fine sandy loam, gravelly substratum, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Silverado sandy loam, 0 to 4 percent slopes—5 percent
Orovada fine sandy loam, gullied, 0 to 4 percent slopes—3 percent
Wholan very fine sandy loam, 0 to 4 percent slopes—2 percent

Characteristics of the Defler Soil

Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Smooth to slightly convex inset fans
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 0 to 2 percent
Elevation: 6,400 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 38 inches
Texture: Very gravelly fine sandy loam, very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 38 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: Occasional for very brief periods in December through August
Permeability: Moderately rapid
Available water capacity: 3.0 to 4.8 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fan remnants
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,400 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 15 inches
Texture: Fine sandy loam, loam, silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 40 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 40 to 60 inches
Texture: Stratified gravelly sandy loam to very gravelly sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6 to 8 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—severe
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, frigid
Positions on landscape: The upper fan skirt remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Recently dissected inset fans
Distinctive present vegetation: Wyoming big sagebrush, basin big sagebrush

Inclusion 3
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: The lower, convex fan skirt margins
Distinctive present vegetation: Indian ricegrass, winterfat

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Defler Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Defler Soil
Range seeding: Poor—droughty, too arid
Roadfill: Good

Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Orovada Soil
Range seeding: Fair—too arid, small stones
Roadfill: Good
Topsoil: Poor—area reclaim
Daily cover for landfill: Fair—thin layer
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Probable source
Gravel: Improbable source—too sandy

Interpretive Groups

Land capability classification: Defler soil—IVw, irrigated, and VIIw, nonirrigated; Orovada soil—IIIc, irrigated, and VIc, nonirrigated
Range site: Defler soil—028B013N; Orovada soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B009N; Inclusion 3—028B013N

3050—Novacan cobbly loam, 2 to 8 percent slopes

Positions on landscape: Fan piedmonts

Composition

Major component:
Novacan cobbly loam, 2 to 8 percent slopes—85 percent
Contrasting inclusions:
Durixerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—6 percent
Haploxerollic Durorthids, loamy, mixed, mesic, shallow, 2 to 8 percent slopes—6 percent
Typic Nadurargids, fine, montmorillonitic, mesic, 2 to 8 percent slopes—3 percent

Characteristics of the Novacan Soil

Classification: Haploxerollic Durargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed volcanic alluvium
Slope: 2 to 8 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Indian ricegrass, needleandthread, black sagebrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 10 percent pebbles

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 24 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 24 to 45 inches
Material: Cemented hardpan

Depth: 45 to 60 inches
Texture: Very cobbly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.0 to 3.7 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Haploxerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush

Inclusion 3
Classification: Typic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—too clayey, cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, large stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—shrink-swell, low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Novacan soil—VIIs, nonirrigated
Range site: Novacan soil—028B011N; Inclusion 1—028B010N; Inclusion 2—028B011N; Inclusion 3—028B017N

3071—Allor-Wieland association

Positions on landscape: Fan piedmonts

Composition

Major components:
Allor gravelly loam, 4 to 15 percent slopes—50 percent
Wieland gravelly loam, 4 to 15 percent slopes—35 percent

Contrasting inclusions:
Haploxerollic Durargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—7 percent
Durixerollic Haplargids, fine, montmorillonitic, mesic, 0 to 4 percent slopes—4 percent
Haploxerollic Durargids, fine, montmorillonitic, mesic, 4 to 15 percent slopes—4 percent

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants and foot slopes
Parent material: Mixed alluvium
Slope: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.1 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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
Positions on landscape: The higher summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; 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: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: Nonburied fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 3
Classification: Haploxerollic Durargids, fine, montmorillonitic, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Wieland Soil
Range seeding: Poor—rooting depth
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Allor soil—IVe, irrigated, and VIIc, nonirrigated; Wieland soil—VIs, nonirrigated
Range site: Allor and Wieland soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B003N; Inclusion 3—028B010N

3072—Allor-Orovada association, moderately sloping

Positions on landscape: Fan piedmonts

Composition

Major components:
Allor gravelly loam, 4 to 8 percent slopes—55 percent
Orovada fine sandy loam, 2 to 4 percent slopes—30 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 4 to 8 percent slopes—5 percent

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,800 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.1 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky

Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The upper part of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Adjacent to channels on inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Black sagebrush, bluegrass, shadscale

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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

Interpretive Groups

Land capability classification: Allor soil—IIIe, irrigated, and VIIc, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Allor and Orovada soils—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—024X030N

3073—Allor-Kelk association

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major components:
Allor gravelly loam, 0 to 2 percent slopes—50 percent
Kelk very fine sandy loam, lacustrine substratum, 0 to 2 percent slopes—35 percent
Contrasting inclusions:
Durixerollic Camborthids, coarse-silty, mixed, mesic, 0 to 2 percent slopes—8 percent
Durixerollic Camborthids, fine-loamy, mixed, mesic, 0 to 2 percent slopes—7 percent

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,300 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.1 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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 Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,300 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass

Typical Profile

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 12 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 40 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 40 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Kelk Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Kelk Soil
Range seeding: Fair—too arid
Roadfill: Fair—thin layer, shrink-swell
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Allor soil—IIIs, irrigated, and VIIc, nonirrigated; Kelk soil—IIc, irrigated, and VIc, nonirrigated
Range site: Allor and Kelk soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B003N

3074—Allor-Orovada association, nearly level

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major components:
Allor fine sandy loam, 0 to 2 percent slopes—50 percent
Orovada very fine sandy loam, 0 to 2 percent slopes—35 percent
Contrasting inclusions:
Duric Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—7 percent
Aeric Halaquepts, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Wholan silt loam, 0 to 2 percent slopes—3 percent

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,100 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.1 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Fan skirts
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,100 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.8 to 10.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; 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

Contrasting Inclusions

Inclusion 1
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: The lower fan skirt margins
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Aeric Halaquepts, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent lagoon remnants
Distinctive present vegetation: Black greasewood, basin big sagebrush

Inclusion 3
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Winterfat, Indian ricegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—seepage

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

Orovada Soil
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
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Allor soil—IIIs, irrigated, and VIIc, nonirrigated; Orovada soil—IIc, irrigated, and VIc, nonirrigated
Range site: Allor and Orovada soils—028B010N; Inclusion 1—024X002N; Inclusion 2—024X022N; Inclusion 3—024X004N

3080—Zaidy-Ricert association

Positions on landscape: Fan piedmonts

Composition

Major components:
Zaidy very gravelly sandy loam, 2 to 8 percent slopes—60 percent
Ricert gravelly fine sandy loam, 2 to 8 percent slopes—25 percent
Contrasting inclusions:
Durixerollic Haplargids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—4 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 8 percent slopes—4 percent
Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow, 8 to 15 percent slopes—4 percent
Xerollic Haplargids, loamy, mixed, mesic, 8 to 15 percent slopes—3 percent

Characteristics of the Zaidy Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The upper fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 5 to 25 inches
Texture: Loam, clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 6 to 13

Depth: 25 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.05; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ricert Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Parent material: Thin loess deposits over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 6 to 18 inches
Texture: Loam, clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 18 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, coarse-loamy, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Black sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Wyoming big sagebrush, needleandthread

Inclusion 3
Classification: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: The highest areas of fan piedmont remnants
Distinctive present vegetation: Black sagebrush

Inclusion 4
Classification: Xerollic Haplargids, loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants near the front of mountains
Distinctive present vegetation: Wyoming big sagebrush, needleandthread

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zaidy Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Ricert Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Zaidy Soil
Range seeding: Poor—small stones
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, shrink-swell
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ricert Soil
Range seeding: Poor—too arid, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess sodium
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, excess sodium
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Zaidy soil—IVs, irrigated,

and VIIs, nonirrigated; Ricert soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Zaidy soil—028B011N; Ricert soil—024X002N; Inclusion 1—028B016N; Inclusion 2—028B010N; Inclusion 3—028B016N; Inclusion 4—028B010N

3081—Zaidy-Allor association

Positions on landscape: Fan piedmonts

Composition

Major components:
Zaidy very gravelly fine sandy loam, 8 to 15 percent slopes—55 percent
Allor gravelly loam, 4 to 15 percent slopes—30 percent
Contrasting inclusions:
Durixerollic Haplargids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—8 percent
Haploxerollic Durargids, fine-loamy, mixed, mesic, 15 to 30 percent slopes—4 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—3 percent

Characteristics of the Zaidy Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The higher fan piedmont remnants
Parent material: Mixed alluvium
Slope: 8 to 15 percent
Elevation: 6,700 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, bluegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 5 to 25 inches
Texture: Loam, clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 6 to 13

Depth: 25 to 60 inches
Material: Cemented hardpan

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 3.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 15 percent
Elevation: 6,700 to 6,800 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive

Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.0 to 7.5 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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 Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Indian ricegrass, galleta, Wyoming big sagebrush, shadscale

Inclusion 3
Classification: Durixerollic Durargids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zaidy Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zaidy Soil
Range seeding: Poor—small stones
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, shrink-swell
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Zaidy soil—IVs, irrigated, and VIIs, nonirrigated; Allor soil—IVe, irrigated, and VIIc, nonirrigated
Range site: Zaidy soil—028B011N; Allor soil—028B010N; Inclusion 1—028B010N; Inclusion 2—024X045N; Inclusion 3—028B010N

3091—Packer-Newlands association

Positions on landscape: Mountains

Composition

Major components:
Packer extremely gravelly loam, 15 to 30 percent slopes—60 percent
Packer extremely cobbly loam, 8 to 15 percent slopes—15 percent
Newlands loam, 8 to 15 percent slopes—10 percent
Contrasting inclusions:
Argic Cryoborolls, clayey-skeletal, montmorillonitic, 8 to 15 percent slopes—8 percent
Argic Lithic Cryoborolls, loamy-skeletal, mixed, 8 to 15 percent slopes—4 percent
Rock outcrop—3 percent

Characteristics of the Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: South-, east-, and west-facing side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash

Slope: 15 to 30 percent
Elevation: 7,800 to 10,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles and stones, 70 percent pebbles

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.8 to 5.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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 Packer Soil, Cobbly

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Windswept crests of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 8 to 15 percent
Elevation: 7,800 to 10,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 40 percent cobbles, 30 percent pebbles

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

Depth: 10 to 21 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.4 to 5.2 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; 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 Newlands Soil

Classification: Argic Cryoborolls, fine-loamy, mixed
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from andesite and rhyolite
Slope: 8 to 15 percent
Elevation: 7,800 to 10,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Mountain brome, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 10 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 46 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 46 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.5 to 6.7 inches
Water-supplying capacity: 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; T value—3; 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: Argic Cryoborolls, clayey-skeletal, montmorillonitic
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests of mountains adjacent to areas of Rock outcrop
Distinctive present vegetation: Low sagebrush, black sagebrush

Inclusion 3
Positions on landscape: Escarpments
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Packer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Packer Soil, Cobbly
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Newlands Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Packer Soil
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, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Packer Soil, Cobbly
Range seeding: Poor—large stones
Roadfill: Poor—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—large stones
Local roads and streets: Severe—large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

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

Interpretive Groups

Land capability classification: Packer soils—VIIs, nonirrigated; Newlands soil—IVe, irrigated, and VIc, nonirrigated

Range site: Packer soils—024X016N; Newlands soil—028B029N; Inclusion 1—024X027N; Inclusion 2—024X016N; Inclusion 3—none

3092—Packer-Hapgood-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Packer extremely gravelly loam, 8 to 15 percent slopes—50 percent
Hapgood gravelly loam, 8 to 15 percent slopes—20 percent
Rock outcrop—15 percent
Contrasting inclusions:
Layview extremely cobbly loam, 4 to 15 percent slopes—8 percent
Entic Cryoborolls, loamy-skeletal, mixed, 8 to 15 percent slopes—4 percent
Pachic Cryoborolls, loamy-skeletal, mixed, 15 to 30 percent slopes—3 percent

Characteristics of the Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex, windswept crests and upper side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 8 to 15 percent
Elevation: 8,500 to 10,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 70 percent pebbles

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.6 to 5.0 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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
Positions on landscape: Concave, protected, lower side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 8 to 15 percent
Elevation: 8,500 to 10,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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 Rock Outcrop

Positions on landscape: Scattered peaks

Contrasting Inclusions

Inclusion 1

Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests of mountains near areas of Rock outcrop
Distinctive present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Inclusion 2

Classification: Entic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Side slopes of mountains in areas where snow accumulates
Distinctive present vegetation: Needlegrass, balsamroot

Inclusion 3

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: North-facing side slopes of mountains
Distinctive present vegetation: Oceanspray, mountain big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Packer Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Packer Soil

Range seeding: Poor—small stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—slope, large stones
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—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil

Range seeding: Fair—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Packer soil—VIIs, nonirrigated; Hapgood soil—VIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Packer soil—024X016N; Hapgood soil—024X032N; Rock outcrop—none; Inclusion 1—024X016N; Inclusion 2—025X028N; Inclusion 3—024X034N

3093—Packer-Layview-Hapgood association

Positions on landscape: Mountains

Composition

Major components:

Packer very gravelly loam, 15 to 50 percent slopes—40 percent
Layview very gravelly sandy loam, 8 to 15 percent slopes—25 percent
Hapgood fine sandy loam, 30 to 50 percent slopes—20 percent

Contrasting inclusions:

Cumulic Haplaquolls, fine-loamy, mixed, frigid, 4 to 8 percent slopes—5 percent
Rock outcrop—4 percent
Itca very cobbly loam, 15 to 30 percent slopes—3 percent
Argic Cryoborolls, clayey-skeletal, montmorillonitic, 30 to 50 percent slopes—3 percent

Characteristics of the Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 15 to 50 percent
Elevation: 8,000 to 10,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 40 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 55 percent pebbles

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6 to 8 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; 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 Layview Soil

Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Windswept crests of mountains
Parent material: Residuum derived from andesite, rhyolite, and tuff
Slope: 8 to 15 percent
Elevation: 8,000 to 10,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 12 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 12 inches
Material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.0 to 1.8 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 8,000 to 10,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain

brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6 to 7 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—3; wind erodibility group—3
Hazard of erosion: By water—severe; 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-loamy, mixed, frigid
Positions on landscape: Near seeps and springs, along canyon bottoms
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The lower, south- and west-facing side slopes of mountains
Distinctive present vegetation: Singleleaf pinyon, mountain big sagebrush

Inclusion 4
Classification: Argic Cryoborolls, clayey-skeletal, montmorillonitic
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Low sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Packer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Layview Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Packer Soil
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, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

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

Hapgood Soil
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

Interpretive Groups

Land capability classification: Packer and Layview soils—VIIs, nonirrigated; Hapgood soil—VIIe, nonirrigated
Range site: Packer and Layview soils—024X016N; Hapgood soil—024X023N; Inclusion 1—028B024N; Inclusion 2—none; Inclusion 3—025X061N; Inclusion 4—024X018N

3094—Packer-Hapgood-Torro association

Positions on landscape: Mountains

Composition

Major components:
Packer extremely gravelly sandy loam, 30 to 75 percent slopes—40 percent
Hapgood gravelly loam, 30 to 50 percent slopes—25 percent
Torro very gravelly loam, 5 to 75 percent slopes—20 percent
Contrasting inclusions:
Newlands extremely gravelly sandy loam, 30 to 50 percent slopes—7 percent
Layview extremely gravelly sandy loam, 30 to 50 percent slopes—3 percent
Rock outcrop—3 percent
Rubble land—2 percent

Characteristics of the Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: The highest side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 30 to 75 percent
Elevation: 8,700 to 9,400 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 10 inches
Texture: Extremely gravelly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.0 to 6.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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 Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: North-facing, concave side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 8,400 to 9,400 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable

Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: The lower, south- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 50 to 75 percent
Elevation: 7,700 to 8,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 45 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.5 to 7.0 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—severe; 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 Cryoborolls, fine-loamy, mixed
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, serviceberry

Inclusion 2
Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Inclusion 3
Positions on landscape: Scattered peaks and severely eroded side slopes of mountains
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Packer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Packer Soil
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, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Torro Soil
Range seeding: Poor—small stones, 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

Interpretive Groups

Land capability classification: Packer and Torro soils—VIIs, nonirrigated; Hapgood soil—VIIe, nonirrigated
Range site: Packer soil—024X016N; Hapgood soil—024X032N; Torro soil—024X029N; Inclusion 1—028B029N; Inclusion 2—024X016N; Inclusions 3 and 4—none

3101—Hackwood-Newlands-Hapgood association

Positions on landscape: Mountains

Composition

Major components:
Hackwood gravelly loam, 15 to 30 percent slopes, rubbly—75 percent
Newlands extremely bouldery loam, 8 to 15 percent slopes—10 percent
Hapgood gravelly loam, 15 to 30 percent slopes—10 percent
Contrasting inclusions:
Entic Cryumbrepts, loamy-skeletal, mixed, 8 to 15 percent slopes—2 percent
Packer very gravelly loam, 8 to 15 percent slopes—2 percent
Rock outcrop—1 percent

Characteristics of the Hackwood Soil

Classification: Pachic Cryoborolls, fine-loamy, mixed
Positions on landscape: Concave side slopes of mountains below ridges and areas of Rock outcrop
Parent material: Colluvium derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 18 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 40 days
Dominant present vegetation: Quaking aspen

Typical Profile

Rock fragments on surface: 25 percent stones and boulders

Depth: 0 to 18 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 18 to 32 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Slightly acid

Depth: 32 to 60 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Slightly acid

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None

Permeability: Moderate
Available water capacity: 6 to 8 inches
Water-supplying capacity: 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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 Newlands Soil

Classification: Argic Cryoborolls, fine-loamy, mixed
Positions on landscape: Slightly convex side slopes of mountains
Parent material: Colluvium and residuum derived from andesite and rhyolite
Slope: 8 to 15 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Mountain brome, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 8 percent stones and boulders, 25 percent pebbles

Depth: 0 to 10 inches
Texture: Extremely bouldery loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 46 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 46 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 15 to 30 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6.0 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Positions on landscape: Concave areas of basins
Distinctive present vegetation: Needlegrass, balsamroot

Inclusion 2
Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Windswept crests of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue, balsamroot

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hackwood Soil
Wild herbaceous plants (nonirrigated): Good
Shrubs (nonirrigated): Good

Newlands Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Hackwood Soil
Range seeding: Poor—large stones
Roadfill: Fair—shrink-swell, 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

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

Hapgood Soil
Range seeding: Fair—erodes easily, 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—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

Land capability classification: Hackwood and Newlands soils—VIIs, nonirrigated; Hapgood soil—VIe, nonirrigated
Range site: Hackwood soil—025X065N; Newlands soil—028B029N; Hapgood soil—024X032N; Inclusion 1—025X028N; Inclusion 2—024X016N; Inclusion 3—none

3111—Ninemile-Zoesta-Itca association

Positions on landscape: Mountains

Composition

Major components:
Ninemile extremely cobbly loam, 15 to 30 percent slopes—55 percent
Zoesta cobbly loam, 8 to 15 percent slopes—15 percent
Itca extremely stony loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—10 percent
Aridic Argixerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—3 percent
Punchbowl very gravelly loam, 8 to 15 percent slopes—2 percent

Characteristics of the Ninemile Soil

Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Residuum derived from andesite, basalt, and tuff
Slope: 15 to 30 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days

Dominant present vegetation: Low sagebrush, bluegrass, needlegrass, Idaho fescue, singleleaf pinyon

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 40 percent cobbles, 25 percent pebbles

Depth: 0 to 9 inches
Texture: Extremely cobbly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 19 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2 to 3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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 Zoesta Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, frigid
Positions on landscape: Side slopes of mountains
Parent material: Alluvium and colluvium derived from various kinds of rock
Slope: 8 to 15 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, low sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 15 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 23 to 31 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 31 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 8 to 11 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Crests and side slopes of mountains near areas of Rock outcrop
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 15 percent stones and boulders, 10 percent cobbles, 20 percent pebbles
Depth: 0 to 9 inches
Texture: Extremely stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Moderate

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks, rims, escarpments
Distinctive present vegetation: None

Inclusion 2
Classification: Argic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Low crests and shoulder slopes of mountains
Distinctive present vegetation: Black sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Ninemile Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Zoesta Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Ninemile Soil
Range seeding: Poor—droughty, 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—depth to rock, 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

Zoesta Soil
Range seeding: Poor—rooting depth
Roadfill: Fair—shrink-swell
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones, too clayey
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Land capability classification: Ninemile and Itca soils—VIIs, nonirrigated; Zoesta soil—IVs, irrigated, and VIs, nonirrigated
Range site: Ninemile soil—028B037N; Zoesta soil—028B045N; Itca soil—025X061N; Inclusion 1—none; Inclusion 2—028B003N; Inclusion 3—028B016N

3120—Walti-Softscrabble-Chad association

Positions on landscape: Mountains

Composition

Major components:
Walti very cobbly loam, 30 to 50 percent slopes—40 percent
Softscrabble very cobbly fine sandy loam, 30 to 50 percent slopes—25 percent
Chad cobbly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Cleavage very cobbly loam, 15 to 50 percent slopes—7 percent
Rock outcrop—6 percent
Rubble land—2 percent

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 30 to 50 percent
Elevation: 6,400 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay

Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.0 to 3.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—2; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 30 to 50 percent
Elevation: 6,400 to 8,200 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 30 percent cobbles, 25 percent pebbles

Depth: 0 to 16 inches
Texture: Very cobbly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam

Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 15 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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 Chad Soil

Classification: Aridic Argixerolls, fine, mixed, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 6,400 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Thurber needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 11 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 11 to 43 inches
Texture: Gravelly clay, clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

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
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.5 to 7.0 inches
Water-supplying capacity: 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—severe; 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 Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex crests and shoulder slopes of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Positions on landscape: Below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Chad Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Walti Soil
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—shrink-swell, low strength, slope

Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Softscrabble Soil

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: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Chad Soil

Range seeding: Poor—erodes easily
Roadfill: Poor—slope, shrink-swell
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope, shrink-swell
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Walti and Softscrabble soils—VIIs, nonirrigated; Chad soil—VIIe, nonirrigated
Range site: Walti soil—028B037N; Softscrabble soil—024X021N; Chad soil—024X029N; Inclusion 1—028B038N; Inclusions 2 and 3—none

3121—Walti-Softscrabble-Bucan association

Positions on landscape: Mountains

Composition

Major components:
Walti extremely cobbly loam, 30 to 50 percent slopes—45 percent
Softscrabble very cobbly loam, 30 to 50 percent slopes—20 percent
Bucan very cobbly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Cumulic Haplaquolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—6 percent
Rock outcrop—5 percent
Pachic Haploxerolls, fine-loamy, mixed, frigid, 4 to 15 percent slopes—3 percent
Cumulic Haplaquolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—1 percent

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Stable crests and shoulder slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 40 percent cobbles and stones, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Extremely cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.5 to 5.0 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—2; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north- and east-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 16 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 15 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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 Bucan Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: West- and south-facing side slopes of mountains
Parent material: Loess cap that is high in content of volcanic ash over residuum and colluvium derived from volcanic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Wyoming big sagebrush, bluebunch wheatgrass, bluegrass

Typical Profile

Rock fragments on surface: 15 percent stones and boulders, 20 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 18 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 18 to 52 inches
Texture: Cobbly clay, gravelly clay, gravelly clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 52 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 8 to 10 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—3; 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: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Canyon bottoms, near seeps
Distinctive present vegetation: Willow, sedge, chokecherry

Inclusion 2
Positions on landscape: Rims
Distinctive present vegetation: None

Inclusion 3
Classification: Pachic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave, sheltered side slopes of mountains
Distinctive present vegetation: Aspen

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Seeps, springs
Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass

Minor Inclusion
Positions on landscape: Below areas of Rock outcrop
Distinctive present vegetation: None

Suitability for Wildlife Habitat Elements

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Bucan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Softscrabble Soil
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: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Bucan Soil
Range seeding: Poor—large stones, rooting depth
Roadfill: Poor—shrink-swell, low strength, slope
Topsoil: Poor—too clayey, area reclaim, small stones
Daily cover for landfill: Poor—large stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—shrink-swell, 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

Land capability classification: Walti, Softscrabble, and Bucan soils—VIIs, nonirrigated
Range site: Walti soil—024X027N; Softscrabble soil—024X021N; Bucan soil—024X028N; Inclusion 1—028B024N; Inclusion 2—none; Inclusion 3—025X065N; Inclusion 4—025X005N

3122—Walti-Sumine-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Walti gravelly loam, 30 to 50 percent slopes—35 percent
Sumine cobbly loam, 30 to 50 percent slopes—30 percent
Softscrabble cobbly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 4 to 30 percent slopes—6 percent
Rock outcrop—5 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 4 to 15 percent slopes—2 percent
Rubble land—2 percent

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex, stable side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.5 to 4.7 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—2; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Colluvium and residuum derived from quartzite and sandstone
Slope: 30 to 50 percent
Elevation: 6,500 to 8,200 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 10 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Very cobbly clay loam, very gravelly clay loam, very gravelly loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.0 to 4.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains

Parent material: Colluvium and residuum derived from volcanic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 8,200 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 16 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Windswept crests of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Inclusion 2
Positions on landscape: Rims, cliffs
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Narrow mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Sumine Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Sumine Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Softscrabble Soil
Range seeding: Fair—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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Walti soil—VIIe, nonirrigated; Sumine and Softscrabble soils—VIIs, nonirrigated
Range site: Walti soil—024X027N; Sumine soil—024X029N; Softscrabble soil—024X021N; Inclusion 1—024X016N; Inclusion 2—none; Inclusion 3—028B024N; Inclusion 4—none

3123—Walti-Softscrabble-Itca association

Positions on landscape: Mountains

Composition

Major components:
Walti very cobbly loam, 8 to 15 percent slopes—35 percent
Softscrabble very gravelly loam, 15 to 30 percent slopes—30 percent
Itca extremely stony loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—5 percent
Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 15 to 30 percent slopes—5 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—5 percent

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Crests and shoulder slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 8 to 15 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3 to 5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—2; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

Depth: 0 to 16 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.2 to 8.7 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 15 percent cobbles, 30 percent pebbles

Depth: 0 to 2 inches
Texture: Extremely stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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:28 Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Canyon bottoms, narrow mountain drainageways
Distinctive present vegetation: Chokecherry

Inclusion 2
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, windswept crests of mountains near areas of Rock outcrop

Distinctive present vegetation: Low sagebrush, black sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Walti Soil
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell, 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

Softscrabble Soil
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope, shrink-swell
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

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Land capability classification: Walti, Softscrabble, and Itca soils—VIIs, nonirrigated
Range site: Walti soil—024X027N; Softscrabble soil—024X021N; Itca soil—025X061N; Inclusion 1—028B025N; Inclusion 2—024X029N; Inclusion 3—024X016N

3125—Walti-Softscrabble-Robson association

Positions on landscape: Mountains

Composition

Major components:
Walti very cobbly loam, 15 to 30 percent slopes—50 percent
Softscrabble very cobbly fine sandy loam, 15 to 30 percent slopes—20 percent
Robson very cobbly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Welch loam, drained, 2 to 8 percent slopes—5 percent
Cleavage very cobbly loam, 8 to 30 percent slopes—5 percent
Rock outcrop—3 percent
Rubble land—2 percent

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: The intermediate and upper side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 15 to 30 percent
Elevation: 6,000 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 4.0 to 5.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—2; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,000 to 7,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 25 percent cobbles, 25 percent pebbles

Depth: 0 to 16 inches
Texture: Very cobbly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.0 to 7.5 inches
Water-supplying capacity: 15 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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 Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, lower side slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 8 to 15 percent
Elevation: 6,000 to 7,300 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 1 millimho per centimeter

Depth: 2 to 5 inches

Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 1 millimho per centimeter

Depth: 5 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 1 millimho per centimeter

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.8 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Narrow mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Softscrabble Soil
Range seeding: Poor—large stones
Roadfill: Fair—large stones, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Robson Soil
Range seeding: Poor—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, large 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, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Land capability classification: Walti, Softscrabble, and Robson soils—VIIs, nonirrigated

Range site: Walti soil—028B037N; Softscrabble soil—024X021N; Robson soil—028B045N; Inclusion 1—028B024N; Inclusion 2—028B038N; Inclusions 3 and 4—none

3130—Itca-Clanalpine-Reluctan association

Positions on landscape: Mountains

Composition

Major components:
Itca very gravelly loam, 15 to 30 percent slopes—35 percent
Clanalpine very gravelly loam, 30 to 50 percent slopes—35 percent
Reluctan very cobbly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Xerollic Paleargids, fine, montmorillonitic, frigid, 8 to 30 percent slopes—8 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—3 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—2 percent
Rock outcrop—2 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex crests of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 6,400 to 7,300 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 30 to 50 percent
Elevation: 6,400 to 7,300 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 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
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.2 to 6.5 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Slightly convex, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 30 to 50 percent
Elevation: 6,400 to 7,300 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.6 to 5.0 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Xerollic Paleargids, fine, montmorillonitic, frigid
Positions on landscape: Foot slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue, rabbitbrush

Inclusion 2
Classification: Cumulic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Canyon bottoms, narrow mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: South-facing, lower crests of mountains
Distinctive present vegetation: Black sagebrush, rabbitbrush

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil

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

Clanalpine Soil

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—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

Reluctan Soil

Range seeding: Poor—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

Interpretive Groups

Land capability classification: Itca, Clanalpine, and Reluctan soils—VIIs, nonirrigated
Range site: Itca and Clanalpine soils—025X061N; Reluctan soil—024X021N; Inclusion 1—024X018N; Inclusion 2—028B024N; Inclusion 3—024X031N

3131—Itca-Ninemile-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Itca extremely stony loam, 50 to 75 percent slopes—50 percent
Ninemile extremely cobbly loam, 15 to 30 percent slopes—20 percent
Rock outcrop—15 percent
Contrasting inclusions:
Aridic Argixerolls, fine, montmorillonitic, frigid, 8 to 15 percent slopes—8 percent
Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 30 to 50 percent slopes—5 percent
Pachic Argixerolls, fine, montmorillonitic, frigid, 2 to 8 percent slopes—2 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Concave, upper side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 50 to 75 percent
Elevation: 6,800 to 7,900 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 25 percent stones and boulders, 35 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Extremely stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.7 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ninemile Soil

Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Positions on landscape: The lower side slopes of mountains
Parent material: Residuum derived from andesite, basalt, and tuff
Slope: 15 to 30 percent
Elevation: 6,800 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, bluegrass, needlegrass, Idaho fescue, singleleaf pinyon

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 40 percent cobbles, 25 percent pebbles

Depth: 0 to 2 inches
Texture: Extremely cobbly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 2 to 14 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 1.8 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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 Rock Outcrop

Positions on landscape: Shoulder slopes of mountains
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Concave crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush

Inclusion 2
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Foot slopes of intermountain drainageways
Distinctive present vegetation: Basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Wood products

Suitability for Wildlife Habitat Elements

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Ninemile Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones, too clayey
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones

Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Ninemile Soil

Range seeding: Poor—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, too clayey, hard to pack
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—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Itca and Ninemile soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Itca soil—025X061N; Ninemile soil—028B037N; Rock outcrop—none; Inclusion 1—024X018N; Inclusion 2—028B027N; Inclusion 3—028B024N

3132—Itca-Softscrabble-Cleavage association

Positions on landscape: Mountains

Composition

Major components:
Itca extremely stony loam, 15 to 50 percent slopes—40 percent
Softscrabble cobbly loam, 30 to 50 percent slopes—30 percent
Cleavage very cobbly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Aridic Argixerolls, fine, montmorillonitic, frigid, 30 to 50 percent slopes—5 percent
Lithic Argixerolls, clayey, montmorillonitic, frigid, 8 to 15 percent slopes—5 percent
Rock outcrop—5 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Side slopes of mountains near Rock outcrop
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 50 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 10 percent cobbles, 30 percent pebbles

Depth: 0 to 2 inches
Texture: Extremely stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock

Slope: 30 to 50 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 10 percent cobbles, 10 percent pebbles

Depth: 0 to 16 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—5; 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 Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex crests of mountains
Parent material: Residuum derived from rhyolite and other igneous rock
Slope: 8 to 15 percent
Elevation: 7,500 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bluegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

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

Depth: 4 to 18 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.8 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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, fine, montmorillonitic, frigid
Positions on landscape: The lower side slopes of mountains
Distinctive present vegetation: Utah juniper, singleleaf pinyon, mountain big sagebrush

Inclusion 2
Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Positions on landscape: Concave crests of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Inclusion 3
Positions on landscape: Scattered peaks and cliffs
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Cleavage Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones, too clayey
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Softscrabble Soil
Range seeding: Fair—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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Cleavage Soil
Range seeding: Poor—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
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Itca, Softscrabble, and Cleavage soils—VIIs, nonirrigated
Range site: Itca soil—025X061N; Softscrabble soil—024X021N; Cleavage soil—024X016N; Inclusion 1—025X062N; Inclusion 2—024X027N; Inclusion 3—none

3134—Itca-Clanalpine-Torro association

Positions on landscape: Mountains

Composition

Major components:
Itca extremely cobbly fine sandy loam, 15 to 30 percent slopes—35 percent
Clanalpine extremely cobbly loam, 30 to 50 percent slopes—25 percent
Torro very gravelly loam, 30 to 50 percent slopes—25 percent
Contrasting inclusions:
Softscrabble gravelly loam, 15 to 50 percent slopes—5 percent
Rock outcrop—5 percent
Walti very cobbly fine sandy loam, 8 to 30 percent slopes—4 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—1 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex crests, spurs, and side slopes of mountains adjacent to areas of Rock outcrop
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 65

Typical Profile

Rock fragments on surface: 45 percent cobbles, 30 percent pebbles

Depth: 0 to 9 inches
Texture: Extremely cobbly fine sandy loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.2 to 1.6 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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: Moderate

Characteristics of the Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North- and east-facing, convex side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 30 to 50 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 20 percent pebbles

Depth: 0 to 12 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 12 to 38 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 38 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
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 55 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 38 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable

Reaction: Neutral

Depth: 38 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.5 to 5.8 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; 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 Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains in areas where snow accumulates
Distinctive present vegetation: Snowberry, mountain big sagebrush, bluegrass

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Stable, convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, bluegrass

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Canyon bottoms, drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Minor Inclusions
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil
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, 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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Clanalpine Soil
Range seeding: Poor—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—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

Torro Soil
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

Land capability classification: Itca, Clanalpine, and Torro soils—VIIs, nonirrigated
Range site: Itca and Clanalpine soils—025X061N; Torro soil—024X029N; Inclusion 1—024X021N; Inclusion 2—none; Inclusion 3—024X027N; Inclusion 4—028B025N

3135—Itca-Clanalpine-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Itca stony loam, 30 to 50 percent slopes—35 percent
Clanalpine very gravelly loam, 50 to 75 percent slopes—35 percent
Rock outcrop—15 percent
Contrasting inclusions:
Cleavage cobbly loam, 15 to 30 percent slopes—7 percent
Jung very gravelly loam, 15 to 30 percent slopes—5 percent
Aridic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—3 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Crests, shoulder slopes, and convex side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 0.1 percent stones and boulders, 10 percent cobbles, 30 percent pebbles

Depth: 0 to 2 inches
Texture: Stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.0 to 2.3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 50 to 75 percent
Elevation: 6,500 to 8,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 10 percent cobbles, 40 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches

Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4.3 to 5.7 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks and cliffs
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Inclusion 2

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: The lowest convex side slopes of mountains
Distinctive present vegetation: Black sagebrush, rabbitbrush, bottlebrush squirreltail

Inclusion 3

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains in areas where snow accumulates
Distinctive present vegetation: Mountain big sagebrush, bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Itca Soil

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, large stones, slope
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Clanalpine Soil

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—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

Land capability classification: Itca soil—VIIe, nonirrigated; Clanalpine soil—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Itca and Clanalpine soils—025X061N; Rock outcrop—none; Inclusion 1—024X016N; Inclusion 2—028B016N; Inclusion 3—027X054N

3136—Itca-Roca-Reluctan association

Positions on landscape: Mountains

Composition

Major components:

Itca very cobbly loam, 15 to 50 percent slopes—45 percent
Roca very cobbly loam, 30 to 50 percent slopes—25 percent
Reluctan cobbly loam, 15 to 30 percent slopes—15 percent

Contrasting inclusions:
Durixerollic Camborthids, coarse-loamy, mixed, frigid, 2 to 8 percent slopes—8 percent
Lithic Xerollic Haplargids, loamy-skeletal, montmorillonitic, mesic, 4 to 15 percent slopes—5 percent
Rock outcrop—2 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 50 percent
Elevation: 6,100 to 6,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

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

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; 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: Moderate

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 30 to 50 percent
Elevation: 6,100 to 6,500 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 24 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 24 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.6 to 3.4 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—2; 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 Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 6,100 to 6,500 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 15 percent pebbles

Depth: 0 to 9 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.3 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; 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: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2

Classification: Lithic Xerollic Haplargids, loamy-skeletal, montmorillonitic, mesic
Positions on landscape: The lowest areas on crests of mountains
Distinctive present vegetation: Wyoming big sagebrush, bluegrass

Inclusion 3

Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Itca Soil

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Reluctan Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones, slope
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Roca Soil

Range seeding: Poor—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

Reluctan Soil

Range seeding: Fair—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—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Itca, Roca, and Reluctan soils—VIIs, nonirrigated
Range site: Itca soil—025X061N; Roca soil—024X028N; Reluctan soil—024X021N; Inclusion 1—025X003N; Inclusion 2—028B010N; Inclusion 3—none

3137—Itca-Reluctan-Walti association

Positions on landscape: Mountains

Composition

Major components:
Itca stony loam, 15 to 30 percent slopes—40 percent
Reluctan very cobbly loam, 15 to 30 percent slopes—30 percent
Walti cobbly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Xerollic Haplargids, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—8 percent
Rock outcrop—3 percent
Lithic Argixerolls, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes—2 percent
Aridic Haploxerolls, fine-loamy, mixed, frigid, 8 to 15 percent slopes—2 percent

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 6,400 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 0.1 percent stones and boulders, 10 percent cobbles, 20 percent pebbles
Depth: 0 to 2 inches
Texture: Stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2 to 3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 6,400 to 7,500 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 15 percent pebbles
Depth: 0 to 9 inches
Texture: Very cobbly loam

Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3 to 5 inches
Water-supplying capacity: 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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 Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex crests and shoulder slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 8 to 15 percent
Elevation: 6,400 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 15 percent pebbles

Depth: 0 to 4 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.7 to 4.7 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—2; 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: Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, south-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Summits of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush

Inclusion 4
Classification: Aridic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable use: Cordwood

Suitability for Wildlife Habitat Elements

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Itca Soil
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Reluctan Soil
Range seeding: Poor—large 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

Walti Soil
Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell, 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

Interpretive Groups

Land capability classification: Itca soil—VIIe, nonirrigated; Reluctan and Walti soils—VIIs, nonirrigated
Range site: Itca soil—025X061N; Reluctan soil—024X021N; Walti soil—024X027N; Inclusion 1—024X029N; Inclusion 2—none; Inclusion 3—024X016N; Inclusion 4—025X003N

3140—Sodhouse-Tenabo-Desatoya Variant association

Positions on landscape: Fan piedmonts

Composition

Major components:
Sodhouse very fine sandy loam, 2 to 4 percent slopes—35 percent
Tenabo very fine sandy loam, 2 to 4 percent slopes—30 percent
Desatoya Variant gravelly fine sandy loam, 4 to 8 percent slopes—20 percent
Contrasting inclusions:
Durixerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—5 percent
Duric Camborthids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—5 percent
Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow, 15 to 50 percent slopes—5 percent

Characteristics of the Sodhouse Soil

Classification: Typic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Slightly convex areas on summits of fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 4 percent
Elevation: 5,200 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles
Depth: 0 to 7 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 14 inches
Texture: Very fine sandy loam, loam, silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 to 42 inches
Kind of material: Indurated hardpan

Depth: 42 to 60 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 13

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 2.1 to 3.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.55; T value—1; 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: Low

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: Slightly concave areas on summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,200 to 5,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 20 to 40

Depth: 15 to 28 inches
Kind of material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Kind of material: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 40

Soil and Water Features

Depth to the hardpan: 9 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 4.0 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.55; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Desatoya Variant Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,200 to 5,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, bluegrass, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 45 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 13 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 13 to 26 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 60 inches
Texture: Very gravelly sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 2.7 to 4.2 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; T value—5; wind erodibility group—4
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
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 2

Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Scarps of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Remnants of rolling hills adjacent to fan piedmonts
Distinctive present vegetation: Black sagebrush, shadscale, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Sodhouse Soil

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Tenabo Soil

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Desatoya Variant Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Sodhouse Soil

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—seepage, cemented pan
Embankments, dikes, and levees: Moderate—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Tenabo Soil

Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave

Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Desatoya Variant Soil

Range seeding: Fair—too arid, droughty
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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Sodhouse, Tenabo, and Desatoya Variant soils—IVe, irrigated, and VIIs, nonirrigated
Range site: Sodhouse and Tenabo soils—024X002N; Desatoya Variant soil—024X030N; Inclusion 1—028B010N; Inclusion 2—024X002N; Inclusion 3—024X030N

3151—Robson-Ninemile-Ravenswood association

Positions on landscape: Mountains

Composition

Major components:
Robson very cobbly loam, 15 to 30 percent slopes—35 percent
Ninemile extremely cobbly loam, 15 to 30 percent slopes—25 percent
Ravenswood gravelly loam, 30 to 50 percent slopes, extremely stony—25 percent
Contrasting inclusions:
Rock outcrop—8 percent
Pachic Argixerolls, fine, montmorillonitic, frigid, 8 to 15 percent slopes—3 percent
Pachic Argixerolls, fine, montmorillonitic, frigid, 2 to 8 percent slopes—2 percent
Rubble land—2 percent

Characteristics of the Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, south-facing side slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 15 to 30 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 5 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 5 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; 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 Ninemile Soil

Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Positions on landscape: Convex, north-facing side slopes of mountains

Parent material: Residuum derived from andesite, basalt, and tuff
Slope: 15 to 30 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, bluegrass, needlegrass, Idaho fescue, singleleaf pinyon

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 40 percent cobbles, 25 percent pebbles

Depth: 0 to 7 inches
Texture: Extremely cobbly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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 Ravenswood Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Slightly concave, north- and east-facing side slopes of mountains
Parent material: Colluvium and residuum derived from metavolcanic and volcanic rock
Slope: 30 to 50 percent
Elevation: 6,800 to 7,400 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, mountain big sagebrush, singleleaf pinyon
Site index for singleleaf pinyon: 55

Typical Profile

Rock fragments on surface: 3 percent stones and boulders, 10 percent cobbles, 65 percent pebbles

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 13 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 13 to 36 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 36 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 5 to 6 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Positions on landscape: Rims, cliffs
Distinctive present vegetation: None

Inclusion 2

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Concave, lower side slopes of mountains

Distinctive present vegetation: Snowberry, mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Positions on landscape: Side slopes of mountains below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Ninemile Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Ravenswood Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Robson Soil
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, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Ninemile Soil
Range seeding: Poor—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, too clayey, hard to pack
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—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Ravenswood Soil
Range seeding: Poor—erodes easily
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Robson and Ninemile soils—VIIs, nonirrigated; Ravenswood soil—VIIe, nonirrigated
Range site: Robson soil—028B045N; Ninemile soil—028B037N; Ravenswood soil—025X061N; Inclusion 1—none; Inclusion 2—028B027N; Inclusion 3—028B003N; Inclusion 4—none

3153—Robson-Locane-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Robson cobbly loam, 15 to 30 percent slopes—55 percent
Locane gravelly loam, 30 to 50 percent slopes—20 percent
Softscrabble gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Welch loam, drained, 2 to 8 percent slopes—7 percent
Rock outcrop—2 percent
Rubble land—1 percent

Characteristics of the Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex crests and shoulder slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 15 to 30 percent
Elevation: 6,400 to 7,400 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F

Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 2 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, south-facing side slopes of mountains
Parent material: Residuum derived from shale and conglomerate
Slope: 30 to 50 percent
Elevation: 6,400 to 7,400 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

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

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.1 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,400 to 7,400 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam

Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.8 to 9.2 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Positions on landscape: Side slopes below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Robson Soil
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, too clayey, large stones
Daily cover for landfill: Poor—depth to rock, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Locane Soil
Range seeding: Poor—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, 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

Softscrabble Soil
Range seeding: Fair—erodes easily
Roadfill: Fair—large stones, slope, shrink-swell
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

Land capability classification: Robson and Locane soils—VIIe, nonirrigated; Softscrabble soil—VIe, nonirrigated
Range site: Robson soil—024X018N; Locane soil—024X005N; Softscrabble soil—024X021N; Inclusion 1—028B024N; Inclusions 2 and 3—none

3154—Robson-Locane-Rock outcrop association

Positions on landscape: Foothills

Composition

Major components:
Robson very gravelly loam, 8 to 15 percent slopes—40 percent
Locane very gravelly fine sandy loam, 8 to 15 percent slopes—30 percent
Rock outcrop—15 percent
Contrasting inclusions:
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—8 percent
Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 15 to 30 percent slopes—4 percent
Itca very cobbly loam, 15 to 30 percent slopes—3 percent

Characteristics of the Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: North-facing summits and side slopes of foothills
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 8 to 15 percent
Elevation: 6,700 to 7,300 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum derived from shale and conglomerate
Slope: 8 to 15 percent
Elevation: 6,700 to 7,300 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks, side slopes of foothills

Contrasting Inclusions

Inclusion 1

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Foothill drainageways
Distinctive present vegetation: Basin big sagebrush, bluegrass

Inclusion 2

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The upper, north-facing side slopes of foothills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Slightly concave side slopes of foothills near areas of Rock outcrop
Distinctive present vegetation: Singleleaf pinyon, mountain big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Robson Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Robson Soil

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, large 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, large stones
Gravel: Improbable source—excess fines, large stones

Locane Soil

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

Interpretive Groups

Land capability classification: Robson and Locane soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Robson soil—024X018N; Locane soil—024X005N; Rock outcrop—none; Inclusion 1—025X003N; Inclusion 2—024X027N; Inclusion 3—025X061N

3155—Robson-Itca-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:

Robson very gravelly loam, 15 to 30 percent slopes—40 percent
Itca very gravelly loam, 30 to 50 percent slopes—25 percent
Softscrabble gravelly loam, 15 to 30 percent slopes—20 percent

Contrasting inclusions:

Aridic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—5 percent
Rock outcrop—4 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—3 percent
Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid, 50 to 75 percent slopes—3 percent

Characteristics of the Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex crests, shoulder slopes, and side slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 15 to 30 percent
Elevation: 6,700 to 7,500 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days

Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Eroded side slopes of mountains adjacent to areas of Rock outcrop
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 30 to 50 percent
Elevation: 6,700 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 65

Typical Profile

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very gravelly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.0 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 7,000 to 7,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Depth: 0 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.8 to 9.2 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex toe slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass, snowberry

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Eroded, lower side slopes of mountains
Distinctive present vegetation: Utah juniper, mountain big sagebrush, singleleaf pinyon

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Robson Soil
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Itca Soil
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

Softscrabble Soil
Range seeding: Fair—erodes easily
Roadfill: Fair—large stones, slope, shrink-swell
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

Land capability classification: Robson and Itca soils—VIIs, nonirrigated; Softscrabble soil—VIe, nonirrigated

Range site: Robson soil—024X018N; Itca soil—025X061N; Softscrabble soil—024X021N; Inclusion 1—025X014N; Inclusion 2—none; Inclusion 3—028B024N; Inclusion 4—025X062N

3170—Teguro-Rubble land-Punchbowl association

Positions on landscape: Mountains

Composition

Major components:
Teguro very gravelly loam, 30 to 50 percent slopes, rubbly—40 percent
Rubble land—25 percent
Punchbowl cobbly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Jung very cobbly loam, 15 to 30 percent slopes—5 percent
Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 30 to 75 percent slopes—5 percent
Rock outcrop—5 percent

Characteristics of the Teguro Soil

Classification: Lithic Argixerolls, loamy, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Residuum derived from tuff
Slope: 30 to 50 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, needlegrass, mountain big sagebrush, singleleaf pinyon, Utah juniper
Site index for common trees: Singleleaf pinyon—30; Utah juniper—30

Typical Profile

Rock fragments on surface: 20 percent stones and boulders, 55 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 16 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 16 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rubble Land

Positions on landscape: Side slopes of mountains
Kind of material: More than 90 percent cobbles

Characteristics of the Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Slightly convex, east- and west-facing and upper, south-facing side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 30 to 50 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam

Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 1.6 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: The lower, south-facing side slopes of mountains
Distinctive present vegetation: Black sagebrush, rabbitbrush, bluegrass

Inclusion 2
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Severely eroded side slopes of mountains
Distinctive present vegetation: Utah juniper, singleleaf pinyon, bluegrass

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Teguro Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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

Punchbowl Soil
Range seeding: Poor—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, 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

Land capability classification: Teguro soil—VIIs, nonirrigated; Rubble land—VIIIs, nonirrigated; Punchbowl soil—VIIe, nonirrigated
Range site: Teguro soil—025X062N; Rubble land—none; Punchbowl soil—024X030N; Inclusion 1—024X030N; Inclusion 2—025X062N; Inclusion 3—none

3181—Newlands-Packer-Hapgood association, moderately steep

Positions on landscape: Mountains

Composition

Major components:
Newlands loam, 15 to 30 percent slopes—40 percent
Packer very gravelly loam, 8 to 15 percent slopes—30 percent
Hapgood gravelly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Layview very cobbly loam, 8 to 15 percent slopes—8 percent
Rock outcrop—4 percent
Hackwood loam, 15 to 30 percent slopes, rubbly—3 percent

Characteristics of the Newlands Soil

Classification: Argic Cryoborolls, fine-loamy, mixed
Positions on landscape: Smooth, intermediate and lower side slopes of mountains
Parent material: Colluvium and residuum derived from andesite and rhyolite
Slope: 15 to 30 percent
Elevation: 8,200 to 9,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Mountain brome, needlegrass, mountain big sagebrush

Typical Profile

Depth: 0 to 10 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 46 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 46 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6.3 to 7.3 inches
Water-supplying capacity: 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; 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 Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex crests and upper side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 8 to 15 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.0 to 5.7 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; 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 Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; 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 Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex, windswept crests of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush, rabbitbrush

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Pachic Cryoborolls, fine-loamy, mixed
Positions on landscape: Side slopes of mountains in areas where snow accumulates and below areas of Rock outcrop
Distinctive present vegetation: Quaking aspen

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Newlands Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Packer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Newlands Soil
Range seeding: Fair—erodes easily
Roadfill: Fair—depth to rock, thin layer, slope
Topsoil: Poor—small stones, depth to rock, 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

Packer Soil
Range seeding: Poor—small stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—slope, large stones
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—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Newlands soil—VIe, nonirrigated; Packer soil—VIIs, nonirrigated; Hapgood soil—VIIe, nonirrigated
Range site: Newlands soil—028B029N; Packer soil—024X016N; Hapgood soil—024X032N; Inclusion 1—024X016N; Inclusion 2—none; Inclusion 3—025X065N

3182—Newlands-Packer-Hapgood association, strongly sloping

Positions on landscape: Mountains

Composition

Major components:
Newlands extremely bouldery loam, 8 to 15 percent slopes—50 percent
Packer extremely gravelly loam, 8 to 15 percent slopes—30 percent
Hapgood gravelly loam, 2 to 8 percent slopes—10 percent
Contrasting inclusions:
Rock outcrop—4 percent
Lithic Cryoborolls, loamy-skeletal, mixed, 8 to 15 percent slopes—3 percent
Cumulic Cryaquolls, fine-loamy, mixed, 2 to 8 percent slopes—3 percent

Characteristics of the Newlands Soil

Classification: Argic Cryoborolls, fine-loamy, mixed
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from andesite and rhyolite
Slope: 8 to 15 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Mountain brome, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 12 percent stones and boulders, 15 percent cobbles, 30 percent pebbles

Depth: 0 to 10 inches
Texture: Extremely bouldery loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 46 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 46 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5 to 7 inches
Water-supplying capacity: 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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 Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex, windswept shoulder slopes and upper side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 8 to 15 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.6 to 5.5 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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
Positions on landscape: Concave back slopes and incipient drainageways of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 7,800 to 9,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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

Positions on landscape: Scattered peaks of mountains
Distinctive present vegetation: None

Inclusion 2

Classification: Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Windswept crests and shoulder slopes of mountains near areas of Rock outcrop
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Inclusion 3

Classification: Cumulic Cryaquolls, fine-loamy, mixed
Positions on landscape: Narrow drainageways of mountains
Distinctive present vegetation: Sedge, iris, alpine timothy

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Newlands Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Packer Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Newlands Soil

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

Gravel: Improbable source—excess fines

Packer Soil

Range seeding: Poor—small stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—slope, large stones
Local roads and streets: Severe—slope, frost action, large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil

Range seeding: Fair—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—slope, seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Newlands and Packer soils—VIIs, nonirrigated; Hapgood soil—VIs, nonirrigated
Range site: Newlands soil—028B029N; Packer soil—024X016N; Hapgood soil—024X032N; Inclusion 1—none; Inclusion 2—024X016N; Inclusion 3—025X005N

3190—Softscrabble-Clanalpine-Walti association

Positions on landscape: Mountains

Composition

Major components:
Softscrabble very cobbly fine sandy loam, 15 to 50 percent slopes—45 percent
Clanalpine very gravelly loam, 30 to 50 percent slopes, extremely stony—25 percent
Walti very cobbly loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Lithic Xeric Torriorthents, loamy-skeletal, mixed, frigid, 8 to 30 percent slopes—6 percent
Aridic Haploxerolls, fine-loamy, mixed, frigid, 4 to 15 percent slopes—4 percent
Cleavage very gravelly fine sandy loam, 4 to 15 percent slopes—3 percent
Rock outcrop—2 percent

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, south- and west-facing, upper side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 50 percent
Elevation: 7,000 to 7,900 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Depth: 0 to 16 inches
Texture: Very cobbly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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 Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid

Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite and andesitic tuff
Slope: 30 to 50 percent
Elevation: 7,000 to 7,900 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4.5 to 6.0 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex shoulder slopes and lower side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 8 to 15 percent
Elevation: 7,000 to 7,900 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

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

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—2; 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 Xeric Torriorthents, loamy-skeletal, mixed, frigid
Positions on landscape: Summits and shoulder slopes of mountains near areas of Rock outcrop
Distinctive present vegetation: Singleleaf pinyon, mountain big sagebrush, Utah juniper

Inclusion 2
Classification: Aridic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Softscrabble Soil
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: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Clanalpine Soil
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—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

Walti Soil
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell, 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

Interpretive Groups

Land capability classification: Softscrabble, Clanalpine, and Walti soils—VIIs, nonirrigated
Range site: Softscrabble soil—024X021N; Clanalpine soil—025X061N; Walti soil—024X027N; Inclusion 1—025X062N; Inclusion 2—024X015N; Inclusion 3—024X016N; Inclusion 4—none

3192—Softscrabble-Walti-Cleavage association

Positions on landscape: Mountains

Composition

Major components:
Softscrabble very gravelly fine sandy loam, 15 to 30 percent slopes—35 percent
Walti extremely cobbly fine sandy loam, 15 to 30 percent slopes—30 percent
Cleavage very gravelly fine sandy loam, 4 to 15 percent slopes—20 percent
Contrasting inclusions:
Itca very cobbly loam, 15 to 30 percent slopes—9 percent
Aridic Argixerolls, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes—4 percent
Rock outcrop—1 percent
Rubble land—1 percent

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock

Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 5 percent cobbles, 40 percent pebbles

Depth: 0 to 16 inches
Texture: Very gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7 to 9 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; wind erodibility group—5
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 Walti Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite, andesite, and tuff
Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 50 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Extremely cobbly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Clay loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 to 30 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Neutral

Depth: 30 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 3.5 to 5.0 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—2; 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
Positions on landscape: Summits and crests of mountains
Parent material: Residuum derived from rhyolite and other igneous rock
Slope: 4 to 15 percent
Elevation: 7,500 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days

Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bluegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 18 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.2 to 2.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Crests of mountains near areas of Rock outcrop
Distinctive present vegetation: Singleleaf pinyon, mountain big sagebrush

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Walti Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Cleavage Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Softscrabble Soil
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope, shrink-swell
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

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

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

Interpretive Groups

Land capability classification: Softscrabble, Walti, and Cleavage soils—VIIs, nonirrigated
Range site: Softscrabble soil—024X021N; Walti soil—024X027N; Cleavage soil—024X016N; Inclusion 1—025X061N; Inclusion 2—024X029N; Inclusions 3 and 4—none

3200—Dewar gravelly loam, 2 to 8 percent slopes

Positions on landscape: Fan piedmonts

Composition

Major component:
Dewar gravelly loam, 2 to 8 percent slopes—85 percent
Contrasting inclusions:
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 8 percent slopes—7 percent
Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow, 15 to 30 percent slopes—5 percent
Chiara gravelly loam, 2 to 8 percent slopes—3 percent

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of fan piedmont remnants
Parent material: Loess and mixed silty alluvium
Slope: 2 to 8 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 14 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 to 50 inches
Kind of material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to the hardpan: 13 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.7 to 2.3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.37; 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: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: Shoulder slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Range seeding: Poor—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

Interpretive Groups

Land capability classification: Dewar soil—IVe, irrigated; VIIs, nonirrigated
Range site: Dewar soil—028B010N; Inclusions 1, 2, and 3—028B010N

3210—Typic Argixerolls-Torripsammentic Haploxerolls-Glean association

Positions on landscape: Mountains

Composition

Major components:
Typic Argixerolls gravelly coarse sandy loam, 15 to 50 percent slopes—50 percent
Torripsammentic Haploxerolls cobbly loamy coarse sand, 30 to 50 percent slopes—20 percent
Glean very gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Torriorthentic Haploxerolls, loamy, mixed, frigid, shallow, 30 to 50 percent slopes—8 percent
Xerollic Haplargids, loamy, mixed, frigid, shallow, 30 to 50 percent slopes—5 percent
Dumps—2 percent

Characteristics of the Typic Argixerolls

Classification: Typic Argixerolls
Positions on landscape: Slightly concave side slopes of mountains
Parent material: Residuum derived from granitic rock
Slope: 15 to 50 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Representative Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 4 to 15 inches
Texture: Sandy clay loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Torripsammentic Haploxerolls

Classification: Torripsammentic Haploxerolls
Positions on landscape: Convex, west-facing side slopes of mountains
Parent material: Residuum derived from granitic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluegrass, bluebunch wheatgrass
Site index for singleleaf pinyon: 40

Representative Profile

Rock fragments on surface: 10 percent cobbles, 10 percent pebbles

Depth: 0 to 2 inches
Texture: Cobbly loamy coarse sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Loamy coarse sand, gravelly loamy coarse sand, coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Mildly alkaline

Depth: 7 inches

Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Rapid
Available water capacity: 0.2 to 0.5 inch
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—3
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Glean Soil

Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north- and east-facing side slopes of mountains
Parent material: Colluvium derived from various kinds of rock
Slope: 15 to 30 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 39 inches
Texture: Very gravelly sandy loam, very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 39 to 51 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 51 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 3 to 5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—3; 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: Torriorthentic Haploxerolls, loamy, mixed, frigid, shallow
Positions on landscape: Convex, north- and east-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush

Inclusion 2

Classification: Xerollic Haplargids, loamy, mixed, frigid, shallow
Positions on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluegrass

Inclusion 3

Positions on landscape: Scattered areas
Kind of material: Mixed soil material and rock from small mines and exploration scrapes
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Typic Argixerolls

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Torripsammentic Haploxerolls

Wild herbaceous plants (nonirrigated): Poor
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Glean Soil

Wild herbaceous plants (nonirrigated): Good
Shrubs (nonirrigated): Good

Suitability and Limitations for Selected Uses

Typic Argixerolls

Range seeding: Poor—erodes easily, 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—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Torripsammentic Haploxerolls

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, too sandy
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

Glean Soil

Range seeding: Poor—small stones
Roadfill: Fair—slope, thin layer, depth to rock
Topsoil: Poor—small stones, depth to rock, 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

Land capability classification: Typic Argixerolls and Glean soil—VIIe, nonirrigated; Torripsammentic Haploxerolls—VIIs, nonirrigated
Range site: Typic Argixerolls—024X021N; Torripsammentic Haploxerolls—025X061N; Glean soil—024X023N; Inclusion 1—024X021N; Inclusion 2—025X014N; Inclusion 3—none

3231—Stingdorn-Hooplite association

Positions on landscape: Foothills

Composition

Major components:
Stingdorn extremely cobbly loam, 15 to 30 percent slopes—40 percent
Stingdorn very gravelly loam, 4 to 8 percent slopes—25 percent
Hooplite very gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Lithic Haplargids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes—8 percent
Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow, 8 to 15 percent slopes—4 percent
Rock outcrop—3 percent

Characteristics of the Stingdorn Soil, Moderately Steep

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum derived from rhyolite, tuff, and andesite
Slope: 15 to 30 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 30 percent pebbles

Depth: 0 to 7 inches
Texture: Extremely cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 15 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 2 to 13

Depth: 15 to 20 inches
Kind of material: Indurated hardpan

Depth: 20 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 20 inches
Depth to bedrock: 8 to 20 inches
Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1 to 2 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; 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: Low

Characteristics of the Stingdorn Soil, Moderately Sloping

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Summits of foothills
Parent material: Residuum derived from rhyolite, tuff, and andesite
Slope: 4 to 8 percent
Elevation: 5,800 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 15 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 2 to 13

Depth: 15 to 20 inches
Kind of material: Indurated hardpan

Depth: 20 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 20 inches
Depth to bedrock: 8 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1 to 2 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Hooplite Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: North-facing side slopes of foothills
Parent material: Residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 8 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 8 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.6 to 1.0 inch
Water-supplying capacity: 8 inches

Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Lithic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, lower, south-facing side slopes of foothills
Distinctive present vegetation: Shadscale, galleta, bud sagebrush, spiny hopsage

Inclusion 2
Classification: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: North-facing shoulder slopes of foothills
Distinctive present vegetation: Black sagebrush

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Stingdorn Soil, Moderately Steep
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Stingdorn Soil, Moderately Sloping
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Hooplite Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

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

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

Hooplite Soil
Range seeding: Poor—droughty, small stones, depth to rock
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

Land capability classification: Stingdorn and Hooplite soils—VIIs, nonirrigated
Range site: Stingdorn soils—028B017N; Hooplite soil—028B016N; Inclusion 1—029X022N; Inclusion 2—028B016N; Inclusion 3—none

3251—Caphor-Tenabo-Spasprey association

Positions on landscape: Fan piedmonts, fan skirts

Composition

Major components:
Caphor fine sandy loam, 2 to 4 percent slopes—35 percent
Tenabo very gravelly fine sandy loam, 4 to 8 percent slopes—30 percent
Spasprey gravelly fine sandy loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Haploxerollic Durorthids, loamy, mixed, mesic, shallow, 2 to 4 percent slopes—8 percent

Xeric Torriorthents, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—7 percent

Characteristics of the Caphor Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,800 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 35 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 35 to 60 inches
Texture: Gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4.0 to 5.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Tenabo Soil

Classification: Typic Nadurargids, loamy, mixed, mesic, shallow
Positions on landscape: The lower summits of fan piedmont remnants
Parent material: Thin loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,800 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 15 inches
Texture: Clay loam, gravelly clay loam, silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 15 to 28 inches
Kind of material: Indurated hardpan
Structure: Platy
Consistence: Extremely hard, extremely firm

Depth: 28 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to the hardpan: 9 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.0 to 2.5 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The upper summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,800 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 33 inches
Texture: Cemented hardpan

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Haploxerollic Durorthids, loamy, mixed, mesic, shallow
Positions on landscape: The highest parts of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Caphor Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Tenabo Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Spasprey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Caphor Soil
Range seeding: Poor—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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Tenabo Soil

Range seeding: Poor—too arid, droughty, excess sodium
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, too sandy
Daily cover for landfill: Poor—cemented pan, seepage, too sandy
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage, excess sodium, excess salt
Sand: Probable source
Gravel: Probable source

Spasprey Soil

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Caphor soil—IIIe, irrigated, and VIIc, nonirrigated; Tenabo soil—IVs, irrigated, and VIIs, nonirrigated; Spasprey soil—IIIe, irrigated, and VIs, nonirrigated
Range site: Caphor and Tenabo soils—028B017N; Spasprey soil—028B010N; Inclusion 1—028B010N; Inclusion 2—028B052N

3252—Caphor-Batan-Unsel association

Positions on landscape: Piedmont slopes, alluvial flats

Composition

Major components:
Caphor fine sandy loam, 0 to 2 percent slopes—45 percent
Batan silt loam, 0 to 2 percent slopes—25 percent
Unsel gravelly fine sandy loam, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Creemon silt loam, strongly saline-sodic, 0 to 2 percent slopes—5 percent
Typic Torriorthents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent

Characteristics of the Caphor Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Fan skirts
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 10

Depth: 7 to 17 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 17 to 35 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 35 to 60 inches
Texture: Gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches

Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Batan Soil

Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Parent material: Silty alluvium that is high in content of loess and pyroclastic material
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, black greasewood, bottlebrush squirreltail

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 20 to 40 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 5 to 68 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.55; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Unsel Soil

Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Nonburied fan piedmont remnants
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 51 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, Bailey greasewood, bottlebrush squirreltail, galleta

Typical Profile

Rock fragments on surface: 80 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 18 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 18 to 31 inches
Texture: Gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 31 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow

Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Duric Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Outer margins of fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2

Classification: Typic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: Alluvial flats
Distinctive present vegetation: Basin wildrye, black greasewood, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Caphor Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Batan Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Unsel Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Caphor Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—seepage, too sandy, 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

Batan Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Unsel Soil
Range seeding: Poor—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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Restrictive Features for Selected Practices

Batan Soil
Drainage: Deep to water
Irrigation: Excess salt, excess sodium
Terraces and diversions: Erodes easily

Interpretive Groups

Land capability classification: Caphor soil—IIIs, irrigated, and VIIs, nonirrigated; Batan soil—VIIs, nonirrigated; Unsel soil—IIIs, irrigated, and VIIc, nonirrigated
Range site: Caphor and Batan soils—024X003N; Unsel soil—029X017N; Inclusion 1—024X003N; Inclusion 2—024X006N

3253—Caphor association

Positions on landscape: Fan skirts

Composition

Major components:
Caphor gravelly fine sandy loam, 0 to 2 percent slopes—65 percent
Caphor fine sandy loam, moderately saline, 0 to 2 percent slopes—25 percent
Contrasting inclusions:
Duric Camborthids, coarse-loamy, mixed, mesic, 0 to 4 percent slopes—5 percent

Duric Camborthids, coarse-loamy, mixed, mesic, 0 to 4 percent slopes—5 percent

Characteristics of the Caphor Soil

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The upper fan skirts
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 7 to 17 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 17 to 35 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 35 to 60 inches
Texture: Gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 3.7 to 5.5 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Caphor Soil, Moderately Saline

Classification: Durorthidic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Positions on landscape: The lower fan skirts
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,600 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 10

Depth: 7 to 17 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 17 to 35 inches
Texture: Sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 35 to 60 inches
Texture: Gravelly coarse sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline
Salinity: 2 to 8 millimhos per centimeter
Sodicity (SAR): 2 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow over very rapid
Available water capacity: 4 to 6 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush, needleandthread

Inclusion 2

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Winterfat, Indian ricegrass, shadscale

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Caphor Soil

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Caphor Soil, Moderately Saline

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Caphor Soil

Range seeding: Poor—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: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Caphor Soil, Moderately Saline

Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, area reclaim, excess salt
Daily cover for landfill: Poor—seepage, too sandy, 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

Interpretive Groups

Land capability classification: Caphor soil—IIIs, irrigated, and VIIc, nonirrigated; Caphor soil, moderately saline—IIIs, irrigated, and VIIs, nonirrigated
Range site: Caphor soil—028B017N; Caphor soil, moderately saline—024X003N; Inclusion 1—028B010N; Inclusion 2—024X014N

3270—Koyen fine sandy loam, 2 to 4 percent slopes

Positions on landscape: Fan skirts

Composition

Major component:
Koyen fine sandy loam, 2 to 4 percent slopes—90 percent
Contrasting inclusion:
Izo very gravelly loamy sand, occasionally flooded, 2 to 4 percent slopes—10 percent

Characteristics of the Koyen Soil

Classification: Typic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Parent material: Alluvium derived from volcanic rock
Slope: 2 to 4 percent
Elevation: 5,700 to 5,800 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 52 degrees F
Frost-free season: About 130 days
Dominant present vegetation: Shadscale, bud sagebrush, galleta, Indian ricegrass

Typical Profile

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

Depth: 4 to 14 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 60 inches
Texture: Gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 4.8 to 6.0 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusion

Classification: Typic Torriorthents, sandy-skeletal, mixed, mesic
Positions on landscape: Narrow inset fans, adjacent to channels
Distinctive present vegetation: Spiny hopsage, burrobrush, Bailey greasewood

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

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

Interpretive Groups

Land capability classification: Koyen soil—IIIe, irrigated, and VIIc, nonirrigated
Range site: Koyen soil—029X017N; Inclusion—029X041N

3310—Spasprey-Allor association

Positions on landscape: Fan piedmonts

Composition

Major components:
Spasprey gravelly fine sandy loam, 2 to 4 percent slopes—50 percent
Allor gravelly loam, 2 to 8 percent slopes—35 percent
Contrasting inclusions:
Orovada fine sandy loam, 0 to 4 percent slopes—8 percent
Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 15 to 30 percent slopes—4 percent
Wholan silt loam, 0 to 2 percent slopes—3 percent

Characteristics of the Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: The upper fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 26 to 33 inches
Texture: Cemented hardpan
Consistence: Extremely hard, brittle

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5 to 7 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Durorthidic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, pine bluegrass

Inclusion 3
Classification: Typic Camborthids, coarse-silty, mixed, mesic
Positions on landscape: Convex fan skirts
Distinctive present vegetation: Winterfat

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Spasprey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Spasprey Soil
Range seeding: Fair—too arid
Roadfill: Good

Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Spasprey soil—IIIs, irrigated, and VIs, nonirrigated; Allor soil—IIIe, irrigated, and VIIc, nonirrigated
Range site: Spasprey and Allor soils—028B010N; Inclusion 1—028B010N; Inclusion 2—027X008N; Inclusion 3—024X004N

3312—Spasprey-Buffaran-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Spasprey gravelly fine sandy loam, 0 to 2 percent slopes—35 percent
Buffaran gravelly loam, 2 to 8 percent slopes—35 percent
Orovada fine sandy loam, 2 to 4 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 15 to 30 percent slopes—5 percent
Xerollic Durargids, clayey-skeletal, montmorillonitic, mesic, 4 to 15 percent slopes—5 percent
Duric Camborthids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—5 percent

Characteristics of the Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 26 to 33 inches
Texture: Cemented hardpan
Consistence: Extremely hard, brittle

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Buffaran Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: Side slopes of fan piedmont remnants

Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Thurber needlegrass, bottlebrush squirreltail, Indian ricegrass

Typical Profile

Rock fragments on surface: 15 percent pebbles

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

Depth: 5 to 16 inches
Texture: Clay, gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 16 to 27 inches
Kind of material: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Depth: 27 to 60 inches
Texture: Cemented hardpan
Structure: Platy
Consistence: Very hard, very firm

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2 to 3 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; 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: Low

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 6,200 to 6,500 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.4 to 10.0 inches
Water-supplying capacity: 9 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Concave, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2

Classification: Xerollic Durargids, clayey-skeletal, montmorillonitic, mesic

Positions on landscape: Concave, higher parts on summits of concave fan piedmont remnants
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Inclusion 3
Classification: Duric Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Shadscale, Wyoming big sagebrush, galleta

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Spasprey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Buffaran Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Spasprey Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Buffaran Soil
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—cemented pan, shrink-swell, low strength
Topsoil: Poor—cemented pan, too clayey, small stones
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell, low strength
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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

Interpretive Groups

Land capability classification: Spasprey soil—IIIs, irrigated, and VIs, nonirrigated; Buffaran soil—VIIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Spasprey, Buffaran, and Orovada soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B011N; Inclusion 3—024X045N

3314—Spasprey-Allor-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Spasprey gravelly fine sandy loam, 4 to 8 percent slopes—35 percent
Allor gravelly loam, 4 to 8 percent slopes—30 percent
Orovada fine sandy loam, 2 to 8 percent slopes—20 percent
Contrasting inclusions:
Pineval gravelly loam, 4 to 15 percent slopes—8 percent
Buffaran gravelly loam, 4 to 8 percent slopes—4 percent
Duric Haplargids, fine-loamy, mixed, mesic, 4 to 8 percent slopes—3 percent

Characteristics of the Spasprey Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

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

Depth: 5 to 26 inches
Texture: Clay loam, sandy clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 26 to 33 inches
Texture: Cemented hardpan
Consistence: Extremely hard, brittle

Depth: 33 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to the hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 5 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; T value—3; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Allor Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan aprons
Parent material: Mixed alluvium
Slope: 4 to 8 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 12 to 34 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 34 to 60 inches
Texture: Gravelly loamy sand, very gravelly loamy sand
Structure: Massive
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5.0 to 6.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,500 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

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

Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Positions on landscape: The highest nonburied fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Duric Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower parts of fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Spasprey Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Allor Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Spasprey Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—cemented pan, area reclaim, too clayey
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—shrink-swell, low strength, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Allor Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, shrink-swell
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Orovada Soil
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

Interpretive Groups

Land capability classification: Spasprey soil—IIIe, irrigated, and VIs, nonirrigated; Allor soil—IIIe,

irrigated, and VIIc, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated
Range site: Spasprey, Allor, and Orovada soils—028B010N; Inclusion 1—028B010N; Inclusion 2—028B010N; Inclusion 3—024X002N

3341—Halacan-Hatur-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Halacan very gravelly loam, 30 to 50 percent slopes—40 percent
Hatur gravelly loam, 30 to 50 percent slopes—30 percent
Rock outcrop—15 percent
Contrasting inclusions:
Cryic Lithic Rendolls, loamy-skeletal, carbonatic, 4 to 15 percent slopes—9 percent
Pachic Cryoborolls, loamy-skeletal, mixed, 4 to 15 percent slopes—6 percent

Characteristics of the Halacan Soil

Classification: Cryic Lithic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: Smooth to convex side slopes and shoulder slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope: 30 to 50 percent
Elevation: 8,200 to 9,400 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 38 degrees F
Frost-free season: About 40 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 5 to 17 inches
Texture: Extremely channery loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1 to 2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hatur Soil

Classification: Cryic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: East- and south-facing, slightly concave side slopes of mountains
Parent material: Colluvium and residuum derived from limestone
Slope: 30 to 50 percent
Elevation: 8,200 to 9,400 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 60 days
Dominant present vegetation: Idaho fescue, mountain brome, needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 90 percent pebbles

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 29 inches
Texture: Extremely gravelly loam, extremely gravelly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 29 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 3.0 to 4.5 inches

Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks and limestone ledges
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Cryic Lithic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: Crests of mountains
Distinctive present vegetation: Black sagebrush, Idaho fescue

Inclusion 2
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Halacan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hatur Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Halacan Soil
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—seepage, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hatur Soil
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, seepage, 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—seepage
Sand: Improbable source—small stones
Gravel: Improbable source—thin layer

Interpretive Groups

Land capability classification: Halacan soil—VIIs, nonirrigated; Hatur soil—VIIe, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Halacan soil—024X016N; Hatur soil—028B029N; Rock outcrop—none; Inclusion 1—024X042N; Inclusion 2—028B024N

3342—Halacan-Hapgood-Granzan association

Positions on landscape: Mountains

Composition

Major components:
Halacan very gravelly loam, 30 to 50 percent slopes—35 percent
Hapgood gravelly loam, 30 to 50 percent slopes—25 percent
Granzan very cobbly loam, 30 to 50 percent slopes—25 percent
Contrasting inclusions:
Cryic Lithic Rendolls, loamy-skeletal, carbonatic, 4 to 15 percent slopes—6 percent
Rock outcrop—5 percent
Pachic Cryoborolls, loamy-skeletal, mixed, 15 to 50 percent slopes—3 percent
Rubble land—1 percent

Characteristics of the Halacan Soil

Classification: Cryic Lithic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: Smooth to convex, broad shoulder slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope: 30 to 50 percent
Elevation: 7,800 to 9,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 38 degrees F

Frost-free season: About 40 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 5 to 17 inches
Texture: Extremely channery loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1 to 2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 7,800 to 9,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Needlegrass, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Granzan Soil

Classification: Typic Calcixerolls, loamy-skeletal, carbonatic, frigid
Positions on landscape: Convex, south-facing side slopes of mountains
Parent material: Colluvium and residuum derived from calcareous shale and limestone
Slope: 30 to 50 percent
Elevation: 7,800 to 9,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Bluebunch wheatgrass, mountain big sagebrush, needlegrass, snowberry

Typical Profile

Rock fragments on surface: 35 percent cobbles, 35 percent pebbles

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

Depth: 12 to 43 inches
Texture: Very gravelly loam, very gravelly silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 43 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5 to 7 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.17; 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

Contrasting Inclusions

Inclusion 1
Classification: Cryic Lithic Rendolls, loamy-skeletal, carbonatic
Positions on landscape: Protected crests and shoulder slopes of mountains
Distinctive present vegetation: Black sagebrush, bluegrass, Idaho fescue

Inclusion 2
Positions on landscape: Rims, severely eroded areas
Distinctive present vegetation: None

Inclusion 3
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Windswept crests and nose slopes of mountains
Distinctive present vegetation: Low sagebrush, bluegrass

Inclusion 4
Positions on landscape: Below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Halacan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Granzan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Halacan Soil
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—seepage, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Granzan Soil
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—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Halacan and Granzan soils—VIIs, nonirrigated; Hapgood soil—VIIe, nonirrigated
Range site: Halacan soil—024X016N; Hapgood soil—024X032N; Granzan soil—028B027N; Inclusion 1—024X042N; Inclusion 2—none; Inclusion 3—025X028N; Inclusion 4—none

3411—Zoesta-Robson-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Zoesta cobbly loam, 15 to 30 percent slopes—40 percent
Robson very cobbly loam, 15 to 30 percent slopes—25 percent
Softscrabble very cobbly loam, 15 to 50 percent slopes—20 percent
Contrasting inclusions:
Pachic Haploxerolls, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes—5 percent
Aridic Argixerolls, fine-loamy, mixed, frigid, 15 to 50 percent slopes—5 percent
Rock outcrop—4 percent
Cleavage very gravelly loam, 8 to 15 percent slopes—1 percent

Characteristics of the Zoesta Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, frigid
Positions on landscape: The lower side slopes of mountains
Parent material: Colluvium derived from various kinds of rock
Slope: 15 to 30 percent
Elevation: 6,400 to 7,600 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, low sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 20 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 23 to 31 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 31 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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—low
Potential for frost action: Low

Characteristics of the Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Shoulder slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 15 to 30 percent
Elevation: 6,600 to 8,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 50 percent cobbles and stones, 30 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 1 millimho per centimeter

Depth: 2 to 5 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 1 millimho per centimeter

Depth: 5 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky

Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 1 millimho per centimeter

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 50 percent
Elevation: 6,400 to 8,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 25 percent cobbles, 30 percent pebbles

Depth: 0 to 16 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Rose, basin big sagebrush, bluegrass

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Convex, north-facing nose slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 4
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zoesta Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair

Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zoesta Soil

Range seeding: Poor—rooting depth
Roadfill: Fair—shrink-swell, 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, shrink-swell, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Robson Soil

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, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Softscrabble Soil

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: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Zoesta soil—VIs, nonirrigated; Robson and Softscrabble soils—VIIs, nonirrigated
Range site: Zoesta and Robson soils—024X018N; Softscrabble soil—024X021N; Inclusion 1—028B024N; Inclusion 2—024X027N; Inclusion 3—none; Inclusion 4—024X016N

3415—Zoesta-Handy association

Positions on landscape: Mountain valley fans

Composition

Major components:
Zoesta cobbly loam, 8 to 15 percent slopes—50 percent
Handy gravelly loam, 15 to 30 percent slopes, extremely stony—35 percent
Contrasting inclusions:
Aridic Duric Haploxerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes—6 percent
Aridic Haploxerolls, loamy-skeletal, mixed, frigid, 4 to 15 percent slopes—5 percent
Durixerollic Haplargids, fine, montmorillonitic, frigid, 15 to 30 percent slopes—4 percent

Characteristics of the Zoesta Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, frigid
Positions on landscape: Convex mountain valley fan remnants
Parent material: Alluvium derived from various kinds of rock
Slope: 8 to 15 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, low sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 15 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 23 to 31 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 31 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Handy Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Convex side slopes of mountain valley fans
Parent material: Alluvium and colluvium derived from various kinds of rock
Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Indian ricegrass, needlegrass, western wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 10 percent stones, 30 percent pebbles

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 4 to 30 inches
Texture: Clay, gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 30 to 60 inches
Texture: Gravelly loam to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 8 to 10 inches
Water-supplying capacity: 11 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—7
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: Aridic Duric Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex inset fan remnants
Distinctive present vegetation: Mountain big sagebrush, gray rabbitbrush

Inclusion 2

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3

Classification: Durixerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Convex, lower side slopes of mountain valley fan remnants
Distinctive present vegetation: Big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zoesta Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Handy Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zoesta Soil

Range seeding: Poor—rooting depth
Roadfill: Fair—shrink-swell
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight

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

Handy Soil

Range seeding: Fair—too arid, small stones
Roadfill: Fair—slope, shrink-swell
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, shrink-swell, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Zoesta soil—IVs, irrigated, and VIIs, nonirrigated; Handy soil—VIIe, nonirrigated
Range site: Zoesta soil—024X018N; Handy soil—025X014N; Inclusion 1—025X014N; Inclusion 2—025X003N; Inclusion 3—024X018N

3417—Zoesta-Roca-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Zoesta cobbly loam, 8 to 15 percent slopes—40 percent
Roca very cobbly loam, 15 to 50 percent slopes—30 percent
Softscrabble gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Cumulic Haplaquolls, fine-loamy, mixed, frigid, drained, 4 to 8 percent slopes—8 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 4 to 8 percent slopes—4 percent
Robson gravelly loam, 2 to 4 percent slopes—3 percent

Characteristics of the Zoesta Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, frigid
Positions on landscape: Convex foot slopes of mountains
Parent material: Colluvium derived from various kinds of rock
Slope: 8 to 15 percent
Elevation: 6,500 to 7,400 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, low sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 15 percent pebbles

Depth: 0 to 7 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 23 to 31 inches
Texture: Gravelly clay, gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 31 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 15 to 50 percent
Elevation: 6,500 to 7,400 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F

Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 24 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 24 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.6 to 4.5 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,500 to 7,400 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 5 percent cobbles, 20 percent pebbles

Depth: 0 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.8 to 9.2 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: The higher crests of mountains
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The lower crests of mountains

Distinctive present vegetation: Low sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Zoesta Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Zoesta Soil
Range seeding: Poor—rooting depth
Roadfill: Fair—shrink-swell
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Roca Soil
Range seeding: Poor—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

Softscrabble Soil
Range seeding: Fair—small stones
Roadfill: Fair—large stones, slope, shrink-swell
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

Land capability classification: Zoesta soil—IVs, irrigated, and VIIs, nonirrigated; Roca soil—VIIs, nonirrigated; Softscrabble soil—VIe, nonirrigated
Range site: Zoesta soil—024X018N; Roca soil—024X028N; Softscrabble soil—024X021N; Inclusion 1—028B024N; Inclusion 2—025X014N; Inclusion 3—024X018N

3421—Belate-Softscrabble-Torro association

Positions on landscape: Mountains

Composition

Major components:
Belate very gravelly loam, 15 to 30 percent slopes—50 percent
Softscrabble gravelly loam, 15 to 30 percent slopes—20 percent
Torro gravelly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Cleavage very cobbly loam, 4 to 15 percent slopes—6 percent
Welch loam, drained, 2 to 8 percent slopes—4 percent
Rock outcrop—3 percent
Welch loam, 2 to 8 percent slopes—2 percent

Characteristics of the Belate Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex side slopes of mountains
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 15 to 30 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles and stones, 65 percent pebbles

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 14 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam

Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6.7 to 7.8 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains in areas where snow accumulates, incipient drainageways
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 5 percent cobbles, 25 percent pebbles

Depth: 0 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.8 to 9.2 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; 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 Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Very gravelly sandy loam, very gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.0 to 6.5 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—severe; 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
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Inclusion 2

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Entrenched parts of intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3

Positions on landscape: Scattered peaks and eroded side slopes
Distinctive present vegetation: None

Inclusion 4

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Smooth intermountain drainageways
Distinctive present vegetation: Sedge, rush, bluegrass, iris, rose

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Belate Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Torro Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Belate Soil

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

Softscrabble Soil

Range seeding: Fair—small stones
Roadfill: Fair—large stones, slope, shrink-swell
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

Torro Soil

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—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Belate soil—VIIs, nonirrigated; Softscrabble soil—VIe, nonirrigated; Torro soil—VIIe, nonirrigated
Range site: Belate soil—024X027N; Softscrabble soil—024X021N; Torro soil—024X029N; Inclusion 1—024X016N; Inclusion 2—028B024N; Inclusion 3—none; Inclusion 4—025X005N

3422—Belate-Robson-Torro association

Positions on landscape: Mountains

Composition

Major components:
Belate gravelly loam, 15 to 30 percent slopes—45 percent
Robson gravelly loam, 15 to 30 percent slopes—25 percent
Torro gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Softscrabble cobbly loam, 15 to 30 percent slopes—9 percent
Rock outcrop—3 percent
Welch loam, drained, 2 to 8 percent slopes—2 percent
Welch loam, 2 to 8 percent slopes—1 percent

Characteristics of the Belate Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 15 to 30 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

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

Depth: 12 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.2 to 8.4 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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 Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, south-facing crests, shoulder slopes, and side slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 15 to 30 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 5 percent cobbles, 20 percent pebbles

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

Depth: 2 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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: Low

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid

Positions on landscape: South-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 15 to 30 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 38 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 38 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.8 to 6.0 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Sheltered, lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Positions on landscape: Scattered peaks and eroded side slopes
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Entrenched parts of intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Smooth intermountain drainageways
Distinctive present vegetation: Sedge, bluegrass, rose, hairgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Belate Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Belate Soil
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: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Robson Soil
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, large stones

Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Torro Soil

Range seeding: Fair—erodes easily
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

Land capability classification: Belate soil—VIe, nonirrigated; Robson and Torro soils—VIIe, nonirrigated
Range site: Belate soil—024X027N; Robson soil—024X018N; Torro soil—024X029N; Inclusion 1—024X021N; Inclusion 2—none; Inclusion 3—028B024N; Inclusion 4—025X005N

3423—Belate-Cleavage-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Belate very gravelly loam, 30 to 50 percent slopes—35 percent
Cleavage extremely gravelly loam, 15 to 30 percent slopes—30 percent
Softscrabble gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Torro very gravelly loam, 30 to 50 percent slopes—9 percent
Rock outcrop—3 percent
Welch loam, drained, 2 to 8 percent slopes—2 percent
Welch loam, 2 to 8 percent slopes—1 percent

Characteristics of the Belate Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, lower side slopes of mountains
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 30 to 50 percent
Elevation: 6,500 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 40 percent pebbles

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 14 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6.7 to 7.8 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; 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
Positions on landscape: Convex, windswept crests, shoulder slopes, and upper side slopes of mountains
Parent material: Residuum derived from rhyolite and other igneous rock
Slope: 15 to 30 percent

Elevation: 6,500 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bluegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 4 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 15 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.5 to 2.5 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,500 to 7,800 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.8 to 9.2 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; 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

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 2
Positions on landscape: Rims, severely eroded side slopes
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Mountain drainageways
Distinctive present vegetation: Basin big sagebrush, sedge, iris, basin wildrye

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Near seeps and springs
Distinctive present vegetation: Sedge, iris, bluegrass, hairgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Belate Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Cleavage Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Belate Soil
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: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Softscrabble Soil
Range seeding: Fair—erodes easily
Roadfill: Fair—large stones, slope, shrink-swell
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

Land capability classification: Belate and Cleavage soils—VIIs, nonirrigated; Softscrabble soil—VIe, nonirrigated
Range site: Belate soil—024X027N; Cleavage soil—024X016N; Softscrabble soil—024X021N; Inclusion 1—024X029N; Inclusion 2—none; Inclusion 3—028B024N; Inclusion 4—025X005N

3450—Reluctan-Robson-Cleavage association

Positions on landscape: Mountains

Composition

Major components:
Reluctan very cobbly loam, 30 to 50 percent slopes—45 percent
Robson very gravelly loam, 15 to 30 percent slopes—20 percent
Cleavage extremely gravelly loam, 4 to 15 percent slopes—20 percent
Contrasting inclusions:
Rock outcrop—4 percent
Rubble land—4 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 0 to 4 percent slopes—4 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 8 to 30 percent slopes—3 percent

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 30 to 50 percent
Elevation: 6,800 to 7,800 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile
Rock fragments on surface: 30 percent cobbles, 20 percent pebbles
Depth: 0 to 9 inches
Texture: Very cobbly loam

Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.5 to 5.5 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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 Robson Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex side slopes and shoulder slopes of mountains
Parent material: Residuum derived from siliceous tuff, rhyolite, and andesite
Slope: 15 to 30 percent
Elevation: 6,800 to 7,800 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Typical Profile

Rock fragments on surface: 5 percent cobbles, 40 percent pebbles

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 15 inches
Texture: Very cobbly clay, extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.6 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests of mountains
Parent material: Residuum derived from rhyolite and other igneous rock
Slope: 4 to 15 percent
Elevation: 6,800 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bluegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 4 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 18 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.4 to 2.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Positions on landscape: Rock stripes below areas of Rock outcrop
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, bluegrass

Inclusion 4
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Black sagebrush, pine bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Robson Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Cleavage Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Reluctan Soil
Range seeding: Poor—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

Robson Soil
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, large stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

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

Interpretive Groups

Land capability classification: Reluctan, Robson, and Cleavage soils—VIIs, nonirrigated
Range site: Reluctan soil—024X021N; Robson soil—024X018N; Cleavage soil—024X016N; Inclusions 1 and 2—none; Inclusion 3—028B024N; Inclusion 4—024X031N

3453—Reluctan-Locane-Itca association

Positions on landscape: Mountains

Composition

Major components:
Reluctan very gravelly loam, 30 to 50 percent slopes—35 percent

Locane extremely gravelly sandy loam, 30 to 50 percent slopes—25 percent
Itca very cobbly loam, 15 to 30 percent slopes—25 percent
Contrasting inclusions:
Softscrabble gravelly loam, 15 to 30 percent slopes—7 percent
Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid, 15 to 30 percent slopes—5 percent
Welch loam, drained, 2 to 8 percent slopes—2 percent
Rock outcrop—1 percent

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: North-, east-, and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 7,600 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 35 percent pebbles

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.0 to 5.6 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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 Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and conglomerate
Slope: 30 to 50 percent
Elevation: 6,500 to 7,600 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 55 percent pebbles

Depth: 0 to 6 inches
Texture: Extremely gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Crests, shoulder slopes, and convex side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 6,500 to 7,600 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue, snowberry

Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Stable, convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, bluegrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Inset fans at the base of mountains and along canyon bottoms
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Reluctan Soil
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

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

Itca Soil

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Land capability classification: Reluctan, Locane, and Itca soils—VIIs, nonirrigated
Range site: Reluctan soil—024X021N; Locane soil—024X035N; Itca soil—025X061N; Inclusion 1—024X021N; Inclusion 2—024X018N; Inclusion 3—028B024N; Inclusion 4—none

3455—Reluctan-Roca-Colbar association

Positions on landscape: Mountains

Composition

Major components:
Reluctan very cobbly loam, 30 to 50 percent slopes—40 percent
Roca very cobbly loam, 30 to 50 percent slopes—30 percent
Colbar cobbly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—7 percent
Pachic Haploxerolls, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes—4 percent
Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 8 to 30 percent slopes—4 percent

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: North- and east-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 30 to 50 percent
Elevation: 5,400 to 6,400 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.5 to 5.5 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South- and west-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 30 to 50 percent
Elevation: 5,400 to 6,400 feet

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 27 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.6 to 4.5 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Colbar Soil

Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: The lower side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite and andesite
Slope: 15 to 30 percent
Elevation: 5,400 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 10 percent pebbles

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 22 inches
Texture: Cobbly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 22 to 26 inches
Texture: Gravelly loam, cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 26 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.8 to 4.0 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; 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

Positions on landscape: Rimrock on shoulder slopes and scattered peaks of mountains
Distinctive present vegetation: None

Inclusion 2

Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing snow pockets
Distinctive present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 3
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Eroded, lower shoulder slopes and nose slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush, bottlebrush squirreltail, ephedra

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Colbar Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Reluctan Soil
Range seeding: Poor—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

Roca Soil
Range seeding: Poor—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

Colbar Soil
Range seeding: Fair—too arid, large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, large 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Reluctan and Roca soils—VIIs, nonirrigated; Colbar soil—VIe, nonirrigated
Range site: Reluctan soil—024X021N; Roca soil—024X028N; Colbar soil—024X005N; Inclusion 1—none; Inclusion 2—024X021N; Inclusion 3—024X047N

3457—Reluctan-Clanalpine-Roca association

Positions on landscape: Mountains

Composition

Major components:
Reluctan very cobbly loam, 15 to 30 percent slopes—35 percent
Clanalpine very gravelly loam, 15 to 30 percent slopes—30 percent
Roca very cobbly loam, 15 to 50 percent slopes—20 percent
Contrasting inclusions:
Lithic Xerollic Haplargids, clayey-skeletal, mixed, mesic, 15 to 50 percent slopes—8 percent
Rock outcrop—4 percent
Xerollic Haplargids, fine-loamy, mixed, frigid, 8 to 15 percent slopes—3 percent

Characteristics of the Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: East- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 6,000 to 7,100 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles
Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Platy

Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3 to 5 inches
Water-supplying capacity: 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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 Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 15 to 30 percent
Elevation: 6,000 to 7,100 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 5 to 7 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; 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 Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 15 to 50 percent
Elevation: 6,000 to 7,100 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 24 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 24 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.6 to 4.5 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—2; 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

Contrasting Inclusions

Inclusion 1

Classification: Lithic Xerollic Haplargids, clayey-skeletal, mixed, mesic
Positions on landscape: The lower side slopes of mountains
Distinctive present vegetation: Black sagebrush, Thurber needlegrass, bluegrass

Inclusion 2

Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3

Classification: Xerollic Haplargids, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Reluctan Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Reluctan Soil

Range seeding: Poor—large 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

Clanalpine Soil

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—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

Roca Soil

Range seeding: Poor—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

Interpretive Groups

Land capability classification: Reluctan, Clanalpine, and Roca soils—VIIs, nonirrigated
Range site: Reluctan soil—024X021N; Clanalpine soil—025X061N; Roca soil—024X028N; Inclusion 1—024X031N; Inclusion 2—none; Inclusion 3—025X014N

3461—Torro-Rubble land-Cleavage association

Positions on landscape: Mountains

Composition

Major components:
Torro very gravelly loam, 50 to 75 percent slopes—40 percent

Rubble land—30 percent
Cleavage extremely gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Reluctan very gravelly loam, 30 to 50 percent slopes—8 percent
Rock outcrop—5 percent
Aridic Haploxerolls, loamy-skeletal, mixed, frigid, 50 to 75 percent slopes—2 percent

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 50 to 75 percent
Elevation: 6,400 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 15 percent cobbles, 30 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4 to 6 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rubble Land

Positions on landscape: Side slopes of mountains
Kind of material: Rock stripes and talus deposits that are 95 percent stones and boulders
Distinctive present vegetation: None

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, windswept crests and shoulder slopes of mountains
Parent material: Residuum derived from rhyolite and other igneous rock
Slope: 15 to 30 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bluegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 4 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 15 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.5 to 2.5 inches
Water-supplying capacity: 9 inches
Runoff: Medium

Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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-loamy, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Inclusion 2
Positions on landscape: Rims of mountains
Distinctive present vegetation: None

Inclusion 3
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Immediately below areas of Rock outcrop and Rubble land on side slopes of mountains
Distinctive present vegetation: Chokecherry, oceanspray, currant

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Cleavage Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Torro Soil
Range seeding: Poor—small stones, 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

Cleavage Soil
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

Interpretive Groups

Land capability classification: Torro and Cleavage soils—VIIs, nonirrigated; Rubble land—VIIIs, nonirrigated
Range site: Torro soil—024X029N; Rubble land—none; Cleavage soil—024X016N; Inclusion 1—024X021N; Inclusion 2—none; Inclusion 3—024X034N

3462—Torro-Reluctan-Cleavage association

Positions on landscape: Mountains

Composition

Major components:
Torro extremely gravelly loam, 30 to 50 percent slopes—40 percent
Reluctan very cobbly loam, 30 to 50 percent slopes—30 percent
Cleavage extremely gravelly loam, 8 to 30 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—4 percent
Softscrabble gravelly loam, 15 to 30 percent slopes—4 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—4 percent
Fluventic Haploxerolls, loamy-skeletal, mixed, frigid, 4 to 15 percent slopes—3 percent

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 45 percent pebbles

Depth: 0 to 10 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4 to 6 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—5; 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 Reluctan Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic rock
Slope: 30 to 50 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, Idaho fescue, mountain big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 27 inches
Texture: Gravelly clay loam, gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.5 to 6.0 inches
Water-supplying capacity: 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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 Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests and ridges of mountains
Parent material: Residuum derived from rhyolite and other igneous rock
Slope: 8 to 30 percent
Elevation: 7,000 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bluegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 4 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 15 inches
Texture: Very gravelly clay loam

Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.5 to 2.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing snow pockets
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Convex shoulder slopes and upper side slopes of mountains
Distinctive present vegetation: Utah juniper, singleleaf pinyon, big sagebrush

Inclusion 4
Classification: Fluventic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Reluctan Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Cleavage Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Torro Soil
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

Reluctan Soil
Range seeding: Poor—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

Cleavage Soil
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

Interpretive Groups

Land capability classification: Torro, Reluctan, and Cleavage soils—VIIs, nonirrigated
Range site: Torro soil—024X029N; Reluctan soil—024X021N; Cleavage soil—024X016N; Inclusion

1—none; Inclusion 2—024X021N; Inclusion 3—024X029N; Inclusion 4—025X003N

3463—Torro-Clanalpine-Itca association

Positions on landscape: Mountains

Composition

Major components:
Torro extremely gravelly loam, 30 to 50 percent slopes—50 percent
Clanalpine very cobbly loam, 30 to 50 percent slopes—20 percent
Itca very cobbly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Durixerollic Camborthids, loamy-skeletal, mixed, frigid, 8 to 15 percent slopes—5 percent
Roca very gravelly loam, 15 to 30 percent slopes—5 percent
Rock outcrop—3 percent
Rubble land—2 percent

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: South- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Depth: 0 to 10 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate over rapid
Available water capacity: 4.3 to 5.6 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—5; 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 Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 30 to 50 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Crests and shoulder slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 7,200 to 7,700 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 20 percent cobbles, 30 percent pebbles

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

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 3.0 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Positions on landscape: Narrow intermountain drainageways
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The lower, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Rock stripes below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Torro Soil
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

Clanalpine Soil
Range seeding: Poor—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—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

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Land capability classification: Torro, Clanalpine, and Itca soils—VIIs, nonirrigated
Range site: Torro soil—024X029N; Clanalpine and Itca soils—025X061N; Inclusion 1—028B010N; Inclusion 2—024X028N; Inclusions 3 and 4—none

3464—Torro-Itca-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Torro extremely gravelly loam, 30 to 50 percent slopes—50 percent
Itca very cobbly loam, 30 to 50 percent slopes—20 percent
Softscrabble gravelly loam, 15 to 50 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—5 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—4 percent
Welch loam, drained, 2 to 8 percent slopes—3 percent
Rubble land—3 percent

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, south- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 6,800 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile
Rock fragments on surface: 15 percent cobbles, 65 percent pebbles

Depth: 0 to 10 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.3 to 5.6 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B

Erosion factors (upper layer): K value—0.10; T value—5; 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 Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 30 to 50 percent
Elevation: 6,800 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

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

Depth: 2 to 14 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.8 to 2.3 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 15 to 50 percent
Elevation: 6,800 to 8,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Depth: 0 to 16 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7.8 to 9.2 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.20; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, broad crests and shoulder slopes of mountains
Distinctive present vegetation: Low sagebrush

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Canyon bottoms, mountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Torro Soil
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

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones, slope
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Softscrabble Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Torro and Itca soils—VIIs, nonirrigated; Softscrabble soil—VIIe, nonirrigated
Range site: Torro soil—024X029N; Itca soil—024X061N; Softscrabble soil—024X021N; Inclusion 1—none; Inclusion 2—024X018N; Inclusion 3—028B024N; Inclusion 4—none

3465—Torro-Clanalpine-Softscrabble association

Positions on landscape: Mountains

Composition

Major components:
Torro extremely gravelly loam, 30 to 50 percent slopes—35 percent
Clanalpine extremely cobbly loam, 30 to 50 percent slopes—30 percent
Softscrabble loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Rock outcrop—6 percent
Itca very cobbly loam, 30 to 50 percent slopes—6 percent
Lithic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—3 percent

Characteristics of the Torro Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, south- and west-facing side slopes of mountains
Parent material: Colluvium and residuum derived from chert and shale
Slope: 30 to 50 percent

Elevation: 6,800 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, needlegrass, bluegrass, mountain big sagebrush

Typical Profile

Depth: 0 to 10 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 34 inches
Texture: Extremely gravelly loam, extremely gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 4.3 to 5.6 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; T value—5; 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 Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed
Positions on landscape: Concave, east-facing and upper, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 30 to 50 percent
Elevation: 6,800 to 8,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 40 percent cobbles, 20 percent pebbles

Depth: 0 to 10 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; 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 Softscrabble Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, lower, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from volcanic rock
Slope: 30 to 50 percent
Elevation: 6,800 to 8,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush, snowberry

Typical Profile

Depth: 0 to 16 inches
Texture: Loam

Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 16 to 30 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 7 to 9 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—5
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks and cliffs
Distinctive present vegetation: None

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Near areas of Rock outcrop on crests of mountains
Distinctive present vegetation: Singleleaf pinyon, mountain big sagebrush, bluegrass

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Torro Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Softscrabble Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Torro Soil
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

Clanalpine Soil
Range seeding: Poor—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—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

Softscrabble Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Torro and Clanalpine soils—VIIs, nonirrigated; Softscrabble soil—VIIe, nonirrigated
Range site: Torro soil—024X029N; Clanalpine soil—025X061N; Softscrabble soil—028B049N; Inclusion

1—none; Inclusion 2—025X061N; Inclusion 3—028B037N

3562—Locane-Coztur-Punchbowl association

Positions on landscape: Mountains

Composition

Major components:
Locane gravelly loam, 8 to 15 percent slopes—35 percent
Coztur gravelly loam, 8 to 15 percent slopes—25 percent
Punchbowl gravelly loam, 15 to 30 percent slopes—25 percent
Contrasting inclusions:
Xerollic Haplargids, fine, montmorillonitic, frigid, 4 to 15 percent slopes—8 percent
Robson very cobbly loam, 15 to 30 percent slopes—5 percent
Rock outcrop—2 percent

Characteristics of the Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Summits, crests, and concave side slopes of mountains
Parent material: Residuum derived from shale and conglomerate
Slope: 8 to 15 percent
Elevation: 6,400 to 7,300 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

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

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.5 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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: Low

Characteristics of the Coztur Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum derived from volcanic rock
Slope: 8 to 15 percent
Elevation: 6,400 to 7,300 feet
Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Mountain big sagebrush, Wyoming big sagebrush, needlegrass, bluegrass

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 to 17 inches
Texture: Loam, clay loam
Structure: Subangular blocky
Consistence: Hard, friable

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.1 to 3.5 inches
Water-supplying capacity: 10 inches
Runoff: Medium

Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Punchbowl Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Convex, south- and west-facing side slopes of mountains
Parent material: Residuum derived from andesite, dacite, rhyolite, and tuff
Slope: 15 to 30 percent
Elevation: 6,400 to 7,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Black sagebrush, bluegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 7 to 11 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 11 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 2.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Positions on landscape: Toe slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Wyoming big sagebrush, needlegrass

Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, lower, north-facing side slopes of mountains
Distinctive present vegetation: Low sagebrush, bluegrass

Inclusion 3
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Locane Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Coztur Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Punchbowl Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Locane Soil
Range seeding: Poor—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

Coztur Soil
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: 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

Punchbowl Soil
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, 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

Land capability classification: Locane and Coztur soils—VIIs, nonirrigated; Punchbowl soil—VIIe, nonirrigated
Range site: Locane soil—024X005N; Coztur soil—025X014N; Punchbowl soil—028B016N; Inclusion 1—025X014N; Inclusion 2—024X018N; Inclusion 3—none

3563—Locane-Muni association

Positions on landscape: Mountains, fan piedmonts

Composition

Major components:
Locane gravelly sandy loam, 2 to 8 percent slopes—35 percent
Muni gravelly sandy loam, 2 to 8 percent slopes—30 percent
Locane very gravelly loam, eroded, 4 to 15 percent slopes—20 percent
Contrasting inclusions:
Akerue cobbly loam, 2 to 8 percent slopes—8 percent
Durixerollic Camborthids, coarse-loamy, mixed, frigid, 2 to 8 percent slopes—4 percent
Rock outcrop—3 percent

Characteristics of the Locane Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Concave side slopes of mountains
Parent material: Residuum derived from shale and conglomerate
Slope: 2 to 8 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

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

Depth: 6 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.2 to 2.2 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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: Low

Characteristics of the Muni Soil

Classification: Haploxerollic Durargids, loamy, mixed, mesic, shallow
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 2 to 8 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days

Dominant present vegetation: Needlegrass, bluegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 3 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 18 inches
Texture: Sandy clay loam, clay loam, loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 18 to 49 inches
Kind of material: Cemented hardpan

Depth: 49 to 60 inches
Texture: Very gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Strongly alkaline

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.0 to 3.5 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—1; wind erodibility group—4
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 Locane Soil, Eroded

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, rilled side slopes of mountains
Parent material: Residuum derived from shale and conglomerate
Slope: 4 to 15 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush, singleleaf pinyon
Site index for common trees: Utah juniper—22; singleleaf pinyon—22

Typical Profile

Rock fragments on surface: 40 percent pebbles

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

Depth: 2 to 10 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.0 to 2.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, clayey-skeletal, montmorillonitic, frigid, shallow
Positions on landscape: Summits of hills
Distinctive present vegetation: Black sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Positions on landscape: Inset fans
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Positions on landscape: Scattered peaks, severely eroded areas
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Locane Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Muni Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Locane Soil, Eroded

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Locane Soil

Range seeding: Poor—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
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Muni Soil

Range seeding: Poor—droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Locane Soil, Eroded

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

Interpretive Groups

Land capability classification: Locane soils—VIIs, nonirrigated; Muni soil—IVe, irrigated, and VIIs, nonirrigated
Range site: Locane soil—024X005N; Muni soil—028B010N; Locane soil, eroded—025X062N; Inclusion 1—028B016N; Inclusion 2—024X041N; Inclusion 3—none

3625—Minat-Coztur-Belate association

Positions on landscape: Mountains

Composition

Major components:
Minat very gravelly very fine sandy loam, 30 to 50 percent slopes—40 percent
Coztur extremely gravelly loam, 15 to 30 percent slopes—30 percent
Belate very cobbly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Xerollic Haplargids, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes—8 percent
Rock outcrop—5 percent
Welch clay loam, drained, 2 to 8 percent slopes—2 percent

Characteristics of the Minat Soil

Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, south-facing side slopes of mountains
Parent material: Mixed colluvium that includes some volcanic ash
Slope: 30 to 50 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Wyoming big sagebrush, bottlebrush squirreltail, bluebunch wheatgrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 35 percent pebbles

Depth: 0 to 9 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 9 to 27 inches
Texture: Very gravelly loam
Structure: Subangular blocky

Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 27 to 60 inches
Texture: Very gravelly loam, very gravelly fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.5 to 6.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.10; 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 Coztur Soil

Classification: Lithic Xerollic Haplargids, loamy, mixed, frigid
Positions on landscape: Crests and shoulder slopes of mountains
Parent material: Residuum derived from volcanic rock
Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Mountain big sagebrush, Wyoming big sagebrush, needlegrass, bluegrass

Typical Profile

Rock fragments on surface: 5 percent cobbles, 60 percent pebbles

Depth: 0 to 11 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 to 17 inches
Texture: Loam, clay loam
Structure: Subangular blocky
Consistence: Hard, friable

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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 Belate Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Convex, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from tuff and andesite
Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 12 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 60 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 12 inches

Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; 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-skeletal, mixed, frigid
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, serviceberry

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Minat Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Coztur Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Belate Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Minat Soil
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: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Coztur Soil
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

Belate Soil
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

Land capability classification: Minat, Coztur, and Belate soils—VIIs, nonirrigated
Range site: Minat soil—024X005N; Coztur soil—025X014N; Belate soil—024X027N; Inclusion 1—025X014N; Inclusion 2—none; Inclusion 3—028B024N

3690—Izod-Koynik-Rock outcrop association

Positions on landscape: Foothills

Composition

Major components:
Izod cobbly loam, 15 to 50 percent slopes—40 percent
Koynik extremely gravelly sandy loam, 15 to 30 percent slopes—30 percent
Rock outcrop—15 percent
Contrasting inclusions:
Xeric Torriorthents, loamy, mixed, nonacid, mesic, shallow, 4 to 15 percent slopes—8 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—7 percent

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Positions on landscape: Convex, east- and north-facing crests, shoulder slopes, and side slopes of foothills

Parent material: Residuum and colluvium derived from limestone
Slope: 15 to 50 percent
Elevation: 5,500 to 6,100 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

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

Depth: 4 to 10 inches
Texture: Very gravelly loam, extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 10 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.5 to 1.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Koynik Soil

Classification: Lithic Torriorthents, loamy-skeletal, carbonatic, mesic
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum and colluvium derived from limestone
Slope: 15 to 30 percent
Elevation: 5,500 to 6,100 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, needlegrass, bud sagebrush, shadscale, ephedra

Typical Profile

Rock fragments on surface: 15 percent cobbles, 50 percent pebbles

Depth: 0 to 6 inches
Texture: Extremely gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 6 to 8 inches
Texture: Very gravelly loam, very gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline

Depth: 8 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.5 to 1.3 inches
Water-supplying capacity: 6 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Low

Characteristics of the Rock Outcrop

Positions on landscape: Ledges, broad bedding planes
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1

Classification: Xeric Torriorthents, loamy, mixed, nonacid, mesic, shallow
Positions on landscape: Concave inset fans and interhill channels
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, higher crests of foothills
Distinctive present vegetation: Black sagebrush, Indian ricegrass, small rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Izod Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Koynik Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Izod Soil
Range seeding: Poor—droughty, erodes easily, 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

Koynik Soil
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

Land capability classification: Izod and Koynik soils—VIIs, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Izod soil—024X030N; Koynik soil—024X025N; Rock outcrop—none; Inclusion 1—024X005N; Inclusion 2—028B016N

3740—Kelk silt loam, saline

Positions on landscape: Inset fans

Composition

Major component:
Kelk silt loam, saline, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Kelk very fine sandy loam, occasionally flooded, 0 to 2 percent slopes—7 percent
Broyles very fine sandy loam, 0 to 4 percent slopes—5 percent
Durorthidic Torriorthents, coarse-silty, mixed, mesic, 0 to 4 percent slopes—3 percent

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Inset fan remnants
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,100 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin big sagebrush, basin wildrye, black greasewood

Typical Profile

Depth: 0 to 3 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 18 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 18 to 42 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 42 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline

Salinity: 4 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.55; 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—moderate
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood, rubber rabbitbrush

Inclusion 2
Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fan skirts
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Durorthidic Torriorthents, coarse-silty, mixed, mesic
Positions on landscape: Adjacent to channels and drainageways
Distinctive present vegetation: Big saltbush, black greasewood, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Range seeding: Poor—excess salt
Roadfill: Fair—low strength, shrink-swell
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—low strength, frost action, shrink-swell
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Kelk soil—IIs, irrigated; VIs, nonirrigated
Range site: Kelk soil—024X022N; Inclusion 1—024X006N; Inclusion 2—024X002N; Inclusion 3—024X015N

3741—Kelk-Settlemeyer association

Positions on landscape: Inset fans

Composition

Major components:
Kelk very fine sandy loam, occasionally flooded, 0 to 2 percent slopes—55 percent
Settlemeyer fine sandy loam, drained, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Xerollic Camborthids, fine-loamy, mixed, mesic, 0 to 4 percent slopes—10 percent
Duric Camborthids, fine-loamy, mixed, mesic, 0 to 4 percent slopes—3 percent
Aeric Fluvaquents, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—2 percent

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: The lower inset fan remnants
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin big sagebrush, basin wildrye, rubber rabbitbrush, black greasewood

Typical Profile

Depth: 0 to 14 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Settlemeyer Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Recently dissected upper inset fan remnants
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Basin wildrye, basin big sagebrush

Typical Profile

Depth: 0 to 16 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 16 to 36 inches
Texture: Silty clay loam, clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 36 to 60 inches
Texture: Stratified very gravelly loamy sand to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: 6 to 8 inches
Water-supplying capacity: 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: The higher recent inset fans
Distinctive present vegetation: Big saltbrush, black greasewood

Inclusion 2
Classification: Duric Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Smooth, lower recent inset fans
Distinctive present vegetation: Spiny hopsage, black greasewood, shadscale

Inclusion 3
Classification: Aeric Fluvaquents, loamy-skeletal, mixed, mesic
Positions on landscape: Irregularly shaped, broad areas adjacent to channels
Distinctive present vegetation: Saltcedar, willow, rose

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Kelk Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Settlemeyer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Kelk Soil
Range seeding: Fair—too arid
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

Settlemeyer Soil
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—too clayey, small stones, area reclaim
Daily cover for landfill: Fair—too clayey, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
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

Interpretive Groups

Land capability classification: Kelk soil—IIw, irrigated, and VIw, nonirrigated; Settlemeyer soil—IIc, irrigated, and VIc, nonirrigated
Range site: Kelk soil—024X006N; Settlemeyer soil—028B003N; Inclusion 1—024X015N; Inclusion 2—024X003N; Inclusion 3—028B033N

3742—Kelk-Ocala association

Positions on landscape: Inset fans, alluvial flats

Composition

Major components:
Kelk very fine sandy loam, occasionally flooded, 0 to 4 percent slopes—55 percent
Ocala silt loam, occasionally flooded, 0 to 2 percent slopes—30 percent
Contrasting inclusions:
Batan silt loam, 0 to 2 percent slopes—5 percent
Aeric Halaquepts, fine-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent
Aquic Torriorthents, fine-silty, mixed (calcareous), mesic, 0 to 2 percent slopes—5 percent

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Positions on landscape: Broad inset fans dissecting alluvial flats
Parent material: Loess that includes volcanic ash, mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Basin big sagebrush, basin wildrye, rubber rabbitbrush, black greasewood

Typical Profile

Depth: 0 to 14 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 5 to 13

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Occasional for brief to long periods in February through June
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
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
Positions on landscape: Dissected alluvial flats
Parent material: Mixed silty alluvium that includes volcanic ash
Slope: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, alkali sacaton

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Very strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 30 to 46

Depth: 4 to 36 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 20 to 35

Depth: 36 to 60 inches
Texture: Silt loam, silty clay loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 20 to 35

Soil and Water Features

Depth to a seasonal high water table: 42 to 60 inches
Frequency of flooding: Occasional for brief to long periods in February through May
Permeability: Slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 7 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Durorthidic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Alluvial flat remnants
Distinctive present vegetation: Black greasewood, shadscale

Inclusion 2
Classification: Aeric Halaquepts, fine-loamy, mixed (calcareous), mesic
Positions on landscape: Ponded areas on alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye, inland saltgrass, Nuttall saltbush

Inclusion 3
Classification: Aquic Torriorthents, fine-silty, mixed (calcareous), mesic
Positions on landscape: Overwashed areas of alluvial flats
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Kelk Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Ocala Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Kelk Soil
Range seeding: Fair—too arid
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

Ocala Soil
Range seeding: Poor—excess salt, excess sodium
Roadfill: Poor—low strength
Topsoil: Poor—excess salt, excess sodium
Daily cover for landfill: Poor—excess salt, 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 salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Kelk soil—IIw, irrigated, and VIw, nonirrigated; Ocala soil—VIIw, nonirrigated
Range site: Kelk soil—024X006N; Ocala soil—024X007N; Inclusion 1—024X003N; Inclusion 2—024X011N; Inclusion 3—028B003N

3840—Jung-Newpass association

Positions on landscape: Mountains

Composition

Major components:
Jung very cobbly loam, 15 to 30 percent slopes—45 percent
Newpass very gravelly fine sandy loam, 15 to 30 percent slopes—25 percent
Jung very cobbly fine sandy loam, 8 to 15 percent slopes—15 percent
Contrasting inclusions:
Haplic Durargids, clayey-skeletal, montmorillonitic, mesic, 8 to 30 percent slopes—7 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—6 percent
Rock outcrop—2 percent

Characteristics of the Jung Soil, Moderately Steep

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 5,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Newpass Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: Concave side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 5,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 75 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 14 inches
Texture: Clay
Structure: Prismatic

Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 14 to 24 inches
Texture: Very cobbly silty clay, very gravelly clay, gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 26 inches
Texture: Cemented hardpan

Depth: 26 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 20 to 29 inches
Depth to bedrock: 21 to 36 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.4 to 3.5 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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: Low

Characteristics of the Jung Soil, Strongly Sloping

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, south-facing shoulder slopes and upper back slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 8 to 15 percent
Elevation: 5,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 20 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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: Haplic Durargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: Shadscale, small rabbitbrush

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans, colluvial fans
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage, pine bluegrass

Inclusion 3
Positions on landscape: Rimrock
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil, Moderately Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Newpass Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Jung Soil, Strongly Sloping
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Jung Soil, Moderately Steep
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Newpass Soil
Range seeding: Poor—rooting depth, small stones, excess sodium
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
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—shrink-swell, low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Jung Soil, Strongly Sloping
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Land capability classification: Jung and Newpass soils—VIIs, nonirrigated
Range site: Jung soils—027X032N; Newpass soil—027X008N; Inclusion 1—024X002N; Inclusion 2—027X008N; Inclusion 3—none

3841—Jung-Itca-Roca association

Positions on landscape: Mountains

Composition

Major components:
Jung very cobbly loam, 15 to 30 percent slopes—35 percent
Itca very cobbly loam, 15 to 30 percent slopes—25 percent
Roca very cobbly loam, 30 to 50 percent slopes—25 percent
Contrasting inclusions:
Lithic Xerollic Haplargids, clayey-skeletal, mixed, mesic, 15 to 30 percent slopes—9 percent
Durixerollic Haplargids, fine-loamy, mixed, mesic, 4 to 15 percent slopes—3 percent
Rock outcrop—3 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, south- and west-facing lower side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,000 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 20 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—9
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 Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: North- and east-facing side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 15 to 30 percent
Elevation: 6,000 to 7,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 20 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.2 to 2.5 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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: Moderate

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: The upper, south-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 30 to 50 percent
Elevation: 6,500 to 7,200 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 5 to 27 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 27 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.5 to 4.5 inches
Water-supplying capacity: 11 inches
Runoff: Rapid

Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—2; 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

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, clayey-skeletal, mixed, mesic
Positions on landscape: The lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Wyoming big sagebrush, bluegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave toe slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Positions on landscape: Rimrock, scattered peaks
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Itca Soil
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, too clayey
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, large stones, 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

Roca Soil
Range seeding: Poor—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

Interpretive Groups

Land capability classification: Jung, Itca, and Roca soils—VIIs, nonirrigated
Range site: Jung soil—028B016N; Itca soil—025X061N; Roca soil—024X028N; Inclusion 1—025X014N; Inclusion 2—027X007N; Inclusion 3—none

3842—Jung-Hooplite association

Positions on landscape: Foothills

Composition

Major components:
Jung very gravelly loam, 15 to 30 percent slopes—50 percent
Hooplite very gravelly loam, 15 to 30 percent slopes—35 percent
Contrasting inclusions:
Xerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—8 percent
Rock outcrop—5 percent
Typic Haplargids, clayey-skeletal, montmorillonitic, mesic, 8 to 15 percent slopes—2 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex crests and south-facing slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 5,900 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Hooplite Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: North-facing side slopes of foothills
Parent material: Residuum derived from rhyolitic rock
Slope: 15 to 30 percent
Elevation: 5,900 to 6,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

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

Depth: 4 to 8 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 8 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.5 to 1.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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 Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex toe slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 2

Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3

Classification: Typic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Fan piedmont remnants

Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hooplite Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Hooplite Soil
Range seeding: Poor—droughty, small stones, depth to rock
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

Land capability classification: Jung and Hooplite soils—VIIs, nonirrigated
Range site: Jung and Hooplite soils—028B016N; Inclusion 1—024X002N; Inclusion 2—none; Inclusion 3—024X002N

3843—Jung-Newpass-Teguro association

Positions on landscape: Mountains

Composition

Major components:
Jung very cobbly loam, 15 to 30 percent slopes—40 percent
Newpass very gravelly fine sandy loam, 15 to 50 percent slopes—25 percent
Teguro very gravelly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Itca very cobbly loam, 15 to 50 percent slopes—7 percent
Rock outcrop—5 percent
Lithic Xeric Torriorthents, loamy-skeletal, mixed, mesic, 30 to 50 percent slopes—3 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, south-facing and lower, east-facing side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 25 percent cobbles, 20 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Newpass Soil

Classification: Haploxerollic Nadurargids, fine, montmorillonitic, mesic
Positions on landscape: The lower, north-facing and higher, east-facing side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 50 percent
Elevation: 6,300 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 3 percent stones and boulders, 75 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 4 to 14 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 13 to 25

Depth: 14 to 24 inches
Texture: Very cobbly silty clay, very gravelly clay, gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 24 to 26 inches
Kind of material: Cemented hardpan

Depth: 26 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 20 to 29 inches
Depth to bedrock: 21 to 36 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 2.6 to 3.2 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.15; 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: Low

Characteristics of the Teguro Soil

Classification: Lithic Argixerolls, loamy, mixed, frigid
Positions on landscape: The higher, north-facing, convex side slopes of mountains
Parent material: Residuum derived from tuff
Slope: 30 to 50 percent
Elevation: 7,000 to 8,000 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluegrass, needlegrass, mountain big sagebrush, singleleaf pinyon, Utah juniper
Site index for common trees: Singleleaf pinyon—30; Utah juniper—30

Typical Profile

Rock fragments on surface: 20 percent stones and boulders, 55 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 16 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 16 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow

Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; 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
Positions on landscape: High-lying, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, singleleaf pinyon, Utah juniper, bluegrass

Inclusion 2
Positions on landscape: Rimrock
Distinctive present vegetation: None

Inclusion 3
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed, mesic
Positions on landscape: Eroded, south-facing side slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush, small rabbitbrush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Newpass Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Teguro Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Newpass Soil
Range seeding: Poor—rooting depth, large stones, excess sodium
Roadfill: Poor—depth to rock, shrink-swell, low strength
Topsoil: Poor—too clayey, small stones, excess sodium
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—shrink-swell, low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Teguro Soil
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

Interpretive Groups

Land capability classification: Jung, Newpass, and Teguro soils—VIIs, nonirrigated
Range site: Jung soil—027X032N; Newpass soil—027X008N; Teguro soil—025X062N; Inclusion 1—025X061N; Inclusion 2—none; Inclusion 3—024X054N

3845—Jung-Stingdorn-Atlow association

Positions on landscape: Foothills

Composition

Major components:
Jung very gravelly loam, 8 to 15 percent slopes—30 percent
Stingdorn extremely cobbly loam, 30 to 50 percent slopes—30 percent
Atlow very gravelly loam, 30 to 50 percent slopes—25 percent

Contrasting inclusions:
Xerollic Haplargids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—5 percent
Haplic Nadurargids, clayey-skeletal, montmorillonitic, mesic, shallow, 4 to 30 percent slopes—4 percent
Rock outcrop—3 percent
Rubble land—3 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Shoulder slopes and summits of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 8 to 15 percent
Elevation: 5,100 to 6,100 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Stingdorn Soil

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Slightly concave, south- and west-facing side slopes of foothills below areas of Rock outcrop
Parent material: Residuum derived from rhyolite, tuff, and andesite
Slope: 30 to 50 percent
Elevation: 5,100 to 6,100 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 40 percent cobbles, 30 percent pebbles

Depth: 0 to 7 inches
Texture: Extremely cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 15 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 15 to 20 inches
Kind of material: Indurated hardpan

Depth: 20 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 20 inches
Depth to bedrock: 8 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.3 to 2.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Atlow Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, north-facing side slopes of foothills
Parent material: Residuum derived from chert, argillite, shale, and altered tuff
Slope: 30 to 50 percent
Elevation: 5,800 to 6,200 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Black sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 3 to 14 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.8 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; 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
Positions on landscape: Concave, east-facing, lower side slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Haplic Nadurargids, clayey-skeletal, montmorillonitic, mesic, shallow
Positions on landscape: Convex, lower side slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Inclusion 3
Positions on landscape: Scattered peaks and rimrock
Distinctive present vegetation: None

Inclusion 4
Positions on landscape: Rock stripes below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Stingdorn Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Atlow Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Stingdorn Soil
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, large stones, slope
Topsoil: Poor—depth to rock, cemented pan, large stones
Daily cover for landfill: Poor—depth to rock, large stones, slope

Shallow excavations: Severe—depth to rock, cemented pan, large stones
Local roads and streets: Severe—depth to rock, slope, large stones
Pond reservoir areas: Severe—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Atlow Soil

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

Interpretive Groups

Land capability classification: Jung, Stingdorn, and Atlow soils—VIIs, nonirrigated
Range site: Jung and Atlow soils—024X030N; Stingdorn soil—024X002N; Inclusion 1—024X005N; Inclusion 2—024X002N; Inclusions 3 and 4—none

3846—Jung-Atlow-McVegas association

Positions on landscape: Foothills

Composition

Major components:
Jung very cobbly loam, 15 to 30 percent slopes—40 percent
Atlow very gravelly loam, 15 to 50 percent slopes—25 percent
McVegas very gravelly loam, 15 to 30 percent slopes—20 percent
Contrasting inclusions:
Rock outcrop—7 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 15 percent slopes—5 percent
Jung very cobbly fine sandy loam, 4 to 15 percent slopes—3 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, broad side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,100 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Atlow Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: North-facing side slopes of foothills
Parent material: Residuum derived from chert, argillite, and altered rhyolitic tuff
Slope: 15 to 50 percent
Elevation: 6,100 to 6,700 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F

Frost-free season: About 110 days
Dominant present vegetation: Black sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.1 to 1.3 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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 McVegas Soil

Classification: Haplic Nadurargids, clayey-skeletal, montmorillonitic, mesic, shallow
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,100 to 6,700 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 5 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 15 to 30

Depth: 19 to 22 inches
Kind of material: Cemented hardpan

Depth: 22 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 15 to 23 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 3.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; T value—1; 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

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave toe slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush, bluegrass

Inclusion 3
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Crests and shoulder slopes of foothills
Distinctive present vegetation: Black sagebrush, snakeweed, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Atlow Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

McVegas Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

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

McVegas Soil
Range seeding: Poor—too arid, small stones, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, cemented pan, too clayey
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, cemented pan, slope
Local roads and streets: Severe—depth to rock, low strength, slope
Pond reservoir areas: Severe—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Jung, Atlow, and McVegas soils—VIIs, nonirrigated
Range site: Jung soil—028B016N; Atlow soil—024X030N; McVegas soil—028B017N; Inclusion 1—none; Inclusion 2—024X005N; Inclusion 3—027X032N

3847—Jung-Old Camp-Clanalpine association

Positions on landscape: Mountains

Composition

Major components:
Jung very gravelly loam, 30 to 50 percent slopes—35 percent
Old Camp very cobbly loam, 30 to 50 percent slopes—30 percent
Clanalpine very gravelly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Rock outcrop—6 percent
Colbar cobbly loam, 30 to 50 percent slopes—5 percent
McVegas stony loam, 15 to 30 percent slopes—4 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, south-facing side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 30 to 50 percent
Elevation: 6,300 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Old Camp Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex, lower side slopes of mountains
Parent material: Residuum derived from basalt and andesite
Slope: 30 to 50 percent
Elevation: 6,300 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 2 to 14 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.9 to 1.2 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Slightly concave, north-facing side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite and andesitic tuff
Slope: 30 to 50 percent
Elevation: 6,300 to 6,700 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 5 percent stones and boulders, 10 percent cobbles, 35 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3 to 6 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Concave, south-facing side slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush, needlegrass, bluegrass

Inclusion 3
Classification: Haplic Nadurargids, clayey-skeletal, montmorillonitic, mesic, shallow
Positions on landscape: Convex, south-facing intermediate side slopes of mountains
Distinctive present vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Old Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Clanalpine Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, too clayey
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

Old Camp Soil
Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock, large stones, 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, large stones
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
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Clanalpine Soil
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—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

Land capability classification: Jung, Old Camp, and Clanalpine soils—VIIs, nonirrigated
Range site: Jung soil—027X032N; Old Camp soil—027X007N; Clanalpine soil—025X061N; Inclusion 1—none; Inclusion 2—027X011N; Inclusion 3—027X028N

3848—Jung-McVegas-Enko association

Positions on landscape: Foothills

Composition

Major components:
Jung very gravelly loam, 15 to 30 percent slopes—50 percent
McVegas very gravelly loam, 8 to 15 percent slopes—20 percent
Enko gravelly fine sandy loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Duric Natrargids, fine-loamy, mixed, mesic, 4 to 15 percent slopes—5 percent
Durixerollic Haplargids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes—5 percent
Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic, 8 to 30 percent slopes—4 percent
Rock outcrop—1 percent

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: North- and east-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the McVegas Soil

Classification: Haplic Nadurargids, clayey-skeletal, montmorillonitic, mesic, shallow
Positions on landscape: South-facing side slopes of foothills
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 8 to 15 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 5 percent cobbles, 50 percent pebbles

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 2 to 10

Depth: 5 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 15 to 30

Depth: 19 to 22 inches
Kind of material: Cemented hardpan

Depth: 22 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 14 to 20 inches
Depth to bedrock: 15 to 23 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow

Available water capacity: 1.4 to 2.6 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.20; 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 Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Toe slopes, inset fan remnants between foothills
Parent material: Mixed alluvium that includes loess and ash
Slope: 2 to 8 percent
Elevation: 6,200 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 6 inches
Texture: Gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 6 to 18 inches
Texture: Loam, sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 18 to 60 inches
Texture: Fine sandy loam, loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6.1 to 8.2 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants bordering foothills
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan aprons bordering foothills
Distinctive present vegetation: Black sagebrush, bottlebrush squirreltail

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Crests and shoulder slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush, needlegrass

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

McVegas Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Enko Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock

Topsoil: Poor—depth to rock, small stones, too clayey
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: Poor—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

McVegas Soil

Range seeding: Poor—too arid, small stones, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, cemented pan, too clayey
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, cemented pan
Local roads and streets: Severe—depth to rock, low strength
Pond reservoir areas: Severe—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Enko Soil

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones
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

Land capability classification: Jung and McVegas soils—VIIs, nonirrigated; Enko soil—IVe, irrigated, and VIs, nonirrigated
Range site: Jung soil—024X030N; McVegas soil—024X002N; Enko soil—028B010N; Inclusion 1—024X002N; Inclusion 2—024X030N; Inclusion 3—028B010N; Inclusion 4—none

3851—Decram-Hapgood association

Positions on landscape: Mountains

Composition

Major components:
Decram extremely gravelly loam, 15 to 30 percent slopes—30 percent
Decram very gravelly loam, 30 to 50 percent slopes—30 percent
Hapgood gravelly loam, 30 to 50 percent slopes—25 percent
Contrasting inclusions:
Aridic Haploxerolls, loamy-skeletal, mixed, frigid—9 percent
Rock outcrop—3 percent
Rubble land—2 percent
Entic Cryumbrepts, loamy-skeletal, mixed—1 percent

Characteristics of the Decram Soil, Moderately Steep

Classification: Typic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests and the upper side slopes of mountains
Parent material: Residuum derived from quartzite, chert, and volcanic rock
Slope: 15 to 30 percent
Elevation: 7,800 to 8,600 feet
Average annual precipitation: About 18 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 40 days
Dominant present vegetation: Low sagebrush, bluegrass, Idaho fescue

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 11 inches
Texture: Extremely gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 11 to 28 inches
Texture: Very gravelly loam, very cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, firm

Depth: 28 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.8 to 2.4 inches
Water-supplying capacity: 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.05; T value—2; 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 Decram Soil, Steep

Classification: Typic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: The lower side slopes of mountains
Parent material: Residuum derived from quartzite, chert, and volcanic rock
Slope: 30 to 50 percent
Elevation: 7,800 to 8,600 feet
Average annual precipitation: About 18 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Low sagebrush, bluegrass, Idaho fescue

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

Depth: 0 to 11 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 11 to 28 inches
Texture: Very gravelly loam, very cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, firm

Depth: 28 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.2 to 3.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; T value—2; 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 Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 7,800 to 8,600 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; 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
Positions on landscape: South-facing, lower side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Positions on landscape: Side slopes of mountains
Distinctive present vegetation: None

Inclusion 4
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Positions on landscape: North-facing snow pockets below areas of Rock outcrop
Distinctive present vegetation: Needlegrass, bluebunch wheatgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Decram Soil, Moderately Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Decram Soil, Steep
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Decram Soil, Moderately Steep
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—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Decram Soil, Steep
Range seeding: Poor—small stones, droughty
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, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Decram soils—VIIs, nonirrigated; Hapgood soil—VIIe, nonirrigated
Range site: Decram soil, moderately steep—024X016N; Decram soil, steep—024X027N; Hapgood soil—024X032N; Inclusion 1—024X029N; Inclusions 2 and 3—none; Inclusion 4—024X028N

3852—Decram-Hapgood-Chad association

Positions on landscape: Mountains

Composition

Major components:
Decram very gravelly loam, 15 to 30 percent slopes, 40 percent
Hapgood gravelly loam, 15 to 30 percent slopes—30 percent
Chad cobbly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Argic Pachic Cryoborolls, loamy-skeletal, mixed, 8 to 30 percent slopes—7 percent
Rock outcrop—4 percent
Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 8 percent slopes, drained—3 percent
Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 8 percent slopes—1 percent

Characteristics of the Decram Soil

Classification: Typic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests and the upper side slopes of mountains
Parent material: Residuum derived from quartzite, chert, and volcanic rock
Slope: 15 to 30 percent
Elevation: 7,000 to 9,000 feet
Average annual precipitation: About 18 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 40 days
Dominant present vegetation: Low sagebrush, bluegrass, Idaho fescue

Typical Profile

Rock fragments on surface: 10 percent stones, 10 percent cobbles, 40 percent pebbles

Depth: 0 to 11 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 11 to 28 inches
Texture: Very gravelly loam, very cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, firm

Depth: 28 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.2 to 3.5 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.10; T value—2; 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 Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: North-facing side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 15 to 30 percent
Elevation: 7,000 to 9,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, bluegrass, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; 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 Chad Soil

Classification: Aridic Argixerolls, fine, mixed, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from chert and shale
Slope: 30 to 50 percent
Elevation: 7,000 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Bluebunch wheatgrass, Thurber needlegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 20 percent cobbles, 10 percent pebbles

Depth: 0 to 17 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 17 to 42 inches
Texture: Gravelly clay, clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 42 inches

Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 4.5 to 7.0 inches
Water-supplying capacity: 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave, north-facing, upper side slopes of mountains
Distinctive present vegetation: Chokecherry, serviceberry

Inclusion 2
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Positions on landscape: Entrenched areas of intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Positions on landscape: Narrow, smooth intermountain drainageways
Distinctive present vegetation: Willow, sedge, tufted hairgrass, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Decram Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Chad Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Decram Soil
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—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil
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: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Chad Soil
Range seeding: Poor—erodes easily
Roadfill: Poor—slope, shrink-swell
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—too clayey, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope, shrink-swell
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Decram soil—VIIs, nonirrigated; Hapgood soil—VIe, nonirrigated; Chad soil—VIIe, nonirrigated
Range site: Decram soil—028B038N; Hapgood soil—028B029N; Chad soil—028B027N; Inclusion 1—028B026N; Inclusion 2—none; Inclusion 3—028B024N; Inclusion 4—025X005N

3861—Duco-Itca-Roca association

Positions on landscape: Mountains

Composition

Major components:
Duco very cobbly loam, 30 to 50 percent slopes—45 percent
Itca very gravelly loam, 30 to 50 percent slopes—25 percent
Roca very cobbly loam, 30 to 50 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—6 percent
Typic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes—5 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—4 percent

Characteristics of the Duco Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, mesic
Positions on landscape: Convex crests and the upper side slopes of mountains
Parent material: Residuum derived from rhyolite and andesite
Slope: 30 to 50 percent
Elevation: 5,800 to 7,500 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Singleleaf pinyon, Utah juniper, antelope bitterbrush, mountain big sagebrush
Site index for common trees: Singleleaf pinyon—35; Utah juniper—35

Typical Profile

Rock fragments on surface: 20 percent cobbles, 20 percent pebbles

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 6 to 15 inches
Texture: Very gravelly clay loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 2.2 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Itca Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: Convex, north- and east-facing side slopes of mountains
Parent material: Residuum derived from extrusive volcanic and pyroclastic rock
Slope: 30 to 50 percent
Elevation: 5,800 to 8,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Idaho fescue, bluegrass, singleleaf pinyon, Utah juniper, mountain big sagebrush
Site index for singleleaf pinyon: 70

Typical Profile

Rock fragments on surface: 5 percent cobbles, 40 percent pebbles

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 17 inches
Texture: Very cobbly clay, very gravelly clay loam
Structure: Prismatic
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 17 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 0.9 to 2.2 inches
Water-supplying capacity: 10 inches
Runoff: Rapid

Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from shale and chert
Slope: 30 to 50 percent
Elevation: 5,800 to 7,500 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Bluegrass, bluebunch wheatgrass, big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter

Depth: 4 to 24 inches
Texture: Very gravelly clay loam, very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 24 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Very slow
Available water capacity: 2.1 to 4.6 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—2; 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

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave snow pockets on north aspects of mountains
Distinctive present vegetation: Idaho fescue, mountain big sagebrush, needlegrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat, cordwood production

Suitability for Wildlife Habitat Elements

Duco Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Itca Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Roca Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Duco Soil
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—large stones, thin layer
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Itca Soil
Range seeding: Poor—droughty, small stones

Roadfill: Poor—depth 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

Roca Soil

Range seeding: Poor—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

Interpretive Groups

Land capability classification: Duco, Itca, and Roca soils—VIIs, nonirrigated
Range site: Duco soil—025X062N; Itca soil—025X061N; Roca soil—024X028N; Inclusion 1—none; Inclusion 2—028B030N; Inclusion 3—028B024N

3863—Duco-Clanalpine-Jung association

Positions on landscape: Mountains

Composition

Major components:
Duco stony loam, 15 to 30 percent slopes—45 percent
Clanalpine very gravelly loam, 30 to 50 percent slopes—25 percent
Jung very gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Rock outcrop—7 percent
Aridic Haploxerolls, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes—5 percent
Old Camp very stony loam, 15 to 30 percent slopes—3 percent

Characteristics of the Duco Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, lower side slopes and south-facing, upper side slopes and crests of mountains
Parent material: Residuum derived from rhyolite and andesite
Slope: 15 to 30 percent
Elevation: 6,500 to 7,500 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Singleleaf pinyon, Utah juniper, antelope bitterbrush, mountain big sagebrush
Site index for common trees: Singleleaf pinyon—35; Utah juniper—35

Typical Profile

Rock fragments on surface: 10 percent stones and boulders, 15 percent cobbles, 20 percent pebbles

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

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

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 2.0 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Clanalpine Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: The upper side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolitic and andesitic tuff
Slope: 30 to 50 percent

Elevation: 6,500 to 7,600 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free season: About 70 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluebunch wheatgrass, Utah juniper
Site index for singleleaf pinyon: 75

Typical Profile

Rock fragments on surface: 10 percent cobbles, 40 percent pebbles

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 39 inches
Texture: Very gravelly clay loam, very cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 39 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 2.6 to 5.0 inches
Water-supplying capacity: 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Convex, lower side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 15 to 30 percent
Elevation: 6,500 to 7,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.4 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 2
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Wyoming big sagebrush, needlegrass

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush, needlegrass, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat, cordwood production

Suitability for Wildlife Habitat Elements

Duco Soil

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Clanalpine Soil

Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Jung Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Duco Soil

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—large stones, thin layer
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Clanalpine Soil

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—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

Jung Soil

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Land capability classification: Duco soil—VIIe, nonirrigated; Clanalpine and Jung soils—VIIs, nonirrigated
Range site: Duco soil—025X062N; Clanalpine soil—025X061N; Jung soil—027X032N; Inclusion 1—none; Inclusion 2—027X008N; Inclusion 3—027X007N

3881—Layview-Packer-Hapgood association

Positions on landscape: Mountains

Composition

Major components:
Layview extremely cobbly loam, 4 to 15 percent slopes—40 percent
Packer gravelly loam, 15 to 30 percent slopes—30 percent
Hapgood gravelly loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Packer very cobbly loam, 8 to 15 percent slopes—7 percent
Argic Lithic Cryoborolls, loamy-skeletal, mixed, 15 to 30 percent slopes—5 percent
Rock outcrop—2 percent
Rubble land—1 percent

Characteristics of the Layview Soil

Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Windswept crests and shoulder slopes of mountains
Parent material: Residuum derived from andesite, rhyolite, and tuff
Slope: 4 to 15 percent
Elevation: 8,000 to 10,000 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush, black sagebrush

Typical Profile

Rock fragments on surface: 35 percent cobbles, 25 percent pebbles
Depth: 0 to 3 inches
Texture: Extremely cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 12 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 12 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 1.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.05; 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 Packer Soil

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex side slopes of mountains
Parent material: Mixed residuum that includes loess and volcanic ash
Slope: 15 to 30 percent
Elevation: 8,000 to 10,000 feet
Average annual precipitation: About 15 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, bluegrass, low sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

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

Depth: 10 to 21 inches
Texture: Extremely cobbly clay loam, extremely cobbly loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 21 to 60 inches
Texture: Extremely cobbly sandy loam, extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6 to 8 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.20; 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 Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Concave side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 15 to 30 percent
Elevation: 8,000 to 10,000 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, needlegrass, snowberry, bluegrass, mountain big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 6.0 to 7.5 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; 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

Contrasting Inclusions

Inclusion 1

Classification: Argic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Convex, windswept crests and shoulder slopes of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush, bluegrass

Inclusion 2

Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Sheltered crests, shoulder slopes, and back slopes of mountains
Distinctive present vegetation: Black sagebrush, Idaho fescue

Inclusion 3

Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Inclusion 4

Positions on landscape: Rock stripes below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Layview Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Packer Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Layview Soil

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

Packer Soil

Range seeding: Fair—erodes easily, 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, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Hapgood Soil

Range seeding: Fair—erodes easily, 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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Layview soil—VIIs, nonirrigated; Packer and Hapgood soils—VIe, nonirrigated
Range site: Layview soil—024X016N; Packer soil—028B037N; Hapgood soil—024X032N; Inclusion 1—024X016N; Inclusion 2—024X042N; Inclusions 3 and 4—none

3891—Labshaft-Hapgood-Rock outcrop association

Positions on landscape: Mountains

Composition

Major components:
Labshaft extremely stony loam, 30 to 50 percent slopes—45 percent
Hapgood gravelly loam, 30 to 50 percent slopes—25 percent
Rock outcrop—15 percent
Contrasting inclusions:
Layview very cobbly loam, 8 to 15 percent slopes—7 percent
Pachic Cryoborolls, loamy-skeletal, mixed, 15 to 30 percent slopes—5 percent
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 4 to 15 percent slopes—3 percent

Characteristics of the Labshaft Soil

Classification: Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: The upper side slopes of mountains
Parent material: Residuum derived from siliceous rock
Slope: 30 to 50 percent
Elevation: 7,800 to 8,500 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Curlleaf mountainmahogany, mountain big sagebrush, needlegrass

Typical Profile

Rock fragments on surface: 30 percent stones and boulders, 30 percent cobbles, 10 percent pebbles

Depth: 0 to 8 inches
Texture: Extremely stony loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 15 inches
Texture: Extremely gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 2.0 inches
Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; 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
Positions on landscape: The intermediate and lower side slopes of mountains
Parent material: Colluvium that includes loess and volcanic ash
Slope: 30 to 50 percent
Elevation: 7,800 to 8,500 feet
Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 50 days
Dominant present vegetation: Idaho fescue, mountain brome, mountain big sagebrush, serviceberry

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 17 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 17 to 40 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 40 to 60 inches
Texture: Very cobbly loam, very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 5.8 to 7.4 inches
Water-supplying capacity: 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight

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

Characteristics of the Rock Outcrop

Positions on landscape: Scattered peaks and cliffs
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, bluegrass

Inclusion 2
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Positions on landscape: The lower, north-facing side slopes of mountains
Distinctive present vegetation: Chokecherry, snowberry, currant

Inclusion 3
Classification: Cumulic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Aspen, willow, rose, iris, sedge, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Labshaft Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Hapgood Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Labshaft Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Hapgood Soil
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—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Labshaft soil—VIIs, nonirrigated; Hapgood soil—VIIe, nonirrigated; Rock outcrop—VIIIs, nonirrigated
Range site: Labshaft soil—028B043N; Hapgood soil—024X032N; Rock outcrop—none; Inclusion 1—024X016N; Inclusion 2—024X032N; Inclusion 3—none

3950—Hooplite-Jung-Izod association

Positions on landscape: Mountains

Composition

Major components:
Hooplite very gravelly loam, 30 to 50 percent slopes—50 percent
Jung very gravelly loam, 4 to 15 percent slopes—20 percent
Izod very cobbly loam, 30 to 75 percent slopes—15 percent
Contrasting inclusions:
Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic, 30 to 50 percent slopes—5 percent
Xerollic Haplargids, fine, montmorillonitic, mesic, 15 to 30 percent slopes—4 percent
Lithic Torriorthents, clayey-skeletal, montmorillonitic (calcareous), mesic, 30 to 75 percent slopes—3 percent
Rock outcrop—3 percent

Characteristics of the Hooplite Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of mountains
Parent material: Residuum derived from rhyolitic rock
Slope: 30 to 50 percent
Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days

Dominant present vegetation: Bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles
Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Mildly alkaline

Depth: 4 to 8 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 8 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.5 to 1.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Jung Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Crests and convex side slopes of mountains
Parent material: Residuum derived from volcanic and metavolcanic rock
Slope: 4 to 15 percent
Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Indian ricegrass, black sagebrush, small rabbitbrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 8 inches
Texture: Very gravelly loam

Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 19 inches
Texture: Very cobbly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Depth: 19 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 1.9 to 2.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Positions on landscape: Convex, east-facing, eroded side slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope: 30 to 75 percent
Elevation: 6,200 to 6,600 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

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

Depth: 4 to 10 inches
Texture: Very gravelly loam, extremely gravelly loam
Structure: Massive

Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 10 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.7 to 2.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—severe; 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
Positions on landscape: Slightly convex, north-facing side slopes of mountains
Distinctive present vegetation: Singleleaf pinyon, black sagebrush, bluegrass

Inclusion 2
Classification: Xerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Toe slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Lithic Torriorthents, clayey-skeletal, montmorillonitic (calcareous), mesic
Positions on landscape: Eroded, lower side slopes of mountains
Distinctive present vegetation: Spiny hopsage, black sagebrush

Inclusion 4
Positions on landscape: Scattered peaks
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hooplite Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Jung Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Izod Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Hooplite Soil
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

Jung Soil
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, too clayey
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

Izod Soil
Range seeding: Poor—droughty, large 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

Interpretive Groups

Land capability classification: Hooplite, Jung, and Izod soils—VIIs, nonirrigated
Range site: Hooplite, Jung, and Izod soils—024X030N; Inclusion 1—025X063N; Inclusion 2—024X005N; Inclusion 3—025X025N; Inclusion 4—none

3951—Hooplite-Old Camp-Puett association

Positions on landscape: Foothills

Composition

Major components:
Hooplite very gravelly fine sandy loam, 15 to 50 percent slopes, extremely stony—45 percent
Old Camp very gravelly loam, 15 to 30 percent slopes—25 percent
Puett fine sandy loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Jung very gravelly loam, 8 to 15 percent slopes—5 percent
Xerollic Haplargids, fine-loamy, mixed, mesic, 4 to 8 percent slopes—3 percent
Puett gravelly loam, 4 to 15 percent slopes—2 percent

Characteristics of the Hooplite Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Convex crests and shoulder slopes of foothills
Parent material: Residuum derived from rhyolitic rock
Slope: 15 to 50 percent
Elevation: 6,300 to 6,700 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 20 percent stones and boulders, 10 percent cobbles, 45 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Mildly alkaline

Depth: 4 to 8 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 8 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.5 to 1.5 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.10; 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 Old Camp Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Concave, lower side slopes of foothills
Parent material: Residuum that is derived from basalt and andesite and includes volcanic ash
Slope: 15 to 30 percent
Elevation: 6,300 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Thurber needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 20 percent pebbles

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

Depth: 2 to 14 inches
Texture: Very gravelly loam, very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 14 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.9 to 2.0 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: D

Erosion factors (upper layer): K value—0.17; T value—1; 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 Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Eroded scarps and side slopes of foothills
Parent material: Residuum derived from tuff and sandstone
Slope: 30 to 50 percent
Elevation: 6,300 to 6,700 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent pebbles

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Coarse sandy loam, sandy loam
Structure: Massive
Consistence: Soft, friable
Reaction: Moderately alkaline

Depth: 13 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1.3 to 3.0 inches
Water-supplying capacity: 7 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—severe; 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, clayey-skeletal, montmorillonitic, mesic
Positions on landscape: Crests of foothills
Distinctive present vegetation: Black sagebrush, bluegrass

Inclusion 2
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: Fan piedmont remnants and toe slopes of foothills
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Eroded, lowest crests of foothills
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush, rabbitbrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hooplite Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Old Camp Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Puett Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Hooplite Soil
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

Old Camp Soil
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, 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

Puett Soil

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—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Hooplite and Old Camp soils—VIIs, nonirrigated; Puett soil—VIIe, nonirrigated
Range site: Hooplite soil—027X032N; Old Camp soil—024X005N; Puett soil—025X025N; Inclusion 1—027X032N; Inclusion 2—027X008N; Inclusion 3—025X025N

3952—Hooplite-Stingdorn association

Positions on landscape: Foothills

Composition

Major components:
Hooplite very gravelly fine sandy loam, 4 to 15 percent slopes—55 percent
Stingdorn gravelly loam, 2 to 8 percent slopes—30 percent
Contrasting inclusions:
Typic Haplargids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—7 percent
Rock outcrop—3 percent
Lithic Camborthids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—3 percent
Rubble land—2 percent

Characteristics of the Hooplite Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Side slopes of foothills
Parent material: Residuum derived from rhyolitic rock
Slope: 4 to 15 percent
Elevation: 5,900 to 6,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, black sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 45 percent pebbles

Depth: 0 to 4 inches
Texture: Very gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 4 to 8 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.5 to 1.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; 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 Stingdorn Soil

Classification: Typic Durargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Crests of foothills
Parent material: Residuum derived from rhyolite, tuff, and andesite
Slope: 2 to 8 percent
Elevation: 5,900 to 6,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F

Frost-free season: About 110 days
Dominant present vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 30 percent pebbles

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 7 to 15 inches
Texture: Very cobbly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 5 to 15

Depth: 15 to 20 inches
Kind of material: Indurated hardpan

Depth: 20 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to the hardpan: 8 to 20 inches
Depth to bedrock: 8 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 0.8 to 2.2 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.17; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The lower side slopes of foothills
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 2
Positions on landscape: Rimrock
Distinctive present vegetation: None

Inclusion 3
Classification: Lithic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Slightly convex, upper, north-facing side slopes of foothills
Distinctive present vegetation: Indian ricegrass, needleandthread, black sagebrush

Inclusion 4
Positions on landscape: Rock stripes below areas of Rock outcrop
Distinctive present vegetation: None

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Hooplite Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Stingdorn Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Hooplite Soil
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
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

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

Interpretive Groups

Land capability classification: Hooplite and Stingdorn soils—VIIs, nonirrigated
Range site: Hooplite soil—028B016N; Stingdorn soil—

024X002N; Inclusion 1—024X002N; Inclusion 2—none; Inclusion 3—028B011N; Inclusion 4—none

3960—Pineval gravelly loam, 2 to 4 percent slopes

Positions on landscape: Fan piedmonts

Composition

Major component:
Pineval gravelly loam, 2 to 4 percent slopes—85 percent
Contrasting inclusions:
Xerollic Natrargids, fine-loamy, mixed, mesic, 0 to 4 percent slopes—8 percent
Typic Haplargids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—5 percent
Xerollic Camborthids, loamy-skeletal, mixed, mesic, occasionally flooded, 0 to 4 percent slopes—2 percent

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan piedmonts
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,900 to 6,600 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent cobbles, 60 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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 Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower margins of fan piedmonts
Distinctive present vegetation: Wyoming big sagebrush, black greasewood

Inclusion 2
Classification: Typic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan piedmont remnants
Distinctive present vegetation: Shadscale, bud sagebrush

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Black greasewood, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Pineval soil—IVe, irrigated; VIs, nonirrigated
Range site: Pineval soil—028B010N; Inclusion 1—024X022N; Inclusion 2—024X002N; Inclusion 3—024X022N

3961—Pineval-Orovada-Beoska association

Positions on landscape: Fan piedmonts

Composition

Major components:
Pineval very cobbly loam, 2 to 8 percent slopes—35 percent
Orovada cobbly fine sandy loam, 2 to 8 percent slopes—30 percent
Beoska very fine sandy loam, 2 to 8 percent slopes—25 percent
Contrasting inclusions:
Typic Camborthids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes—4 percent
Xerollic Haplargids, fine-loamy, mixed, mesic, 15 to 30 percent slopes—4 percent
Settlemeyer fine sandy loam, drained, 0 to 4 percent slopes—2 percent

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: The upper part of fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,200 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 30 percent cobbles, 10 percent pebbles

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.15; 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: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,200 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Rock fragments on surface: 15 percent cobbles, 10 percent pebbles

Depth: 0 to 8 inches
Texture: Cobbly fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 26 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 26 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 9 to 11 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Beoska Soil

Classification: Duric Natrargids, fine-loamy, mixed, mesic
Positions on landscape: The lower part of fan piedmont remnants
Parent material: Loess over loamy and gravelly mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,200 to 5,900 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail

Typical Profile

Depth: 0 to 13 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 13 to 24 inches
Texture: Silty clay loam, silt loam
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Depth: 24 to 55 inches
Texture: Gravelly very fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Depth: 55 to 60 inches
Texture: Very gravelly fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 16 to 30 millimhos per centimeter
Sodicity (SAR): 46 to 60

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 7.8 to 9.7 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Typic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: South-facing side slopes of fan piedmont remnants

Distinctive present vegetation: Shadscale, Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Haplargids, fine-loamy, mixed, mesic
Positions on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, pine bluegrass

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Inset fans dissecting fan piedmont remnants near the front of mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Beoska Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Suitability and Limitations for Selected Uses

Pineval Soil
Range seeding: Poor—large 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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Orovada Soil
Range seeding: Fair—too arid, large stones
Roadfill: Good
Topsoil: Poor—small stones
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

Beoska Soil
Range seeding: Poor—too arid, excess salt, excess sodium
Roadfill: Good
Topsoil: Poor—small stones, excess salt, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—excess salt, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Pineval and Orovada soils—VIIs, nonirrigated; Beoska soil—IIIe, irrigated, and VIIs, nonirrigated
Range site: Pineval soil—028B010N; Orovada soil—024X005N; Beoska soil—024X002N; Inclusion 1—024X026N; Inclusion 2—024X005N; Inclusion 3—025X003N

3964—Pineval-Orovada association

Positions on landscape: Fan piedmonts

Composition

Major components:
Pineval gravelly fine sandy loam, 2 to 8 percent slopes—65 percent
Orovada fine sandy loam, 2 to 4 percent slopes—20 percent
Contrasting inclusions:
Xerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 4 percent slopes—8 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—5 percent
Aquic Duric Haploxerolls, coarse-loamy, mixed, mesic, 0 to 2 percent slopes—2 percent

Characteristics of the Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan piedmont remnants
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F

Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 3.0 to 4.4 inches
Water-supplying capacity: 8 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.24; T value—5; wind erodibility group—4
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
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 65 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan drainageways
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic

Positions on landscape: Fan aprons
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Aquic Duric Haploxerolls, coarse-loamy, mixed, mesic
Positions on landscape: Adjacent to active channels on inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Pineval Soil
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: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Orovada Soil
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

Interpretive Groups

Land capability classification: Pineval soil—IVe, irrigated, and VIs, nonirrigated; Orovada soil—IIe, irrigated, and VIc, nonirrigated
Range site: Pineval and Orovada soils—028B010N; Inclusions 1 and 2—028B010N; Inclusion 3—028B003N

3990—Settlemeyer fine sandy loam, drained, 0 to 2 percent slopes

Positions on landscape: Flood plains

Composition

Major component:
Settlemeyer fine sandy loam, drained, 0 to 2 percent slopes—85 percent
Contrasting inclusions:
Xeric Torriorthents, fine-loamy, mixed, mesic, 0 to 4 percent slopes—7 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—7 percent
Settlemeyer fine sandy loam, frequently flooded, 0 to 2 percent slopes—1 percent

Characteristics of the Settlemeyer Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Flood plains
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,100 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Basin wildrye, basin big sagebrush

Typical Profile

Depth: 0 to 16 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 16 to 36 inches
Texture: Silty clay loam, clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 36 to 60 inches
Texture: Stratified very gravelly loamy sand to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 9 to 11 inches

Water-supplying capacity: 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, fine-loamy, mixed, mesic
Positions on landscape: Adjacent to stream channel banks
Distinctive present vegetation: Basin big sagebrush, Wyoming big sagebrush, black greasewood

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Fanlettes extending from adjacent fan piedmonts
Distinctive present vegetation: Wyoming big sagebrush

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Concave to smooth, long and narrow flood plains
Distinctive present vegetation: Sedge, rush, bluegrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Range seeding: Good
Roadfill: Good
Topsoil: Fair—too clayey, small stones, area reclaim
Daily cover for landfill: Fair—too clayey, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
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

Interpretive Groups

Land capability classification: Settlemeyer soil—IIIc, irrigated, and VIc, nonirrigated
Range site: Settlemeyer soil—028B003N; Inclusion 1—024X006N; Inclusion 2—024X005N; Inclusion 3—025X001N

3991—Settlemeyer-Pineval association

Positions on landscape: Inset fans, fan skirts

Composition

Major components:
Settlemeyer loam, drained, 2 to 4 percent slopes—70 percent
Pineval gravelly loam, 2 to 8 percent slopes—15 percent
Contrasting inclusions:
Xerollic Camborthids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—8 percent
Xerollic Camborthids, coarse-loamy, mixed, mesic, 2 to 8 percent slopes—5 percent
Typic Camborthids, fine-silty, mixed, mesic, 2 to 8 percent slopes—2 percent

Characteristics of the Settlemeyer Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,400 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Basin wildrye, basin big sagebrush

Typical Profile

Depth: 0 to 16 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 16 to 36 inches
Texture: Silty clay loam, clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 36 to 60 inches
Texture: Stratified very gravelly loamy sand to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: 9 to 11 inches
Water-supplying capacity: 11 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.37; 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 Pineval Soil

Classification: Durixerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fan skirts adjacent to inset fans
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,400 to 6,500 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 40 percent pebbles

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 5 to 11 inches
Texture: Very gravelly loam, very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 60 inches
Texture: Extremely gravelly sandy loam, extremely gravelly loamy sand
Structure: Single grain
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: 3.2 to 4.4 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.28; 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, fine-loamy, mixed, mesic
Positions on landscape: Inset fan remnants
Distinctive present vegetation: Black greasewood, basin big sagebrush

Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Gullied parts of inset fan remnants
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush

Inclusion 3
Classification: Typic Camborthids, fine-silty, mixed, mesic
Positions on landscape: The lower parts of inset fan remnants
Distinctive present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Settlemeyer Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Pineval Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Settlemeyer Soil
Range seeding: Good
Roadfill: Good

Topsoil: Fair—too clayey, area reclaim
Daily cover for landfill: Fair—too clayey, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
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

Pineval Soil

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, flooding
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Land capability classification: Settlemeyer soil—IIIc, irrigated, and VIc, nonirrigated; Pineval soil—IVe, irrigated, and VIs, nonirrigated
Range site: Settlemeyer soil—028B003N; Pineval soil—028B010N; Inclusion 1—024X022N; Inclusion 2—028B052N; Inclusion 3—028B004N

3992—Settlemeyer complex

Positions on landscape: Intermountain drainageways

Composition

Major components:
Settlemeyer loam, drained, 2 to 4 percent slopes—65 percent
Settlemeyer loam, frequently flooded, 0 to 2 percent slopes—20 percent
Contrasting inclusions:
Xerollic Haplargids, loamy-skeletal, mixed, mesic, 2 to 8 percent slopes—9 percent
Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 0 to 4 percent slopes—6 percent

Characteristics of the Settlemeyer Soil, Drained

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Concave, entrenched inset fans and flood plains of intermountain drainageways
Parent material: Mixed alluvium
Slope: 2 to 4 percent
Elevation: 5,200 to 6,300 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Thurber needlegrass, bluebunch wheatgrass, Wyoming big sagebrush

Typical Profile

Depth: 0 to 16 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 16 to 40 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 40 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Soil and Water Features

Depth to a seasonal high water table: 36 to 48 inches
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: 9.4 to 11.0 inches
Water-supplying capacity: 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (upper layer): K value—0.37; 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: High

Characteristics of the Settlemeyer Soil, Frequently Flooded

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed, mesic
Positions on landscape: Undissected parts of flood plains
Parent material: Mixed alluvium
Slope: 0 to 2 percent
Elevation: 5,200 to 6,300 feet
Average annual precipitation: About 9 inches

Average annual air temperature: About 45 degrees F
Frost-free season: About 100 days
Dominant present vegetation: Basin wildrye, western wheatgrass, basin big sagebrush

Typical Profile

Depth: 0 to 15 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 15 to 35 inches
Texture: Silty clay loam, clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 10

Depth: 35 to 60 inches
Texture: Stratified very gravelly loamy sand to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 10

Soil and Water Features

Depth to a seasonal high water table: 12 to 36 inches
Frequency of flooding: Frequent for brief periods in December through March
Permeability: Moderately slow
Available water capacity: 8 to 10 inches
Water-supplying capacity: 12 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (upper layer): K value—0.43; 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

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Positions on landscape: Fanlettes extending from the front of adjacent mountains, along the outer margin of drainageways
Distinctive present vegetation: Wyoming big sagebrush, bluegrass

Inclusion 2
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Positions on landscape: Adjacent to stream channels
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Settlemeyer Soil, Drained
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Settlemeyer Soil, Frequently Flooded
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Settlemeyer Soil, Drained
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Moderate—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Settlemeyer Soil, Frequently Flooded
Range seeding: Fair—excess salt
Roadfill: Fair—wetness
Topsoil: Fair—too clayey, small stones, area reclaim
Daily cover for landfill: Poor—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—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Land capability classification: Settlemeyer soil, drained—IIw, irrigated, and VIw, nonirrigated; Settlemeyer soil, frequently flooded—IIIw, irrigated, and Vw, nonirrigated
Range site: Settlemeyer soil, drained—025X003N; Settlemeyer soil, frequently flooded—025X001N; Inclusion 1—024X005N; Inclusion 2—024X006N

4041—Hymas-Xine-Attella association

Positions on landscape: Mountains

Composition

Major components:
Hymas gravelly loam, 30 to 50 percent slopes—35 percent
Xine gravelly loam, 30 to 50 percent slopes—30 percent
Attella very gravelly loam, 30 to 50 percent slopes—20 percent
Contrasting inclusions:
Aridic Calcixerolls, loamy-skeletal, carbonatic, frigid, 30 to 50 percent slopes—7 percent
Aridic Calcixerolls, loamy-skeletal, carbonatic, frigid, 15 to 50 percent slopes—3 percent
Rock outcrop—3 percent
Welch clay loam, drained, 0 to 4 percent slopes—2 percent

Characteristics of the Hymas Soil

Classification: Lithic Haploxerolls, loamy-skeletal, carbonatic, frigid
Positions on landscape: Convex, east- and west-facing side slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope: 30 to 50 percent
Elevation: 6,300 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 45 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Singleleaf pinyon, bluebunch wheatgrass, mountain big sagebrush, Utah juniper
Site index for common trees: Singleleaf pinyon—40; Utah juniper—40

Typical Profile

Rock fragments on surface: 5 percent cobbles, 20 percent pebbles

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, friable
Reaction: Moderately alkaline

Depth: 9 to 15 inches
Texture: Very cobbly loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 15 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.0 to 2.8 inches
Water-supplying capacity: 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—1; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Xine Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Positions on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum derived from limestone
Slope: 30 to 50 percent
Elevation: 6,300 to 7,800 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, bluegrass, snowberry

Typical Profile

Rock fragments on surface: 15 percent pebbles

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 10 to 33 inches
Texture: Very cobbly loam, very cobbly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 33 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 2 to 4 inches

Water-supplying capacity: 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (upper layer): K value—0.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—severe; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Attella Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), frigid
Positions on landscape: Slightly rilled, south-facing side slopes and crests of mountains
Parent material: Residuum derived from dolostone
Slope: 30 to 50 percent
Elevation: 6,300 to 7,800 feet
Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 90 days
Dominant present vegetation: Singleleaf pinyon, mountain big sagebrush, bluegrass
Site index for common trees: Singleleaf pinyon—40; Utah juniper—40

Typical Profile

Rock fragments on surface: 5 percent flagstones, 80 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 7 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 7 inches
Kind of material: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 10 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 0.7 to 1.5 inches
Water-supplying capacity: 9 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—severe; 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, carbonatic, frigid
Positions on landscape: The lower, south-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 2
Classification: Aridic Calcixerolls, loamy-skeletal, carbonatic, frigid
Positions on landscape: Convex, rounded, highest, east- and west-facing side slopes of mountains
Distinctive present vegetation: Black sagebrush, bluebunch wheatgrass

Inclusion 3
Positions on landscape: Scattered peaks and bedding planes
Distinctive present vegetation: None

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Intermountain drainageways
Distinctive present vegetation: Basin wildrye, basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Cordwood production

Suitability for Wildlife Habitat Elements

Hymas Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Xine Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Attella Soil
Wild herbaceous plants (nonirrigated): Poor
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Hymas Soil
Range seeding: Poor—erodes easily, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, large stones, slope

Daily cover for landfill: Poor—depth to rock, large 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

Xine Soil

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

Attella Soil

Range seeding: Poor—droughty, depth to rock, 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

Interpretive Groups

Land capability classification: Hymas and Xine soils—VIIe, nonirrigated; Attella soil—VIIs, nonirrigated
Range site: Hymas and Attella soils—025X062N; Xine soil—024X021N; Inclusion 1—024X029N; Inclusion 2—024X031N; Inclusion 3—none; Inclusion 4—028B024N

4070—Genaw-Wieland-Grina association

Positions on landscape: Hills, fan piedmonts

Composition

Major components:
Genaw gravelly loam, 15 to 30 percent slopes—35 percent
Wieland gravelly loam, 4 to 15 percent slopes—30 percent
Grina very gravelly loam, eroded, 15 to 30 percent slopes—20 percent

Contrasting inclusions:
Durixerollic Camborthids, fine-loamy, mixed, mesic, 2 to 8 percent slopes—8 percent
Typic Natrargids, fine, montmorillonitic, mesic, 8 to 15 percent slopes—4 percent
Durixerollic Camborthids, fine-loamy, mixed, mesic, 2 to 4 percent slopes—3 percent

Characteristics of the Genaw Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Positions on landscape: Convex side slopes of hills
Parent material: Loess mantle over residuum derived from tuffaceous sediment
Slope: 15 to 30 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 11 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 16 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 16 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate

Available water capacity: 1.9 to 3.0 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Positions on landscape: Summits of fan piedmont remnants over low hills
Parent material: Mixed alluvium that includes loess and volcanic ash
Slope: 4 to 15 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, needlegrass, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 20 percent pebbles

Depth: 0 to 8 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 8 to 20 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Depth: 20 to 60 inches
Texture: Gravelly loam, gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Slow
Available water capacity: 6 to 9 inches
Water-supplying capacity: 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (upper layer): K value—0.32; 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 Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: Eroded hills along the edge of fan piedmont remnants
Parent material: Residuum derived from sedimentary rock
Slope: 15 to 30 percent
Elevation: 5,700 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Utah juniper, black sagebrush
Site index for Utah juniper: 18

Typical Profile

Rock fragments on surface: 55 percent pebbles

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 3 to 14 inches
Texture: Silt loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 14 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately slow
Available water capacity: 1.7 to 2.8 inches
Water-supplying capacity: 6 inches
Runoff: Rapid
Hydrologic group: D

Erosion factors (upper layer): K value—0.15; 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: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Typic Natrargids, fine, montmorillonitic, mesic
Positions on landscape: Concave side slopes of hills
Distinctive present vegetation: Small rabbitbrush, shadscale, Wyoming big sagebrush

Inclusion 3
Classification: Durixerollic Camborthids, fine-loamy, mixed, mesic
Positions on landscape: The lower inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Genaw Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Wieland Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Grina Soil
Wild herbaceous plants (nonirrigated): Fair
Coniferous plants (nonirrigated): Poor
Shrubs (nonirrigated): Fair

Suitability and Limitations for Selected Uses

Genaw Soil
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, 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

Wieland Soil
Range seeding: Poor—rooting depth
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
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Grina Soil
Range seeding: Poor—droughty, small 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, 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

Interpretive Groups

Land capability classification: Genaw soil—VIIe, nonirrigated; Wieland soil—VIs, nonirrigated; Grina soil—VIIs, nonirrigated
Range site: Genaw and Wieland soils—024X005N; Grina soil—025X059N; Inclusion 1—025X003N; Inclusion 2—024X045N; Inclusion 3—024X006N

4072—Genaw-Orovada-Puett association

Positions on landscape: Rolling hills

Composition

Major components:
Genaw very fine sandy loam, 4 to 15 percent slopes—40 percent
Orovada fine sandy loam, 2 to 8 percent slopes—30 percent
Puett fine sandy loam, 15 to 30 percent slopes—15 percent
Contrasting inclusions:
Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow, 15 to 50 percent slopes—6 percent
Xerollic Haplargids, loamy-skeletal, mixed, mesic, shallow, 15 to 50 percent slopes—5 percent
Xeric Torriorthents, sandy, mixed, mesic, 4 to 15 percent slopes—4 percent

Characteristics of the Genaw Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits and shoulder slopes of hills
Parent material: Loess mantle over residuum derived from tuffaceous sediment
Slope: 4 to 15 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, Wyoming big sagebrush

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 6 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 11 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 16 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 16 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 8 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.49; 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 Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Loess mantle that is high in content of volcanic ash over mixed alluvium
Slope: 2 to 8 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Typical Profile

Depth: 0 to 8 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 8 to 20 inches
Texture: Fine sandy loam, loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 20 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 8 millimhos per centimeter
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: Rare
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 4 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (upper layer): K value—0.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—severe

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
Positions on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff and sandstone
Slope: 15 to 30 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Bluegrass, Wyoming big sagebrush, Indian ricegrass, black sagebrush

Typical Profile

Rock fragments on surface: 5 percent pebbles

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

Depth: 4 to 15 inches
Texture: Coarse sandy loam, sandy loam
Structure: Massive
Consistence: Soft, friable
Reaction: Moderately alkaline

Depth: 15 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 1.3 to 3.0 inches
Water-supplying capacity: 6 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (upper layer): K value—0.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—severe; 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
Positions on landscape: Convex, eroded side slopes of hills
Distinctive present vegetation: Wyoming big sagebrush, purple sage, Indian ricegrass

Inclusion 2
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic, shallow
Positions on landscape: Concave side slopes of hills
Distinctive present vegetation: Black sagebrush, rabbitbrush, bluegrass

Inclusion 3
Classification: Xeric Torriorthents, sandy, mixed, mesic
Positions on landscape: Sand dunes along the lower margin of hills
Distinctive present vegetation: Spiny hopsage, Wyoming big sagebrush, needleandthread

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Genaw Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Orovada Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Puett Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Genaw Soil
Range seeding: Poor—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: Moderate—slope, depth to rock, 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

Orovada Soil
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

Puett Soil

Range seeding: Poor—droughty, erodes easily
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

Land capability classification: Genaw soil—VIIs, nonirrigated; Orovada soil—IIIe, irrigated, and VIc, nonirrigated: Puett soil—VIIe, nonirrigated
Range site: Genaw and Orovada soils—028B010N; Puett soil—025X025N; Inclusion 1—024X045N; Inclusion 2—024X030N; Inclusion 3—024X017N

4073—Genaw-Broyles-Perlor association

Positions on landscape: Low, rolling hills

Composition

Major components:
Genaw gravelly loam, 4 to 8 percent slopes—30 percent
Broyles gravelly very fine sandy loam, 4 to 8 percent slopes—30 percent
Perlor fine sandy loam, 8 to 15 percent slopes—25 percent
Contrasting inclusions:
Xerollic Haplargids, loamy, mixed, mesic, shallow, 0 to 2 percent slopes—7 percent
Xerollic Camborthids, loamy, mixed, mesic, shallow, 15 to 30 percent slopes—4 percent
Duric Camborthids, coarse-loamy, mixed, mesic, 2 to 4 percent slopes—4 percent

Characteristics of the Genaw Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits and side slopes of hills
Parent material: Loess mantle over residuum derived from tuffaceous sediment
Slope: 4 to 8 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 110 days
Dominant present vegetation: Indian ricegrass, bottlebrush squirreltail, Wyoming big sagebrush, spiny hopsage

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 6 to 11 inches
Texture: Gravelly loam, gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 2

Depth: 11 to 16 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 16 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.9 to 2.4 inches
Water-supplying capacity: 7 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.24; 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 Broyles Soil

Classification: Duric Camborthids, coarse-loamy, mixed, mesic
Positions on landscape: Inset fans
Parent material: Thin loess mantle over mixed alluvium
Slope: 4 to 8 percent

Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 7 inches
Average annual air temperature: About 49 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Shadscale, bud sagebrush, Indian ricegrass, bluegrass

Typical Profile

Rock fragments on surface: 25 percent pebbles

Depth: 0 to 13 inches
Texture: Gravelly very fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 millimhos per centimeter
Sodicity (SAR): 5 to 13

Depth: 13 to 60 inches
Texture: Stratified loam to gravelly loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 millimhos per centimeter
Sodicity (SAR): 25 to 46

Soil and Water Features

Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderately rapid
Available water capacity: 6.2 to 7.4 inches
Water-supplying capacity: 7 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—severe
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Perlor Soil

Classification: Typic Torriorthents, loamy, mixed (calcareous), mesic, shallow
Positions on landscape: South-facing side slopes of hills
Parent material: Loess cap over residuum derived from tuffaceous sediment
Slope: 8 to 15 percent
Elevation: 5,600 to 6,000 feet
Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free season: About 120 days
Dominant present vegetation: Indian ricegrass, bluegrass, shadscale, bud sagebrush

Typical Profile

Rock fragments on surface: 10 percent pebbles

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 4

Depth: 7 to 14 inches
Texture: Loam, sandy loam, gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 millimhos per centimeter
Sodicity (SAR): 0 to 5

Depth: 14 inches
Kind of material: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Frequency of flooding: None
Permeability: Moderate
Available water capacity: 1.6 to 2.3 inches
Water-supplying capacity: 6 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (upper layer): K value—0.32; T value—1; 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: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Positions on landscape: Summits of hills
Distinctive present vegetation: Wyoming big sagebrush, spiny hopsage

Inclusion 2
Classification: Xerollic Camborthids, loamy, mixed, mesic, shallow
Positions on landscape: The lower, south-facing side slopes of hills
Distinctive present vegetation: Wyoming big sagebrush, galleta, Indian ricegrass

Inclusion 3
Classification: Duric Camborthids, coarse-loamy, mixed, mesic

Positions on landscape: The lower parts of inset fans
Distinctive present vegetation: Black greasewood, shadscale, bud sagebrush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Genaw Soil
Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair

Broyles Soil
Wild herbaceous plants (nonirrigated): Very poor
Shrubs (nonirrigated): Very poor

Perlor Soil
Wild herbaceous plants (nonirrigated): Poor
Shrubs (nonirrigated): Poor

Suitability and Limitations for Selected Uses

Genaw Soil
Range seeding: Poor—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: Moderate—depth to rock, frost action
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Broyles Soil
Range seeding: Poor—too arid, excess salt
Roadfill: Good
Topsoil: Poor—small stones, excess salt
Daily cover for landfill: Fair—too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—piping, excess salt
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Perlor Soil
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
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

Land capability classification: Genaw and Perlor soils—VIIs, nonirrigated; Broyles soil—IIIe, irrigated, and VIIc, nonirrigated
Range site: Genaw soil—024X020N; Broyles and Perlor soils—024X002N; Inclusion 1—024X020N; Inclusion 2—024X045N; Inclusion 3—024X003N

4140—Welch loam, drained, 2 to 8 percent slopes

Positions on landscape: Intermountain drainageways

Composition

Major component:
Welch loam, drained, 2 to 8 percent slopes—90 percent
Contrasting inclusions:
Cumulic Haploxerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes—6 percent
Welch loam, 2 to 8 percent slopes—4 percent

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Inset fans in narrow mountain drainageways
Parent material: Mixed alluvium
Slope: 2 to 8 percent
Elevation: 6,500 to 8,200 feet
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free season: About 80 days
Dominant present vegetation: Basin wildrye, basin big sagebrush, wheatgrass, bluegrass

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 60 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to a seasonal high water table: 48 to 72 inches
Frequency of flooding: Rare
Permeability: Moderately slow

Available water capacity: 9.5 to 12.0 inches
Water-supplying capacity: 14 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (upper layer): K value—0.32; 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: Cumulic Haploxerolls, fine-loamy, mixed, frigid
Positions on landscape: Concave side slopes adjacent to channels
Distinctive present vegetation: Aspen, willow, rose, sedge, basin big sagebrush, basin wildrye

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Positions on landscape: Adjacent to seeps, springs, and unchanneled streambeds
Distinctive present vegetation: Iris, sedge, bluegrass, alpine timothy, hairgrass, rush

Major Current Uses

Livestock grazing, wildlife habitat

Suitability for Wildlife Habitat Elements

Wild herbaceous plants (nonirrigated): Fair
Shrubs (nonirrigated): Fair
Wetland plants: Poor
Shallow water areas: Very poor

Suitability and Limitations for Selected Uses

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

Interpretive Groups

Land capability classification: Welch soil—IIIw, irrigated; VIw, nonirrigated
Range site: Welch soil—025X003N; Inclusion 1—028B025N; Inclusion 2—025X005N

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, seed, forage, fiber, and oilseed crops. It may be cultivated land, pasture, woodland, or other land, but it is not urban or built-up land or water areas. It either is used for food or fiber crops or is available for those crops. The soil qualities, growing season, and moisture supply are those needed for a well managed soil to produce a sustained high yield of crops in an economic manner. Prime farmland produces the highest yields with minimal expenditure of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 to 4 percent. More detailed information about the criteria for prime farmland is available at the local office of the Soil 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 map units in the survey area that are listed at the end of this section meet the requirements for prime farmland in areas where an adequate and dependable supply of irrigation water is available. If only part of a unit meets the requirements for prime farmland, that part is indicated in parentheses after the map unit name. On some of the soils, measures should be used to overcome a hazard or limitation, such as salinity, flooding, wetness, or droughtiness. The location of each map unit is shown on the detailed soil maps at the back of this publication. 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.

160 Batan association (Batan soil, slightly saline)
162 Batan-Kelk association (Kelk soil, occasionally flooded)
175 Beoska-Whirlo-Misad association (Whirlo soil)
180 Needle Peak-Batan-Yobe association (Needle Peak soil)
231 Broyles very fine sandy loam, 2 to 4 percent slopes
235 Broyles-Creemon association
237 Broyles-Beoska-Orovada association (Broyles soil)
249 Bubus association (Bubus soil, slightly saline)
290 Creemon silt loam, 0 to 2 percent slopes
291 Creemon-Wholan association
295 Creemon-Cren association
296 Creemon-Hessing association
297 Creemon-Rasille-Tulase association
298 Creemon-Misad association (Creemon soil)
491 Enko-Orovada association, gently sloping
492 Enko-Glyphs association
493 Enko-Orovada association, nearly level
512 Hessing-Relley association
560 Jesse Camp silt loam
632 McConnel-Orovada-Misad association (Orovada soil)
633 McConnel-Rasille-Wholan association (Rasille and Wholan soils)
635 McConnel-Rasille association (Rasille soil)
636 McConnel-Defler-Rasille association (Rasille soil)
637 McConnel-Orovada association (Orovada soil, rarely flooded)

638 McConnel-Wholan association (Wholan soil)
675 Filiran-Buffaran-Orovada association (Orovada soil)
700 Orovada-Rasille-Wholan association
701 Orovada fine sandy loam, 2 to 4 percent slopes
702 Orovada-Creemon association
703 Orovada fine sandy loam, 0 to 2 percent slopes
704 Orovada-McConnel association (Orovada soil)
705 Orovada-Valmy association
751 Poorcal-Lopwash association
850 Relley silt loam, 0 to 2 percent slopes
854 Relley silt loam, frequently flooded, 0 to 2 percent slopes
942 Shipley silt loam, occasionally flooded, 0 to 2 percent slopes
950 Silverado sandy loam, 0 to 2 percent slopes
1011 Stampede-Handy-Caniwe association (Caniwe soil)
1041 Tenabo-Orovada-Buffaran association (Orovada soil)
1092 Tulase-Bubus-McConnel association (Bubus soil)
1146 Wendane-Sonoma-Valmy association (Valmy soil)
1169 Whirlo-Broyles association (Broyles soil)
1173 Wholan silt loam, alkaline
1177 Wholan-Rasille association, alkaline
1178 Wholan-Rasille association, nonalkaline
1287 Ricert-Orovada-Broyles association (Orovada soil)
1682 Zineb-Orovada association (Orovada soil)
2010 Glyphs-Silverado association
2012 Glyphs-Muni-Orovada association (Orovada soil)
2015 Glyphs-Enko association (Glyphs soil)
2021 Rotinom-Wholan association
2022 Rotinom-Orovada association
2031 Muni-Orovada-Unius association (Orovada soil)
2081 Fenster-Jesse Camp association (Jesse Camp soil)
2543 Buffaran-Spasprey-Allor association (Spasprey soil)
2640 Rasille-Kelk association
2684 Tessfive-Perlor-Orovada association (Orovada soil)
3011 Defler-Orovada association (Orovada soil, gravelly substratum)
3072 Allor-Orovada association, moderately sloping (Orovada soil)
3073 Allor-Kelk association
3074 Allor-Orovada association, nearly level
3270 Koyen fine sandy loam, 2 to 4 percent slopes
3310 Spasprey-Allor association
3312 Spasprey-Buffaran-Orovada association (Spasprey and Orovada soils)
3741 Kelk-Settlemeyer association
3964 Pineval-Orovada association (Orovada soil)
3990 Settlemeyer fine sandy loam, drained, 0 to 2 percent slopes
3991 Settlemeyer-Pineval association (Settlemeyer soil)

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 avoid 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 recreation 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

The system of land capability classification used by the Soil Conservation Service is explained in this section, and general management needed for crops and pasture is suggested.

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 grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider 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, and 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 Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII 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 numeral, for example, IIe. 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 I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Planners of management systems for individual fields or farms in the survey area should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

The aim of good land use is to produce the greatest amount of the most desirable crops while also protecting and improving the soil. This can be achieved by seeding plants that are well suited to the soil and by applying proper management practices that protect the soil and maintain soil tilth.

Different management is needed on diverse kinds of soil. Basic essential practices, however, apply to all cultivated soils. These practices are discussed in the following paragraphs.

Conservation cropping system. A conservation cropping system consists of a crop rotation and cultural and management practices that protect the soil from erosion and maintain or improve fertility and tilth. It should include perennial legumes, grass-legume mixtures, or other crops that produce large quantities of residue to compensate for crops in the rotation that produce little or no residue.

A typical cropping system used in the survey area is 8 to 10 years of alfalfa followed by 2 years of small grain. Residue from small grain is returned to the soil, and tillage is kept to a minimum.

Erosion control. Protection of the surface layer from water erosion and soil blowing is important because this layer contains most of the organic matter and is generally more fertile than the rest of the soil. Soil blowing can be controlled by leaving a protective plant cover on the surface, by using minimum tillage during windy or stormy periods, and by tilling in spring and then immediately seeding. Water erosion generally is controlled by leveling and by applying irrigation water at the proper rate.

Application of plant nutrients. Most crops in the survey area respond well to applications of liquid or solid fertilizer. Specific fertilizer requirements are based on the kind of crop grown and the nutrient level of the soil. Applications of nitrogen and phosphorus increase the production of small grain and aid in establishing alfalfa. Unless the soils contain sufficient amounts of available phosphorus, established alfalfa generally requires only applications of phosphorus, which should be applied every 2 years throughout the duration of the stand.

Irrigation water management. Proper irrigation water management is the application of irrigation water at rates and in amounts adequate to produce high crop yields and to minimize soil and water losses. Water is applied according to the crop needs and the characteristics of the soil.

An efficient irrigation distribution system is one that has enough capacity to meet the needs of the crops grown during periods of peak use. The system should be located and controlled so that seepage losses are minimal and so that it carries the required flow without causing erosion.

Efficient application of water involves consideration of the available water capacity, the rate at which water enters and moves through the soil, and the amount of water required by the crop grown. Most crops should be irrigated when 40 to 50 percent of the available moisture in the top half of the root zone has been used.

Management of salt- and sodium-affected soils. Like most soils in arid and subarid regions, many of the soils in this survey area contain at least small quantities of soluble salts and sodium. In some soils high concentrations of salts and sodium limit or prevent the growth of crops. Because precipitation is low and the rate of evaporation is high, salts accumulate in the root zone. In addition, many low-lying areas receive salty water from runoff or seepage. Surface evaporation of this water generally results in an increase in content 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 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 exchangeable sodium is called a sodic, or alkali, soil. A soil that contains excessive amounts of both soluble salts and sodium is called a saline-sodic soil. Saline-sodic phases of several of the soils in the survey have been mapped. The map unit name in most cases does not give the degree to which these soils are affected, nor does it indicate whether they contain both salts and sodium. This information is given in the map unit descriptions.

Four classes of salinity are recognized in the detailed soil map unit descriptions. These classes are as follows:

Nonsaline soils are those that contain less than 0.15 percent soluble salts. The electrical conductivity of the saturation extract is less than 4 millimhos per centimeter at 25 degrees C.

Slightly saline soils are those that contain 0.15 to 0.35 percent soluble salts. The electrical conductivity of the saturation extract is 4 to 8 millimhos per centimeter at 25 degrees C.

Moderately saline soils are those that contain 0.35 to 0.65 percent soluble salts. The electrical conductivity of the saturation extract is 8 to 16 millimhos per centimeter at 25 degrees C.

Strongly saline soils are those that contain more than 0.65 percent soluble salts. The electrical conductivity of the saturation extract is more than 16 millimhos per centimeter at 25 degrees C.

Four classes of sodicity are recognized in the detailed soil map unit descriptions. These classes are as follows:

Nonsodic soils contain less than 15 percent exchangeable sodium.

Slightly sodic soils contain 15 to 25 percent exchangeable sodium.

Moderately sodic soils contain 25 to 40 percent exchangeable sodium.

Strongly sodic soils contain more than 40 percent exchangeable sodium.

Soils differ in the kinds of salts they contain and in the practices needed for improvement; however, some general guidelines can be given. For example, an adequate supply of good-quality water and an adequate drainage system are needed to reclaim any saline or sodic soils. Two methods of applying water are commonly used. One method is land leveling that results in flat basins in which the water can accumulate. The other method involves leveling the land to a uniform grade and then flooding between border dikes. If drainage is adequate and if large amounts of water are used, the soluble salts can be leached out of the root zone by either method. The process is more difficult if a soil contains an excessive amount of exchangeable sodium. In addition to drainage and leaching, other practices are needed to improve sodium-affected soils.

Chemical amendments used to replace sodium are gypsum and its various forms, including gypsite, anhydrite, and selenite, as well as elemental sulfur, sulfuric acid, iron sulfate, and aluminum sulfate. Any of these amendments can be used successfully, but the soils react to some faster than to others. The amount and type of amendment needed can be determined by laboratory analysis of soil samples, which indicates the amounts of sodium that must be replaced if the soil is to be improved.

An alternative to reclamation through the use of large quantities of gypsum is the seeding of salt- and sodium-tolerant grasses. Among these are tall wheatgrass, western wheatgrass, and alta fescue. These grasses can grow in soils that have relatively high concentrations of both soluble salts and sodium.

Proper pasture management. Proper pasture management includes adjusting stocking rates or the season of use so that the maximum growth and survival of high-quality grasses and legumes can be achieved. A common method is to rotate grazing among several pastures. This method allows adequate regrowth in each pasture. Livestock should be excluded when the pastures are wet. Allowing livestock to graze on wet pasture results in compaction of the soil, a decrease in the water intake rate, and deterioration of soil structure. Proper irrigation management and drainage help to keep the pastures in good condition. Increased yields can be obtained by applying commercial fertilizer and barnyard manure. Weeds generally can be controlled by mowing. The droppings of manure should be spread with a drag each spring.

Rangeland

About 98 percent of the land in the survey area is rangeland. About 75 percent of the agricultural income is derived from livestock, principally cattle. Cow-calf operations are dominant, but cow-calf-yearling operations also are common. Most of the rangeland is administered by the Bureau of Land Management. The privately owned land is mainly in the Reese River, Big Smoky, and Grass Valleys. Ranches vary in size from less than 5,000 acres to about 100,000 acres.

On some ranches the forage produced on the rangeland is supplemented by aftermath grazing on hayland and small grain stubble fields in fall. In winter the native forage generally is supplemented by hay, but some areas of winter range are in the survey area.

For each map unit suitable for use as rangeland, a table in the section "Rangeland Plants and Woodland Understory" shows the grasses, forbs, and shrubs that make up the potential native plant community on each major soil and contrasting inclusion; the common plant name and plant symbol for the characteristic vegetation; the average percent composition for each species in the potential plant community; the range site symbol; and the total annual production of vegetation in favorable, normal, and unfavorable years. A more detailed ecological description of each range site, identified by symbol, is provided in a technical guide available in the

local office of the Soil Conservation Service.

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 established 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 high water table also are important.

Potential production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting 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, flowers, 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.

Dry weight is the total annual yield per acre reduced to a common percent of air-dry moisture.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. The expected percentage of the total 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, the grazing season, and the availability of forage. Many plants, trees, and shrubs are inaccessible to foraging animals.

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 for a given use.

Generally, 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 that 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 should be at an intensity that maintains enough plant cover to protect the soil and that maintains or improves the quantity and quality of desirable vegetation. Proper management applies to all grazing animals, including livestock, game animals, and wild horses.

The most practical and efficient way to achieve good management of livestock grazing is with a planned grazing system. A good system is one in which two or more grazing units are alternately rested from grazing in a planned sequence over a period of years. The rest period should extend at least through the growing season of the key plants. Using such a system ensures that the same unit is not grazed at the same time year after year.

Planned grazing systems should be designed to fit the individual operating unit but still meet management objectives. Using livestock watering developments, fencing, salting, or constructing livestock trails can help to achieve a better distribution of grazing.

Brush management is needed when the less desirable woody species increase beyond the natural proportions for the site. It can benefit both livestock and wildlife and can reduce sedimentation and improve watershed quality.

The use of chemicals is effective in brush management. When chemicals are properly applied in a timely manner, good results can be expected. The understory should include enough desirable plant species to respond to the treatment.

Prescribed burning is also effective in brush management. It is relatively inexpensive but requires precautions. Its success requires a good understory to provide fuel, and proper timing of the burning is critical. It is not so selective as chemical treatment.

Mechanical treatment practices, such as plowing, chaining, or beating, are effective on certain sites, but the cost is high.

Range seeding may be needed when the range has deteriorated to a point where desired plant species have disappeared or as critical area treatment following wildfire. Sites to be seeded should be evaluated on the basis of the soil, climate, topography, and planned use to determine the species that are adapted and the seeding techniques that can be used.

Even though adapted species and improved techniques are applied, successful seeding in this survey area is strongly influenced by rainfall.

Precipitation fluctuates drastically from one year to the next, even in the areas that receive higher amounts of rainfall. The success of range seeding depends on the amount of moisture available during the growing season. Each soil is rated in the detailed map unit descriptions for planned range seeding. A plant cover should be maintained to prevent accelerated erosion on the soils that are poorly suited to seeding. The criteria used to develop the ratings are listed in the Appendix.

Range seeding ratings are relative ratings that suggest the number of successful seeding establishments that might be expected during a given period of years. The ratings are not intended to be a measure of the total annual yield. Productivity is dependent upon the interaction of most of the soil properties and characteristics that are considered. In addition, the number of plant species adapted to the soil decreases with decreasing soil suitability.

Successful seeding of depleted areas of rangeland in the survey area reduces the runoff rate and thus helps to control erosion. The soils that are best suited to seeding are moderately deep or deeper; receive adequate moisture and can retain it; are resistant to sheet, rill, and wind erosion; are free of salts and sodium; and have a medium textured upper layer that is relatively free of rock fragments and is resistant to crusting.

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 total production of understory vegetation, indicated in the section "Rangeland Plants and Woodland Understory," 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. All windbreaks in the survey area require irrigation.

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.

Information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a commercial nursery.

Wildlife Habitat

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.

Wildlife is a valuable resource in the survey area. It provides opportunities for outdoor activities, such as hunting and fishing.

Wildlife is a product of the soil. Like crops, wildlife responds to good management. Most managed wildlife habitat is created, improved, or maintained by planting suitable vegetation, by manipulating existing vegetation to bring about the natural establishment of desired plants, or by a combination of both. The habitat elements needed by specific species of wildlife generally require several kinds of soil and a combination of land uses. The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include mule deer, valley quail, pheasant, meadowlark, field sparrow, and cottontail. Irrigated

areas of general soil map units 2, 3, and 4 are used extensively by openland wildlife.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include sage grouse, woodcock, woodpeckers, cottontail, jackrabbit, coyote, and mule deer. General soil map unit 18 and scattered areas of unit 19 are used extensively by woodland wildlife.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, mule deer, and beaver. General soil map unit 3 and other small riparian areas are used by wetland wildlife.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, mule deer, sage grouse, meadowlark, lark bunting, chukar, badger, and jackrabbit. General soil map unit 2, units 5 through 10, and units 12, 13, 15, 16, 19, and 20 are used extensively by rangeland wildlife.

In the detailed soil map unit descriptions, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat. 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 flood hazard. Soil temperature and soil moisture are also 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, flood hazard, and slope. Soil temperature and soil moisture are also 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 flood hazard. Soil temperature and soil moisture are also 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, rushes, sedges, and cattail.

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.

Engineering

In the section "Detailed Soil Map Units," information for planning land uses related to urban development and to water management is provided. Soils are rated for various uses, and the most limiting features are identified. The ratings are given for the following selected uses: roadfill; topsoil; daily cover for landfill; shallow excavations; local roads and streets; pond reservoir areas; embankments, dikes, and levees; sand; and gravel. For some soils the restrictive features that affect drainage, irrigation, and terraces and diversions also are given. More information can be obtained from local offices of the Soil 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. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings. The criteria used to determine the ratings are provided in the Appendix. 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 (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan ponds, terraces, and other structures for soil and water conservation; and (8) 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 taxonomic unit 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.

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 and on the estimated data given in the map units and lab test data. The limiting features are defined in the Glossary.

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. For this reason, the criteria and guides that were used to make the interpretations presented in the detailed map units are provided in the Appendix. These criteria have been taken directly from the National Soils Handbook *(28)*.

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 the 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 the 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, frost action potential, 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 unit descriptions, 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 for use as roadfill, topsoil, and daily cover for landfill.

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.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. These soils may have layers of suitable material, but the material is less than 3 feet thick.

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 potential 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.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

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 type 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 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. Sand and gravel 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 taxonomic unit descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a *probable* source has a layer of clean sand or gravel or a layer of sand or gravel that is as much as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an *improbable* source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

In some of the detailed map unit descriptions, the restrictive features that affect drainage, irrigation, and terraces and diversions are listed.

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 potential 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, or 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 or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

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, given in the section "Detailed Soil Map Units," are explained in the following paragraphs.

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 characterize key soils.

The estimates of soil properties given in the tables and map unit descriptions include the range of grain-size distribution, the engineering classifications, and some physical and chemical properties of the major layers of each soil. Pertinent soil and water features are given in the map unit descriptions.

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 the detailed map unit descriptions and 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 taxonomic unit under "Taxonomic Units 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 about 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 Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

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 ranging from 2 millimeters in diameter to larger than 3 inches 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 generally 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 the table.

Physical and Chemical Properties

Estimates of some characteristics and features that affect soil behavior are given in the detailed map unit descriptions. The estimates are based on field observations and on test data for these and similar soils. Many of the specific terms used to express these properties are defined in the Glossary.

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, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

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 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 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 change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

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 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. The estimate for erosion factor K applies only to the surface layer.

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. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
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 the likelihood of erosion by water and wind when the soil is bare. The hazard of erosion by water is determined on the basis of erosion factor K and the percent of slope. 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 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 absence of distinctive horizons that form in soils that are not subject to flooding.

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 depth to a seasonal high water table applies to undrained soils. 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 given 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 if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping.

Hardpans 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 creates a severe corrosion environment. 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 is also 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 *(27)*. 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*, the suborder of the Aridisols that does not have an argillic or a natric horizon).

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 *Typic* identifies the subgroup that typifies the great group. An example is Typic Camborthids.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly 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 Typic 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.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit 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 unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual (26)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (27)*. Unless otherwise stated, matrix colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

Because a large part of Lander County was mapped under several private contracts, some of the typical pedons described in this survey are located in the soil survey areas of Lander County, Nevada, North Part, and Eureka County Area, Nevada. As the survey progressed, it was determined that some of the soils in the area had already been mapped under contract. The

typical pedon descriptions already completed for these soils were used, regardless of the survey area in which they occurred. The survey area in which the typical pedon for each taxonomic unit is located is given in the section "Taxonomic Units and Their Morphology." Characteristics of the soils in a map unit in this survey area are similar but not identical to those of the soils outside the survey area.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units."

Akerue Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Residuum derived from andesite, rhyolite, and quartzite
Positions on landscape: Low hills, side slopes of mountains
Slope: 15 to 30 percent
Mean annual precipitation: 10 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid, shallow Xerollic Durargids

Typical Pedon

About 35 percent of the surface is covered with pebbles, 35 percent with cobbles, and 2 percent with stones.

A—0 to 3 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium and thick platy structure; slightly hard, very friable, sticky and plastic; few very fine and fine roots; many very fine and fine vesicular pores; 10 percent pebbles, 25 percent cobbles, and 2 percent stones; mildly alkaline (pH 7.4); clear wavy boundary.

Bt1—3 to 6 inches; pale brown (10YR 6/3) very cobbly 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 roots; common very fine and fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt2—6 to 15 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; few very fine and fine tubular pores; many thick pressure faces on peds; 10 percent pebbles and 35 percent cobbles; mildly alkaline (pH 7.6); abrupt wavy boundary.

Bqkm—15 to 21 inches; very pale brown (10YR 8/4), indurated duripan that has many rock fragments cemented with several continuous laminar layers; light yellowish brown (10YR 6/4) moist; massive; extremely hard; few fine roots in some fractures; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

R—21 inches; andesite.

Typical Pedon Location

Soil name and map unit in which located: Akerue very cobbly loam, 15 to 30 percent slopes, in Akerue-Simpark-Punchbowl association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin; about 500 feet north and 1,500 feet west of the southeast corner of sec. 31, T. 18 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October
Average annual soil temperature: 44 to 47 degrees F
Depth to the duripan: 14 to 20 inches
Depth to bedrock: 15 to 26 inches
Reaction in the A and Bt horizons: Neutral or mildly alkaline, increasing in alkalinity with increasing depth
Other characteristics: Silica and lime pendants on rock fragments in the lower part of the Bt horizon in some pedons

Control section:
Content of clay—35 to 45 percent
Content of rock fragments—35 to 60 percent, mostly cobbles

A horizon:
Value—5 or 6 dry, 3 or 4 moist
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 cobbly clay loam or very cobbly clay

Allor Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Fan piedmont remnants

Slope: 0 to 30 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Durixerollic Haplargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A1—0 to 6 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine vesicular pores; 15 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

A2—6 to 12 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—12 to 19 inches; pale brown (10YR 6/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many very fine and fine roots; common very fine and fine tubular pores; few thin clay films coating peds; 15 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Btq—19 to 34 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine roots; common very fine and fine tubular pores; few moderately thick and common thin clay films coating peds; 25 percent pebbles and 15 percent weakly cemented durinodes; mildly alkaline (pH 7.8); clear smooth boundary.

Bq—34 to 42 inches; pale brown (10YR 6/3), weakly silica-cemented gravelly loamy sand, brown (10YR 4/3) moist; massive; very hard, firm, nonsticky and nonplastic; few fine roots; few fine tubular pores; 25 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bqk—42 to 60 inches; pale brown (10YR 6/3), weakly silica-cemented gravelly loamy sand, brown (10YR 4/3) moist; massive; very hard, firm, nonsticky and nonplastic; 55 percent pebbles and 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.3).

Typical Pedon Location

Soil name and map unit in which located: Allor gravelly loam, 4 to 15 percent slopes, in Zaidy-Allor association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 10 miles northeast of Austin; about 650 feet south and 2,400 feet west of the northeast corner of sec. 21, T. 20 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in winter and spring
Average annual soil temperature: 47 to 50 degrees F
Combined thickness of the A and Bt horizons: 20 to 34 inches
Depth to the Bq horizon: 20 to 34 inches
Depth to carbonates (when present): More than 40 inches
Reaction: Mildly alkaline or moderately alkaline, commonly increasing in alkalinity with increasing depth
Other characteristics: BA or Bt2 horizon present in some pedons

Control section:
- Texture—clay loam or sandy clay loam
- Content of clay—27 to 35 percent
- Content of rock fragments—15 to 35 percent, mainly pebbles

A horizon:
- Value—3 or 4 moist
- Chroma—2 or 3

Bt horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Other characteristics—as much as 15 percent durinodes in the lower part in most pedons

Bq and Bqk horizons:
- Value—5 to 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—loamy sand or sandy loam
- Content of rock fragments—20 to 60 percent, mainly pebbles
- Other characteristics—continuous, weak cementation; strata of noncemented material in some pedons

Atlow Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from chert, argillite, shale, greenstone, and altered rhyolitic tuff

Positions on landscape: Summits and side slopes of mountains and hills
Slope: 8 to 50 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, dark 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; 25 percent pebbles and 10 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1—3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine interstitial pores; 25 percent pebbles and 10 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt2—7 to 14 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine interstitial pores and few very fine tubular pores; 30 percent pebbles and 15 percent cobbles; few thin lime coatings on the underside of coarse fragments; moderately alkaline (pH 8.0); abrupt irregular boundary.

R—14 inches; chert; thin lime coatings in rock fractures.

Typical Pedon Location

Soil name and map unit in which located: Atlow very gravelly loam, 15 to 50 percent slopes, in Atlow-Stingdorn association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain; about 1,200 feet east and 1,050 feet north of the southwest corner of sec. 31, T. 29 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October
Average annual soil temperature: 48 to 52 degrees F
Depth to bedrock: 14 to 20 inches

A horizon:
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3
Reaction—mildly alkaline or moderately alkaline

Bt horizon:
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—very gravelly clay loam or very cobbly clay loam
Content of clay—27 to 35 percent
Content of rock fragments—35 to 50 percent, dominantly pebbles and cobbles
Structure—angular blocky or subangular blocky
Reaction—moderately alkaline or strongly alkaline
Other characteristics—noncalcareous matrix, thin lime coatings on the underside of rock fragments

Attella Series

Depth class: Very shallow
Drainage class: Well drained
Parent material: Residuum and colluvium that are derived from dolostone, dolomite, and calcareous shale and include some loess
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 11 inches
Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), frigid Lithic Xeric Torriorthents

Typical Pedon

About 80 percent of the surface is covered with pebbles and 5 percent with flagstones.

A—0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine vesicular and interstitial pores; 45 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—3 to 7 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and many medium roots; common very fine and fine tubular pores; 45 percent pebbles; common thin lime coatings on the underside of pebbles and few lime pendants;

strongly effervescent; moderately alkaline (pH 8.3); abrupt wavy boundary.
2R—7 inches; hard, fractured dolostone.

Typical Pedon Location

Soil name and map unit in which located: Attella very gravelly loam, 30 to 50 percent slopes, in Hymas-Xine-Attella association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 12 miles north of Austin; about 2,100 feet north and 2,000 feet east of the southwest corner of sec. 26, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually moist from mid-October to mid-June, dry from mid-June to mid-October
Average annual soil temperature: 41 to 47 degrees F
Depth to bedrock: 6 to 10 inches
Calcium carbonate equivalent: 5 to 20 percent
Reaction: Mildly alkaline or moderately alkaline
Content of organic carbon: 1.0 to 2.5 percent when mixed

Control section:
Content of clay—15 to 25 percent when mixed
Texture—very gravelly loam or very gravelly silt loam
Content of rock fragments—35 to 60 percent when mixed, mainly pebbles and some channers

A horizon:
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate, thin or medium, and platy; or weak or moderate, fine or medium, and granular
Consistence—friable or very friable (moist)

C horizon:
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 to 4
Structure—fine or medium subangular blocky, or massive
Consistence—soft or slightly hard (dry), friable or very friable (moist)
Effervescence—strongly effervescent or violently effervescent
Other characteristics—coatings of lime on the underside of rock fragments, soft masses of lime in some pedons

Barrier Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Mixed alluvium derived from volcanic and sedimentary rock
Positions on landscape: Fan piedmont remnants
Slope: 4 to 15 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 45 degrees F
Taxonomic class: Loamy, mixed, frigid, shallow Haploxerollic Durorthids

Typical Pedon

About 15 percent of the surface is covered with pebbles and 10 percent with cobbles and stones.

A1—0 to 2 inches; pale brown (10YR 6/3) cobbly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many medium and fine vesicular pores; 10 percent pebbles and 15 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
A2—2 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many fine vesicular pores; 5 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
A3—4 to 7 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine interstitial pores; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.
Bqk—7 to 12 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common medium, fine, and very fine roots; common fine and very fine interstitial pores; 15 percent durinodes; 30 percent pebbles and pebble-sized pan fragments; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
Bqkm—12 to 27 inches; light gray (10YR 7/2), cobbly, strongly cemented duripan, pale brown (10YR 6/3) moist; massive; very hard, very firm; common medium and fine roots matted on top; very few very fine interstitial pores; few thin discontinuous indurated lamellae; violently effervescent; clear smooth boundary.
Cqkm—27 to 60 inches; very pale brown (10YR 7/3), stratified, strongly and weakly silica-cemented very cobbly loamy sand, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; common fine and very fine interstitial pores; 20

percent pebbles and 30 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Barrier cobbly loam, 4 to 15 percent slopes, in Barrier-Kobeh association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles southeast of Austin, in the Monitor Valley; about 1,300 feet north and 1,000 feet west of the southeast corner of sec. 18, T. 16 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to the duripan: 10 to 20 inches

Content of clay in the control section: 8 to 18 percent

Texture of the fine-earth fraction: Sandy loam, fine sandy loam, or loam

Content of rock fragments: 10 to 35 percent when mixed, mainly pebbles

Reaction: Moderately alkaline or strongly alkaline

Effervescence: Strongly effervescent or violently effervescent

Other characteristics: Continuous, weakly cemented or noncemented strata below the duripan in some pedons

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3

Bqk horizon:
Value—7 or 8 dry, 5 to 7 moist
Chroma—2 or 3

Batan Series

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Silty alluvium derived from various kinds of rock, mostly volcanic rock, that is high in content of loess and pyroclastic material

Positions on landscape: Alluvial flat remnants

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A—0 to 5 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; strong very thin platy structure; hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many fine vesicular pores and few very fine interstitial and tubular pores; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C—5 to 9 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin and thin and strong very thick platy structure; hard, very friable, slightly sticky and plastic; common very fine roots; many very fine interstitial and tubular pores; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Cq—9 to 19 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; many very fine tubular pores; 30 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

Cqk1—19 to 30 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; few fine faint iron mottles that are brown (7.5YR 5/4) and dark brown (7.5YR 4/4) moist; weak very thin platy structure; slightly hard, very friable, sticky and plastic; few very fine and fine roots; many very fine interstitial and tubular pores; 20 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; fine white (10YR 8/2) filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Cqk2—30 to 44 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; common fine distinct iron mottles that are light brown (7.5YR 6/4) and dark yellowish brown (10YR 4/4) moist; strong medium platy structure parting to moderate very fine angular blocky; hard, friable, slightly sticky and plastic; few very fine, fine, and medium roots; common very fine tubular pores; 20 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; fine white (10YR 8/2) filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

Cqk3—44 to 63 inches; light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; many fine distinct iron mottles that are brown (7.5YR 4/4) and dark reddish brown (5YR 3/2), dark reddish gray (5YR 4/2) and dark reddish brown (2.5YR 2/4) moist; moderate very thin and thin platy structure parting to moderate very fine angular blocky; hard, friable, sticky and plastic; few very fine and fine roots; many very fine interstitial pores and few fine tubular pores; 20 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; fine white

(10YR 8/1) filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C'—63 to 68 inches; very pale brown (10YR 7/3) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine faint iron mottles that are pinkish gray (7.5YR 6/2) moist and common fine distinct iron mottles that are brown (7.5YR 4/2) moist; massive; hard, friable, slightly sticky and plastic; few fine roots; many very fine interstitial and tubular pores; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Batan silt loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 6.2 miles southeast of Battle Mountain; about 1,585 feet west and 1,585 feet north of the southeast corner of sec. 31, T. 32 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May to early in November

Depth to the water table: 60 inches or more

Average annual soil temperature: 47 to 53 degrees F

Depth to the Cq horizon: 9 to 24 inches

Content of salt and sodium: Affected by salt and sodium in most pedons; the upper part not affected in some pedons near drainageways and stream channels

Content of mottles: Common faint or distinct iron mottles below a depth of 10 inches

Depth to gypsum crystals (when present): More than 20 inches in some pedons

Other characteristics: Nonconformable, stratified, very gravelly sand and fine sand 2C horizon at a depth of more than 50 inches in some pedons

Control section:
- Content of clay—20 to 30 percent
- Texture—dominantly silt loam or silty clay loam, but strata of fine sandy loam to silty clay in some pedons

A horizon:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Structure—platy or massive
- Consistence—slightly hard or hard, slightly sticky or sticky, and slightly plastic or plastic
- Reaction—moderately alkaline to very strongly alkaline
- Effervescence—slightly effervescent to violently effervescent

C horizon:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Structure—platy, angular blocky, prismatic, or massive
- Reaction—strongly alkaline or very strongly alkaline
- Effervescence—strongly effervescent or violently effervescent

Cq and Cqk horizons:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Other characteristics—dominantly 20 to 40 percent durinodes, but strata that are as much as 70 percent discontinuous, weakly silica-cemented durinodes present in some pedons

Belate Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from rhyolitic tuff and andesite

Positions on landscape: Convex side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 13 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical Pedon

About 65 percent of the surface is covered with pebbles and 15 percent with cobbles and stones.

A1—0 to 4 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine and fine roots; common very fine vesicular pores; 40 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

A2—4 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; common very fine, fine, and medium roots; many very fine and few medium tubular pores; 30 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt1—14 to 19 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate

medium angular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular pores; few thin clay films on peds; 35 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt2—19 to 47 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; common moderately thick and many thin clay films on peds; 35 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); gradual smooth boundary.

Bt3—47 to 60 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine angular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; few moderately thick and common thin clay films on faces of peds; 40 percent pebbles and 15 percent cobbles; matrix is noneffervescent; few thin lime coatings on the underside of rock fragments; mildly alkaline (pH 7.8).

Typical Pedon Location

Soil name and map unit in which located: Belate very gravelly loam, 15 to 30 percent slopes, in Belate-Softscrabble-Torro association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles west of Austin; in an unsectionalized area about 1,000 feet west and 700 feet north of the southeast corner of the assumed sec. 15, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist to a depth of about 15 to 20 inches in winter and spring in most years, dry in mid-July through October

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 10 to 20 inches (includes the upper part of the argillic horizon)

Thickness of the solum and depth to bedrock: 60 to 80 inches

Reaction: Neutral or mildly alkaline

Control section:
- Content of clay—18 to 30 percent
- Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—1 to 3 dry or moist
- Structure—weak or moderate, fine or medium, and subangular blocky; or weak or moderate, thin or medium, and platy

Bt horizon:
- Value—5 or 6 dry, 2 to 4 moist
- Chroma—3 or 4
- Texture—very gravelly loam or very gravelly clay loam
- Content of clay—18 to 30 percent
- Content of rock fragments—35 to 60 percent, mainly pebbles
- Structure—dominantly fine and medium subangular blocky or angular blocky, but Bt3 horizon massive in some pedons

Belted Series

Depth class: Very shallow or shallow to duripan
Drainage class: Well drained
Parent material: Mixed alluvium
Positions on landscape: Fan piedmont remnants
Slope: 2 to 8 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: 53 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Haplic Durargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 4 inches; light gray (10YR 7/2) gravelly fine sandy loam, grayish brown (10YR 5/2) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine and common medium vesicular pores; 25 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bt—4 to 11 inches; very pale brown (10YR 7/3) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium granular structure; hard, friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Btk—11 to 14 inches; very pale brown (10YR 7/3) gravelly loam, yellowish brown (10YR 5/4) moist; moderate fine and medium granular structure; hard, friable, sticky and plastic; few very fine roots; many very fine tubular and interstitial pores; common medium soft lime masses; 25 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqkm—14 to 25 inches; white (10YR 8/2), strongly silica-cemented duripan with discontinuous laminar

cap about 0.5 to 1.0 millimeter thick; light yellowish brown (10YR 6/4) moist; massive; very hard, very firm; few very fine roots; few very fine tubular pores; common medium soft lime masses; violently effervescent; 0.5- to 2.0-inch-thick, discontinuous layer of pale brown (10YR 6/3) very gravelly loamy fine sand, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

2Cqk—25 to 60 inches; alternating layers of very pale brown (10YR 7/3) very gravelly sand and discontinuous, strongly cemented duripan; pale brown (10YR 6/3) moist; layers of very gravelly sand are single grain and loose, nonsticky and nonplastic; duripan layers are massive and very hard, very firm, nonsticky and nonplastic; few very fine roots; many fine interstitial pores; 60 percent pebbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Belted gravelly fine sandy loam, 2 to 8 percent slopes, in Unsel-Wardenot-Belted association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles south of Austin; about 1,900 feet south and 400 feet east of the northwest corner of sec. 26, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively in July through October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the duripan: 6 to 14 inches

Depth to the 2C horizon: 24 to 61 inches

Reaction: Moderately alkaline to very strongly alkaline

Control section:
- Content of clay—averages 15 to 28 percent
- Content of rock fragments—averages 0 to 25 percent

A horizon:
- Value—5 to 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Structure—platy, subangular blocky, or granular
- Effervescence—slightly effervescent or strongly effervescent

Bt horizon:
- Hue—7.5YR or 10YR
- Value—5 to 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Structure—subangular blocky, platy, or granular
- Texture—sandy clay loam, sandy loam, loam, or clay loam
- Content of clay—18 to 30 percent
- Content of rock fragments—0 to 30 percent
- Effervescence—slightly effervescent or strongly effervescent

Bqkm horizon:
- Structure—platy or massive
- Other characteristics—strongly cemented, continuous laminae that generally are more than 0.5 inch thick

2C horizon:
- Hue—10YR or 7.5YR
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—2 to 4 dry or moist
- Texture—variable (lake sediment)
- Effervescence—noneffervescent to violently effervescent

Beoska Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loess over loamy and gravelly alluvium derived from various kinds of rock

Positions on landscape: Fan piedmonts, fan piedmont remnants

Slope: 0 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Natrargids

Typical Pedon

A1—0 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin and thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many fine vesicular and very fine tubular pores; 20 percent pebbles on the surface; moderately alkaline (pH 8.0); clear wavy boundary.

A2—5 to 9 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium and coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; common very fine tubular pores; less than 2 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

AB—9 to 13 inches; mottled, very pale brown (10YR 7/2 and 7/3) silt loam, brown (10YR 4/3) moist; weak

coarse prismatic structure; hard, friable, slightly sticky and plastic; few very fine roots and very few fine roots; many very fine tubular pores; less than 2 percent pebbles; strongly alkaline (pH 8.6); abrupt wavy boundary.

Btn—13 to 18 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 3/3) moist; weak medium and coarse prismatic structure parting to moderate very fine and fine angular blocky; hard, very friable, sticky and very plastic; many very fine and fine roots; common very fine tubular pores; many thin clay films on peds and lining pores; 5 percent rounded pebbles 2 to 15 millimeters in diameter; slightly effervescent; strongly alkaline (pH 8.6); clear irregular boundary.

Btnk—18 to 24 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse prismatic structure parting to moderate very fine and fine angular blocky; hard, friable, slightly sticky and plastic; many very fine and fine roots; common very fine tubular pores; many thin clay films on peds and in pores; common fine filaments and threads of lime and coatings of lime on pebbles; 5 percent rounded pebbles 2 to 15 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bqk1—24 to 55 inches; light gray (10YR 7/2) very gravelly very fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; common fine filaments of lime; 25 percent weak and moderate durinodes 5 to 15 millimeters in diameter; 40 percent rounded pebbles 2 to 15 millimeters in diameter; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

2Bqk2—55 to 62 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; common fine filaments of lime; 25 percent weak and moderate durinodes 5 to 15 millimeters in diameter; 40 percent rounded pebbles 2 to 15 millimeters in diameter; violently effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Beoska silt loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 50 miles southwest of Battle Mountain; about 2,200 feet east and 1,200 feet north of the southeast corner of sec. 26, T. 25 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry from late in May through November

Average annual soil temperature: 47 to 52 degrees F

Depth to the 2Bqk horizon: 16 to 26 inches

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry
- Chroma—2 or 3
- Structure—platy, prismatic, or massive

Btn horizon:
- Value—3 or 4 moist, 6 or 7 dry
- Chroma—3 or 4
- Texture—silty clay loam, silt loam, or clay loam
- Content of clay—25 to 35 percent
- Content of rock fragments—as much as 15 percent, mainly pebbles
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—lime in some pedons

Bqk horizon:
- Value—7 or 8 dry, 4 to 6 moist
- Texture—stratified very fine sandy loam, fine sandy loam, and sandy loam
- Content of clay—5 to 15 percent
- Content of rock fragments—15 to 35 percent to a depth of 40 inches and 15 to 65 percent below this depth, mainly pebbles
- Consistence—soft to hard (dry), very friable to firm (moist)
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—20 to 40 percent durinodes in a friable matrix, or weak or strong, discontinuous, silica cementation

Blackhawk Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Loess, mixed alluvium

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Entic Durorthids

Typical Pedon

A—0 to 8 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots and few medium roots; many fine tubular

pores; 3 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bw—8 to 14 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine roots; many fine tubular pores; 3 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bqkm—14 to 17 inches; brown (10YR 5/3), strongly silica-cemented duripan, dark brown (10YR 4/3) moist; massive; extremely hard, extremely firm; few fine roots matted on top; common fine soft lime filaments; violently effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bk1—17 to 38 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 5 percent pebbles; few fine soft lime filaments; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bk2—38 to 47 inches; very pale brown (10YR 7/3) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 40 percent pebbles; common medium soft lime masses; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3Bk3—47 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable; few fine roots; few fine tubular pores; 70 percent pebbles; common fine soft lime masses; slightly effervescent; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Blackhawk very fine sandy loam, 0 to 4 percent slopes, in Golconda-Blackhawk association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 8 miles north of Battle Mountain; about 1,500 feet north and 500 feet east of the southwest corner of sec. 26, T. 33 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry late in May through November

Average annual soil temperature: 47 to 54 degrees F

Depth to the duripan: 14 to 20 inches

Control section:
- Content of clay—averages 5 to 10 percent
- Content of rock fragments—as much as 30 percent, mainly pebbles
- Content of silt and very fine sand—65 to 80 percent

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—weak or moderate, very thin to thick, and platy, or massive
- Reaction—mildly alkaline to strongly alkaline

Bw horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Texture—silt loam, loam, or very fine sandy loam
- Content of clay—averages 5 to 10 percent
- Content of rock fragments—0 to 30 percent, mainly pebbles
- Structure—weak or moderate, thin to thick, and platy; weak or moderate, fine to coarse, and subangular blocky; or massive
- Reaction—mildly alkaline to strongly alkaline

Bq, Bk, and C horizons (when present):
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 4 to 6 moist
- Chroma—2 or 3
- Structure—weak to strong, thin or thick, and platy, or massive

Bqkm horizon:
- Consistence—very hard or extremely hard
- Reaction—moderately alkaline to very strongly alkaline
- Other characteristics—two or more strongly cemented layers interbedded with weakly silica-cemented material or strata that have a friable matrix and durinodes

Bk and Bqk horizons (when present):
- Texture—stratified loam, gravelly coarse sandy loam, or gravelly coarse sand

2Bqk, 2Bk, and 2C horizons (when present):
- Texture—dominantly unconformable strata of very gravelly or extremely gravelly sand, coarse sand, loamy coarse sand, and sandy loam below a depth of 30 inches, but strata of clay in some pedons

Broyles Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Thin mantle of loess over mixed loamy alluvium

Positions on landscape: Fan skirts, inset fan remnants, fan aprons

Slope: 0 to 8 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Duric Camborthids

Typical Pedon

A—0 to 5 inches; light brownish gray (2.5YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and common medium oblique roots; many very fine vesicular and interstitial pores and few fine tubular pores; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bw—5 to 11 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) moist; yellowish brown (10YR 5/4) stains on faces of peds; weak and moderate medium and thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular, interstitial, and tubular pores; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bk—11 to 15 inches; light gray (10YR 7/2) sandy loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine random roots and very few medium oblique roots; many very fine vesicular, interstitial, and tubular pores; about 1 percent hard, firm, brittle durinodes 15 to 30 millimeters in diameter; very slightly effervescent in matrix and strongly effervescent in spots; very strongly alkaline (pH 9.2); abrupt wavy boundary.

Bqk—15 to 19 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular, interstitial, and tubular pores; about 25 percent hard, firm, brittle durinodes 10 to 25 millimeters in diameter; common fine lime filaments and threads; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Bqky1—19 to 28 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; very few very fine roots; common very fine vesicular, interstitial, and tubular pores; about 30 percent hard, firm, brittle durinodes 15 to 30 millimeters in diameter; few fine gypsum filaments, threads, and seams as much as 3 inches wide; slightly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Bqky2—28 to 44 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; very few very fine roots; common very fine vesicular, interstitial, and tubular pores; about 20 percent hard, firm, brittle durinodes 20 to 35 millimeters in diameter; common fine gypsum filaments, threads, and seams as much as 3 inches wide; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Cq—44 to 60 inches; very pale brown (10YR 7/3) loamy fine sand, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; nonbrittle when wet; common very fine tubular pores; silica cementation bridging sand grains; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Broyles very fine sandy loam, 0 to 2 percent slopes
Location in Nevada: Lander County, Nevada, North Part, survey area; about 21 miles south of Battle Mountain; about 3,420 feet east and 700 feet north of the southwest corner of sec. 30, T. 32 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November
Average annual soil temperature: 47 to 55 degrees F
Depth to the Bk or Bqk horizon: 10 to 24 inches
Other characteristics: Strongly cemented duripan below a depth of 40 inches in some pedons

Control section:
- Content of clay—5 to 15 percent
- Texture—stratified fine sandy loam, very fine sandy loam, or silt loam in the upper part; loam, fine sandy loam, sandy loam, or loamy sand in the lower part
- Content of rock fragments—0 to 35 percent pebbles, increasing with increasing depth

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Structure—weak or moderate, thin to thick, and platy, or massive
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—commonly noneffervescent, but effervescent in some pedons because of recharge from dust

Bw horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—mainly 2 or 3, but 4 on faces of some peds

Structure—thin or medium and platy, fine to coarse and subangular blocky or prismatic, or massive
Reaction—moderately alkaline or strongly alkaline

Bqk or 2Bqk horizon (when present):
Reaction—strongly alkaline or very strongly alkaline
Other characteristics—20 to 75 percent durinodes; very weak silica cementation surrounding durinodes in matrix in some pedons; few or common fine gypsum filaments or seams in the lower part of some pedons

C horizon:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—1 to 4
Reaction—strongly alkaline or very strongly alkaline

Bubus Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock, mostly volcanic rock that is high in pyroclastic material
Positions on landscape: Alluvial flat remnants, lake-plain terraces
Slope: 0 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A—0 to 6 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine vesicular and very fine interstitial pores; 10 percent fine pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

C1—6 to 10 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots and common fine and medium roots; few very fine interstitial pores and common very fine tubular pores; 5 percent fine pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2—10 to 15 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots and few fine and medium roots; common very fine interstitial and tubular pores; 5 percent fine pebbles; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk1—15 to 29 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; few fine faint iron mottles that are brown (7.5YR 5/4 and 4/4) moist; massive; slightly hard and hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine tubular pores; 3 percent fine pebbles; 35 percent hard, firm and very firm, brittle durinodes 2 to 35 millimeters in diameter; fine filaments or threads of gypsum; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Cqk2—29 to 60 inches; very pale brown (10YR 7/4) very fine sandy loam, yellowish brown (10YR 5/4) moist; few fine distinct iron mottles that are yellowish brown (10YR 5/6) moist and few fine faint mottles that are dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; 3 percent fine pebbles; 35 percent hard, firm, brittle durinodes 2 to 30 millimeters in diameter; fine filaments or threads of gypsum; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Bubus very fine sandy loam
Location in Nevada: Lander County, Nevada, North Part, survey area; about 1.6 miles southeast of Battle Mountain; about 2,100 feet south and 1,750 feet east of the northwest corner of sec. 28, T. 32 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November
Average annual soil temperature: 47 to 53 degrees F
Content of clay in the control section: 10 to 15 percent
Content of rock fragments: 0 to 5 percent pebbles
Content of salt and sodium: Commonly strongly affected by salt and sodium throughout, but moderately or slightly affected in the upper part in some pedons
Other characteristics: Faint or distinct iron mottles and segregated gypsum common below a depth of 10 inches; stratified sand and gravel at a depth of more than 40 inches in some pedons

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Structure—platy or massive
Consistence—nonsticky or slightly sticky, nonplastic or slightly plastic

Reaction—moderately alkaline to very strongly alkaline
Effervescence—slightly effervescent to violently effervescent

C horizon:
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—dominantly very fine sandy loam, but stratified loam, silt loam, very fine sandy loam, fine sandy loam, or sandy loam in some pedons
Structure—platy or massive
Reaction—moderately alkaline to very strongly alkaline, commonly decreasing in alkalinity with increasing depth
Effervescence—strongly effervescent or violently effervescent

Cqk horizon (when present):
Reaction—moderately alkaline to very strongly alkaline
Content of durinodes—20 to 70 percent

Bucan Series

Depth class: Deep
Drainage class: Well drained
Parent material: Loess that is high in content of volcanic ash over residuum and colluvium derived from extrusive volcanic rock
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 44 degrees F
Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 35 percent with cobbles and stones.

A—0 to 4 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, sticky and slightly plastic; few very fine and fine roots; few fine vesicular pores; 30 percent pebbles, 15 percent cobbles, and 10 percent stones; neutral (pH 7.3); clear smooth boundary.

Bt1—4 to 10 inches; pale brown (10YR 6/3) clay, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; 10 percent pebbles; common moderately thick clay films on faces of peds and lining pores and few thick clay films on faces of peds; mildly alkaline (pH 7.8); abrupt wavy boundary.

Bt2—10 to 18 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; very hard, firm, very sticky and very plastic; common fine roots; common fine tubular pores; 10 percent pebbles; common moderately thick clay films on faces of peds and lining pores and few thick clay films on faces of peds; mildly alkaline (pH 7.8); abrupt wavy boundary.

2Btk1—18 to 36 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few fine tubular pores; 20 percent pebbles and 5 percent cobbles; common moderately thick clay films on faces of peds and lining pores; thin lime coatings on the underside of rock fragments; mildly alkaline (pH 7.8); gradual wavy boundary.

2Btk2—36 to 52 inches; light reddish brown (10YR 6/4) gravelly clay loam, reddish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few fine and medium roots; few fine tubular pores; 20 percent pebbles and 10 percent cobbles; few moderately thick clay films on faces of peds; thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.2); gradual irregular boundary.

R—52 inches; basalt.

Typical Pedon Location

Soil name and map unit in which located: Bucan very cobbly loam, 30 to 50 percent slopes, in Walti-Softscrabble-Bucan association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles east of Austin; about 600 feet north of the southwest corner of sec. 12, T. 20 N., R. 47 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part late in October to early in June
Average annual soil temperature: 45 to 47 degrees F
Thickness of the solum and depth to bedrock: 40 to 60 inches
Other characteristics: The epipedon is less than one-third as thick as the solum

Control section:
Content of clay—45 to 60 percent
Content of rock fragments—as much as 15 percent when mixed
Depth to segregated lime—15 to 30 inches

A horizon:
Value—5 or 6 dry (value of 6 occurs when the upper 7 inches are mixed), 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate, very thin to medium, and platy; weak or moderate, fine or medium, and granular or subangular blocky; or massive
Consistence—soft or slightly hard (dry)

Bt horizon:
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4
Content of clay—45 to 60 percent
Content of rock fragments—as much as 15 percent
Structure—weak to strong, fine or medium, and subangular or angular blocky in the upper part; moderate or strong, fine or medium, and prismatic in the lower part
Reaction—neutral or mildly alkaline

2Btk horizon:
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 6
Texture—gravelly clay loam, gravelly clay, or cobbly clay
Content of clay—35 to 45 percent
Content of rock fragments—15 to 35 percent, mainly pebbles (cobbles common in the lower part in some pedons)
Structure—medium and fine angular blocky or prismatic, or massive
Reaction—mildly alkaline to strongly alkaline

Buffaran Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Fan piedmonts, mountain valley fans, ballenas
Slope: 2 to 30 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 46 degrees F

Taxonomic class: Clayey, montmorillonitic, mesic, shallow Xerollic Durargids

Typical Pedon

About 15 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots and common fine and medium roots; common fine and very fine and few medium vesicular and tubular pores; 15 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—5 to 13 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common fine exped roots and few medium roots; few very fine and fine tubular pores; 10 percent pebbles; continuous moderately thick clay films on faces of peds and plugging pores; mildly alkaline (pH 7.8); clear smooth boundary.

Bt2—13 to 16 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 3/6) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; common fine exped roots and few very fine, fine, and medium roots; few very fine, fine, and medium tubular pores; 20 percent pebbles; many thick clay films on faces of peds and lining pores; mildly alkaline (pH 7.8); clear wavy boundary.

Bqkm1—16 to 20 inches; strongly cemented duripan that has a 0.5-inch-thick, indurated, laminar cap; massive; extremely hard, extremely firm; 30 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqkm2—20 inches; indurated duripan; massive; extremely hard, extremely firm; strongly effervescent.

Typical Pedon Location

Soil name and map unit in which located: Buffaran gravelly loam, 2 to 8 percent slopes, in Buffaran-Spasprey-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 21 miles west of Austin; about 500 feet north and 2,150 feet east of the southwest corner of sec. 8, T. 19 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to the duripan: 14 to 20 inches

A horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed), 3 or 4 moist
Chroma—2 or 3
Structure—subangular blocky or platy

Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2, 3, 4, or 6

Texture—clay or clay loam
Content of clay—35 to 50 percent
Content of rock fragments—10 to 30 percent, mostly gravel
Reaction—neutral or mildly alkaline

Bq horizon (when present):
Texture—loam or clay loam
Reaction—neutral to moderately alkaline
Effervescence—noneffervescent to strongly effervescent
Other characteristics—20 to 40 percent strongly cemented duripan fragments

Burrita Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from interbedded chert, quartzite, sandstone, shale, and greenstone
Positions on landscape: Crests of hills, side slopes of mountains
Slope: 4 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids

Typical Pedon

A—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; many fine and common medium vesicular pores; 20 percent pebbles and 25 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt1—3 to 6 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and few medium tubular pores; 20 percent pebbles; common thin and few moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bt2—6 to 13 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, firm, sticky and plastic; common fine roots and few fine and medium roots; common fine and few medium tubular pores; 30 percent pebbles and 5 percent cobbles; common moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 8.2); clear wavy boundary.

Bt3—13 to 18 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; few fine and medium tubular pores; 30 percent pebbles and 20 percent cobbles; common moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

R—18 inches; quartzite.

Typical Pedon Location

Soil name and map unit in which located: Burrita very cobbly loam, 4 to 15 percent slopes, in Trunk-Burrita-Rock outcrop association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 22 miles south of Battle Mountain; in an unsectionalized area about 2,400 feet south and 2,600 feet west of the northeast corner of the assumed sec. 28, T. 28 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October
Average annual soil temperature: 47 to 50 degrees F
Combined thickness of the A and Bt horizons and depth to bedrock: 14 to 20 inches

Control section:
Content of clay—35 to 50 percent
Content of rock fragments—35 to 60 percent when mixed, mainly pebbles, cobbles, and stones
Reaction—moderately alkaline or strongly alkaline

A horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Consistence—soft or slightly hard

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 to 6
Texture—very gravelly clay, very cobbly clay, very stony clay, very gravelly clay loam, very cobbly clay loam, or very stony clay loam
Structure—subangular blocky, angular blocky, or massive

Caniwe Series

Depth class: Very deep

Drainage class: Well drained
Parent material: Loess and alluvium derived from various kinds of rock
Positions on landscape: Inset fans within mountain valley fans
Slope: 2 to 4 percent
Mean annual precipitation: About 11 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-silty, mixed, mesic Aridic Duric Haploxerolls

Typical Pedon

A1—0 to 4 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 nonplastic; common very fine, fine, and medium roots; common very fine tubular pores; neutral (pH 7.0); abrupt smooth boundary.

A2—4 to 9 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to moderate thin platy; slightly hard, very friable, sticky and plastic; common very fine, fine, and medium roots; common very fine tubular pores; neutral (pH 7.3); clear smooth boundary.

A3—9 to 17 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine, fine, and medium roots; common very fine tubular pores; neutral (pH 7.2); gradual wavy boundary.

2Cq1—17 to 29 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, very friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; 40 percent weakly cemented durinodes 5 to 15 millimeters in diameter; mildly alkaline (pH 7.4); gradual wavy boundary.

2Cq2—29 to 40 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; few very fine roots; common very fine tubular pores; 55 percent weakly cemented durinodes 5 to 15 millimeters in diameter; mildly alkaline (pH 7.6); clear wavy boundary.

3Ck—40 to 60 inches; very pale brown (10YR 7/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, sticky and plastic; very few very fine roots; few very fine tubular pores; common strongly effervescent fine lime seams and filaments; noneffervescent in matrix; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Caniwe silt loam, 2 to 8 percent slopes, in Handy-Caniwe-Zoesta association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 35 miles south of Battle Mountain; about 600 feet north and 1,200 feet east of the southwest corner of sec. 8, T. 25 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to early in October
Average annual soil temperature: 47 to 52 degrees F
Thickness of the mollic epipedon: 10 to 19 inches
Depth to the Cq horizon: 14 to 26 inches
Depth to carbonates: 30 to 46 inches

Control section:
Content of clay—20 to 35 percent
Content of rock fragments—less than 5 percent
Texture—dominantly stratified silt loam or silty clay loam, but thin strata of clay loam or loam common in some pedons

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3

Cq horizon:
Value—3 or 4 moist
Chroma—2 to 4
Reaction—mildly alkaline or moderately alkaline
Other characteristics—25 to 60 percent weakly silica-cemented durinodes in a very friable or friable matrix

Caphor Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Mixed alluvium
Positions on landscape: Fan skirts
Slope: 0 to 4 percent
Mean annual precipitation: About 6 inches
Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 5/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; very few fine roots; common very fine and few fine and medium vesicular pores;

strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; very few very fine, fine, and medium roots; common fine and few very fine and medium vesicular pores; 5 percent pebbles; common fine lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk—7 to 17 inches; pale brown (10YR 6/3) sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; few fine and medium tubular pores; 5 percent pebbles; 10 percent weakly cemented durinodes; few fine lime filaments or threads and common medium lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk—17 to 35 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; 55 percent light gray (10YR 7/2), discontinuous, thick lenses that are very hard, very firm, and strongly silica-cemented; massive; slightly hard, friable, slightly sticky and nonplastic; 5 percent pebbles; common medium lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Ck—35 to 60 inches; pale brown (10YR 6/3) gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; 30 percent pebbles; common thin lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Caphor fine sandy loam, 0 to 2 percent slopes, in Caphor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles southeast of Austin, in the northern part of the Big Smoky Valley; about 2,000 feet south and 1,300 feet west of the northeast corner of sec. 14, T. 17 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist for short periods in November through May

Average annual soil temperature: 47 to 52 degrees F

Depth to Bqk horizon: 15 to 30 inches

Depth to 2Ck horizon: 24 to 39 inches

Control section:
- Texture—fine sandy loam or sandy loam
- Content of clay—8 to 18 percent
- Content of rock fragments—less than 15 percent when mixed, mainly pebbles
- Reaction—moderately alkaline or strongly alkaline, increasing in alkalinity with increasing depth

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3

Bk horizon:
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—3 or 4

Bqk horizon:
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—2 to 4
- Other characteristics—20 to 60 percent discontinuous strong silica cementation in a friable matrix

2C horizon:
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—3 or 4
- Texture—stratified loamy sand or coarse sand
- Content of pebbles—25 to 50 percent

Chad Series

Depth class: Deep

Drainage class: Well drained

Parent material: Residuum derived from chert and shale

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, mixed, frigid Aridic Argixerolls

Typical Pedon

About 10 percent of the surface is covered with pebbles and 20 percent with cobbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and plastic; common very fine and fine roots; many very fine interstitial pores and few fine tubular pores; 10 percent pebbles and 20 percent cobbles; neutral (pH 7.0); clear wavy boundary.

A2—4 to 11 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine and fine roots and

few medium roots; common very fine tubular and interstitial pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.

BA—11 to 14 inches; brown (10YR 5/3) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate fine angular blocky; hard, firm, sticky and plastic; few fine exped roots; common very fine and few fine tubular pores; 10 percent pebbles; few thin clay films on faces of peds; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—14 to 28 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure parting to strong fine angular blocky; hard, firm, sticky and plastic; few fine exped roots; common very fine tubular pores; 10 percent pebbles; many moderately thick clay films on faces of peds and lining pores; strongly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.

Bt2—28 to 43 inches; dark yellowish brown (10YR 4/6) gravelly clay, dark yellowish brown (10YR 3/6) moist; moderate medium prismatic structure parting to strong fine angular blocky; hard, firm, sticky and plastic; common very fine and few medium tubular pores; 15 percent pebbles; many moderately thick pressure faces; strongly effervescent; mildly alkaline (pH 7.6); abrupt wavy boundary.

Cr—43 inches; highly fractured shale.

Typical Pedon Location

Soil name and map unit in which located: Chad cobbly loam, 30 to 50 percent slopes, in Walti-Softscrabble-Chad association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles northeast of Austin; about 1,000 feet south and 1,600 feet west of the northeast corner of sec. 8, T. 21 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October

Average annual soil temperature: 43 to 45 degrees F

Thickness of the mollic epipedon: 10 to 15 inches (includes the upper part of the argillic horizon in some pedons)

Combined thickness of the A and Bt horizons: 40 to 52 inches

Depth to bedrock: 40 to 60 inches

Content of clay in the upper part of the argillic horizon: 35 to 45 percent when mixed

Content of rock fragments in the control section: 10 to 30 percent fine pebbles

Other characteristics: C horizon present in some pedons

A horizon:
- Value—4 or 5 dry
- Chroma—2 or 3

Bt horizon:
- Value—4 or 5 dry, 3 or 4 moist
- Chroma—3 or 4 in the upper part; as much as 6 in the lower part
- Texture—clay loam or clay, commonly gravelly
- Structure—prismatic or angular blocky

Chedehap Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium

Positions on landscape: Inset fans, fan aprons

Slope: 2 to 8 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Xerollic Camborthids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) coarse sandy loam, brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many fine and common medium interstitial and vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bw—5 to 12 inches; light brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and medium roots and common fine roots; common fine and medium tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bk1—12 to 25 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk2—25 to 37 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; very few fine roots; few fine tubular pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

2Bk3—37 to 60 inches; light brownish gray (10YR 6/2) loamy coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; 15 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Chedehap coarse sandy loam, 2 to 8 percent slopes, in Chedehap-Enko-Ricert association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 9 miles southeast of Austin; about 1,400 feet north and 2,300 feet east of the southwest corner of sec. 21, T. 18 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in some part from mid-October through May, dry in summer and early in fall

Average annual soil temperature: 47 to 52 degrees F

Depth to 2C horizon: 25 to 40 inches

Control section:

Texture—averages sandy loam or coarse sandy loam

Content of clay—9 to 14 percent

Content of rock fragments—0 to 15 percent pebbles when mixed

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral to moderately alkaline

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak and prismatic, or weak or moderate and subangular blocky

Reaction—neutral to moderately alkaline

Chiara Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Mantle of loess that is high in content of volcanic ash over alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durorthids

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin and weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine and fine tubular pores and common fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; strong thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 10 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—5 to 11 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine roots and few medium and coarse roots; few fine tubular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk—11 to 16 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine tubular pores; 20 percent weakly cemented durinodes; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

2Bqkm—16 to 26 inches; white (10YR 8/2), indurated duripan with continuous, very thin, silica laminae; massive; extremely hard, very firm; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Chiara very fine sandy loam, 2 to 8 percent slopes, in Bioya-Chiara-Cortez association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles north of Battle Mountain; about 450 feet west and 600 feet north of the southeast corner of sec. 33, T. 36 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 47 to 53 degrees F

Depth to the duripan: 10 to 20 inches

Depth to lime accumulation: 7 to 15 inches

Control section:

Content of clay—5 to 18 percent

Content of sand—less than 15 percent fine or coarser

Texture—very fine sandy loam, loam, or silt loam
Content of rock fragments—dominantly as much as 5 percent when mixed, mainly pebbles; 4 to 25 percent, mainly duripan fragments, in thin layers in some pedons

A horizon:
Value—3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate, thin to thick, and platy, or massive
Reaction—neutral to moderately alkaline

Bw horizon:
Value—6 or 7 dry, 3 to 5 moist
Chroma—3 or 4
Structure—weak to strong, fine to coarse, and subangular blocky, or weak and prismatic
Reaction—mildly alkaline to strongly alkaline

Bqk horizon:
Reaction—moderately alkaline or strongly alkaline
Other characteristics—20 to 60 percent weakly cemented, brittle durinodes 0.3 to 1.0 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, and platy
Other characteristics—gravelly and sandy strata below a depth of 40 inches in some pedons

Clanalpine Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from rhyolitic and andesitic tuff
Positions on landscape: Side slopes of mountains
Slope: 15 to 75 percent
Mean annual precipitation: About 15 inches
Mean annual temperature: About 41 degrees F
Taxonomic class: Loamy-skeletal, mixed, frigid Typic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles, 40 percent with cobbles, and 5 percent with stones.

A1—0 to 4 inches; grayish brown (10YR 5/2) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine vesicular pores; 25 percent pebbles and 35 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—4 to 9 inches; grayish brown (10YR 5/2) cobbly 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 roots; many very fine tubular pores; 10 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt1—9 to 12 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine tubular pores; common thin clay films on peds; 30 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt2—12 to 22 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, friable, very sticky and plastic; few medium roots; many very fine tubular pores; common moderately thick clay films on peds; 30 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt3—22 to 27 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common very fine tubular pores; common thin clay films on peds; 30 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

BC—27 to 38 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few fine roots; common very fine interstitial pores; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); abrupt irregular boundary.

2Cr—38 to 49 inches; weathered, highly fractured rhyolitic tuff; some soil material and roots in some pockets.

Typical Pedon Location

Soil name and map unit in which located: Clanalpine extremely cobbly loam, 30 to 50 percent slopes, in Itca-Clanalpine-Torro association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 33 miles southwest of

Austin; about 1,200 feet south and 800 feet west of the northeast corner of sec. 15, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to mid-October
Average annual soil temperature: 43 to 45 degrees F
Thickness of the mollic epipedon: 8 to 14 inches (includes the Bt1 horizon in some pedons)
Thickness of the solum: 20 to 40 inches
Depth to paralithic contact: 20 to 40 inches
Depth to lithic contact: 40 to 60 inches
Other characteristics: Some pedons do not have a BC horizon overlying the paralithic contact

Control section:
Content of clay—25 to 35 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—weak or moderate, fine or medium, and subangular blocky

Bt horizon:
Value—dominantly 6 or 7 dry and 4 or 5 moist, but 5 dry and 3 moist in the upper part in some pedons
Chroma—3 or 4
Texture—very cobbly clay loam, very cobbly loam, or very gravelly clay loam
Structure—subangular blocky or angular blocky
Reaction—neutral or mildly alkaline

Cleavage Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum and colluvium derived from rhyolite and other igneous rock
Positions on landscape: Crests and side slopes of mountains
Slope: 4 to 30 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical Pedon

About 60 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 4 inches; grayish brown (10YR 5/2) very gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine vesicular pores; 30 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

BA—4 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 25 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt—7 to 15 inches; brown (10YR 5/3) extremely gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium angular blocky structure; slightly hard, friable, sticky and plastic; few medium roots; common very fine tubular pores; common thin clay films on faces of peds; 50 percent pebbles and 20 percent cobbles; neutral (pH 7.2); abrupt irregular boundary.

2R—15 inches; rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Cleavage very gravelly fine sandy loam, 4 to 15 percent slopes, in Softscrabble-Walti-Cleavage association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles east of Austin; about 2,000 feet south and 2,800 feet east of the northwest corner of sec. 28, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October for 70 to 120 consecutive days
Average annual soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 7 to 10 inches (excluding Bt horizon)
Depth to bedrock: 14 to 20 inches
Reaction: Neutral or mildly alkaline

Control section:
Content of clay—20 to 35 percent
Content of rock fragments—50 to 80 percent, mostly 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 loam 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—dominantly very cobbly, extremely cobbly, very gravelly, or extremely gravelly clay loam or very gravelly sandy clay loam, but very cobbly or very gravelly loam in some pedons
Structure—subangular blocky, angular blocky, or massive

Colbar Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from rhyolitic and andesitic rock
Positions on landscape: Foothills
Slope: 15 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 48 degrees F
Taxonomic class: Fine-loamy, mixed, mesic Xerollic Haplargids

Typical Pedon

About 10 percent of the surface is covered with pebbles and 30 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; weak very thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; common very fine vesicular and tubular pores; 15 percent pebbles and 20 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

BA—3 to 8 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium and coarse roots; common very fine and fine tubular pores; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bt—8 to 22 inches; yellowish brown (10YR 5/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate very fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; many thin clay films in pores and on peds; 5 percent pebbles, 10 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk—22 to 26 inches; yellowish brown (10YR 5/4) cobbly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; 5 percent pebbles, 10 percent cobbles, and 5 percent stones; few thin slightly effervescent lime coatings on the underside of rock fragments; noneffervescent in matrix; moderately alkaline (pH 8.4); abrupt wavy boundary.

2R—26 inches; fractured, rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Colbar very cobbly loam, 30 to 50 percent slopes, in Old Camp-Rock outcrop-Colbar association, strongly sloping
Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain; about 1,600 feet north and 1,700 feet east of the southwest corner of sec. 11, T. 26 N., R. 42 E.

Range in Characteristics

Soil moisture content: Dry in summer and fall, moist late in winter and in spring
Average annual soil temperature: 48 to 52 degrees F
Depth to bedrock: 20 to 40 inches
Combined thickness of the A and Bt horizons: 11 to 24 inches
Other characteristics: Bk horizon that has thin lime coatings on the underside of rock fragments present below the Bt horizon in some pedons

Control section:
Content of clay—25 to 35 percent
Content of rock fragments—15 to 35 percent, mainly pebbles and cobbles

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate, very fine to medium, and subangular blocky; or weak or moderate, very thin to medium, and platy
Reaction—mildly alkaline or moderately alkaline

Bt horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4
Structure—weak to strong, very fine, fine, or medium, and subangular blocky
Texture—cobbly loam, cobbly clay loam, or gravelly clay loam
Reaction—mildly alkaline or moderately alkaline

C and Bk horizons (when present):
Value—5 to 7 dry, 4 or 5 moist
Chroma—3 or 4
Texture—gravelly loam or cobbly loam

Coztur Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from volcanic and tuffaceous rock
Positions on landscape: Crests and side slopes of mountains and hills
Slope: 2 to 30 percent
Mean annual precipitation: About 11 inches
Mean annual temperature: About 43 degrees F
Taxonomic class: Loamy, mixed, frigid Lithic Xerollic Haplargids

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common fine and medium vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

A2—3 to 7 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

BA—7 to 11 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bt—11 to 17 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; common thin clay films on peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

R—17 inches; unweathered tuff.

Typical Pedon Location

Soil name and map unit in which located: Coztur loam, 2 to 8 percent slopes, in Coztur-Genaw association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 38 miles southwest of Battle Mountain; about 1,270 feet south and 250 feet west of the northeast corner of sec. 16, T. 27 N., R. 41 E.

Range in Characteristics

Soil moisture content: Dry in summer and fall, moist in winter and spring
Average annual soil temperature: 43 to 46 degrees F
Depth to bedrock: 14 to 20 inches
Reaction: Neutral or mildly alkaline

A horizon:
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3

BA horizon:
Hue—2.5Y or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4

Bt horizon:
Hue—2.5Y or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4
Content of clay—22 to 35 percent
Texture—loam or clay loam
Content of rock fragments—less than 15 percent, mainly pebbles

Creemon Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Silty alluvium that is derived from various kinds of rock and includes some volcanic ash
Positions on landscape: Fan skirts, inset fans, beach terraces
Slope: 0 to 2 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 49 degrees F
Taxonomic class: Coarse-silty, mixed, mesic Duric Camborthids

Typical Pedon

A1—0 to 6 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; strong thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many fine vesicular pores and many very fine tubular

pores; moderately alkaline (pH 8.0); clear wavy boundary.

A2—6 to 10 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate medium platy structure; hard, very friable, slightly sticky and plastic; many very fine and few fine roots; many very fine tubular pores; moderately alkaline (pH 8.4); clear wavy boundary.

Bw—10 to 15 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine tubular pores; strongly alkaline (pH 8.6); abrupt irregular boundary.

Bqk1—15 to 21 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular pores; 25 percent weak durinodes 10 to 25 millimeters in diameter; 50 percent discontinuous, hard, firm, brittle, weakly silica-cemented lenses 1 to 6 inches thick; strongly effervescent; common fine lime filaments; strongly alkaline (pH 8/6); clear wavy boundary.

Bqk2—21 to 28 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; many very fine and few fine and medium roots; common very fine tubular pores; 35 percent weak and moderately strong durinodes 20 to 35 millimeters in diameter; common fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Bqk3—28 to 45 inches; very pale brown (10YR 7/3) and yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) and brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots and few fine and medium roots; few very fine tubular pores; 25 percent weak and moderately strong durinodes 15 to 30 millimeters in diameter; few fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

C—45 to 62 inches; light yellowish brown (10YR 6/4) gravelly very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and slightly plastic; common very fine roots; common very fine interstitial and tubular pores; 15 percent flat and rounded pebbles that are 2 to 30 millimeters in size; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Creemon silt loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 40 miles southwest of Battle Mountain; about 2,400 feet north and 1,250 feet east of the southwest corner of sec. 15, T. 26 N., R. 43 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May

Average annual soil temperature: 48 to 52 degrees F

Combined thickness of the A and Bw horizons: 11 to 15 inches

Depth to the Bqk horizon: 11 to 20 inches

Other characteristics: Lenses of volcanic ash in the lower part in some pedons; as much as 20 percent pebbles at a depth of more than 40 inches in some pedons; continuous, weakly silica-cemented layer at a depth of 40 to 55 inches in some pedons; generally moderately or strongly affected by salt and sodium below a depth of 20 to 30 inches, but moderately or strongly affected by salt and sodium throughout in some pedons

Control section:
- Content of clay—8 to 18 percent
- Texture—stratified silt loam to very fine sandy loam
- Reaction—moderately alkaline or strongly alkaline

A horizon:
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Consistence—soft or slightly hard, nonsticky or slightly sticky, slightly plastic or plastic
- Effervescence—noneffervescent or slightly effervescent

Bw horizon:
- Value—6 or 7 dry
- Chroma—2 or 3
- Structure—thin and platy, or massive
- Consistence—soft or slightly hard, nonsticky or slightly sticky, slightly plastic or plastic

Bqk horizon:
- Value—5 to 7 dry
- Chroma—2 to 4
- Consistence—soft or slightly hard, nonsticky or slightly sticky
- Effervescence—strongly effervescent or violently effervescent
- Other characteristics—20 to 40 percent durinodes; 3- to 10-inch-thick layer in many pedons that is 20 to 60 percent discontinuous, weakly silica-cemented lenses and is between depths of 11 and 29 inches

Cren Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Silty alluvium that is derived from various kinds of rock and includes some volcanic ash
Positions on landscape: Fan skirts, inset fans
Slope: 0 to 2 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A—0 to 7 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many fine vesicular pores and many very fine interstitial and tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk1—7 to 18 inches; light gray (2.5Y 7/2) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine interstitial and tubular pores; violently effervescent; common fine filaments of lime; 2 percent small, weak durinodes; strongly alkaline (pH 8.6); gradual smooth boundary.

Bk2—18 to 26 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 2 percent weak durinodes; violently effervescent; few fine filaments of lime; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqk1—26 to 29 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial and tubular pores; 30 percent weak, discontinuous, silica-cemented lenses; 2 percent small durinodes; violently effervescent; common medium filaments of lime; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bqk2—29 to 49 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; few fine horizontal lenses of volcanic ash; 30 percent weak durinodes 5 to 15 millimeters in diameter; violently effervescent; few fine filaments of lime; strongly alkaline (pH 8.8); clear wavy boundary.

Bqk3—49 to 60 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and plastic; many very fine roots; many very fine tubular pores; 20 percent weak and moderately strong durinodes 10 to 30 millimeters in diameter; violently effervescent; common fine filaments of lime; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Cren silt loam
Location in Nevada: Lander County, Nevada, North Part, survey area; about 62 miles southwest of Battle Mountain; about 2,700 feet west and 2,200 feet south of the northeast corner of sec. 34, T. 25 N., R. 40 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May
Average annual soil temperature: 48 to 53 degrees F
Depth to the Bqk horizon: 15 to 30 inches
Reaction: Moderately alkaline or strongly alkaline
Other characteristics: Lenses of volcanic ash present in the lower part in some pedons

Control section:
- Texture—averages silt loam that is less than 15 percent fine sand or coarser textured material
- Content of clay—8 to 18 percent

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—platy, prismatic, or massive

Bk horizon:
- Value—5 to 7 dry
- Chroma—2 to 4
- Texture—dominantly silt loam, but common thin strata of very fine sandy loam or fine sandy loam in some pedons
- Consistence—soft or slightly hard (dry), nonsticky or slightly sticky (wet)

Bqk horizon:
- Value—5 to 7 dry
- Chroma—2 to 4
- Texture—dominantly silt loam, but common thin strata of very fine sandy loam or fine sandy loam in some pedons
- Consistence—soft or slightly hard (dry), nonsticky or slightly sticky (wet)
- Other characteristics—20 to 40 percent weakly or

moderately strongly cemented durinodes; 3- to 10-inch-thick layer in some pedons that is 20 to 50 percent discontinuous and weakly silica-cemented and is at a depth of 15 to 30 inches

Davey Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Sand sheets
Slope: 0 to 4 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 49 degrees F
Taxonomic class: Sandy, mixed, mesic Xerollic Camborthids

Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate thin and medium platy; slightly hard, very friable, nonsticky and slightly plastic; common very fine random roots and few fine horizontal roots; many very fine vesicular, interstitial, and tubular pores; neutral (pH 7.4); clear wavy boundary.

Bw—5 to 13 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine random roots and common fine and medium oblique and horizontal roots; common very fine vesicular, interstitial, and tubular pores; mildly alkaline (pH 7.6); clear wavy boundary.

C—13 to 20 inches; light gray (10YR 7/2) loamy fine sand, brown (10YR 4/3) moist; soft, very friable, nonsticky and nonplastic; many very fine random roots and very few fine and medium oblique roots; common very fine vesicular and interstitial pores and few very fine tubular pores; 3 percent rounded pebbles 2 to 10 millimeters in diameter; slightly effervescent; strongly alkaline (pH 8.5); clear wavy boundary.

Ck1—20 to 29 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine random roots and very few fine and few medium oblique roots; common very fine vesicular and interstitial pores; 3 percent rounded pebbles 2 to 15 millimeters in diameter; few fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Ck2—29 to 41 inches; very pale brown (10YR 7/3) loamy fine sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine random roots and very few fine and medium oblique and vertical roots; common very fine vesicular and interstitial pores; 2 percent weak and very weak durinodes 5 to 10 millimeters in diameter; 10 percent 2- to 30-millimeter, flat and rounded, partially lime-coated pebbles; common fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Ck3—41 to 60 inches; very pale brown (10YR 7/3) loamy fine sand, yellowish brown (10YR 5/4) moist; few fine faint iron mottles that are brownish yellow (10YR 6/6) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine random roots and very few fine vertical roots; common very fine vesicular and interstitial pores; 10 percent weak and very weak durinodes 5 to 30 millimeters in diameter; 5 percent rounded, 2- to 30-millimeter, partially lime-coated pebbles; slightly effervescent in matrix; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Davey fine sandy loam
Location in Nevada: Lander County, Nevada, North Part, survey area; about 15 miles northwest of Battle Mountain; about 60 feet south and 2,900 feet west of the northeast corner of sec. 9, T. 34 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in May through October
Average annual soil temperature: 47 to 53 degrees F
Combined thickness of the A and Bw horizons: 11 to 23 inches
Depth to lime accumulation: 11 to 24 inches
Depth to gypsum crystals (in some pedons): More than 20 inches
Other characteristics: Gypsum crystals at a depth of more than 20 inches in some pedons; continuous, weak or strong, silica cementation below a depth of 50 inches in some pedons; strata of unconformable very fine sandy loam or silt loam below a depth of 40 inches in some pedons

Control section:
Content of clay—5 to 10 percent
Content of rock fragments—as much as 30 percent, but averages less than 15 percent

A horizon:
Hue—10YR or 2.5Y
Value—5 or 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed); 3 or 4 moist
Chroma—1 to 3
Reaction—neutral or mildly alkaline

Bw horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—dominantly loam, fine sandy loam, or sandy loam, but gravelly sandy loam in the lower part in some pedons
Structure—prismatic or massive
Reaction—neutral to moderately alkaline

C and Ck horizons:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—dominantly fine sand, loamy fine sand, or loamy sand, but thin strata of fine sandy loam or coarse sand in some pedons
Reaction—moderately alkaline or strongly alkaline
Effervescence (Ck horizon)—slightly effervescent to violently effervescent
Other characteristics—lime in few or common filaments or as partial coatings on rock fragments; as much as 10 percent weakly cemented durinodes at a depth of more than 20 inches; relict mottles at a depth of more than 40 inches in some pedons

Decram Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from quartzite, chert, and volcanic rock
Positions on landscape: Shoulder slopes and the upper side slopes of mountains
Slope: 15 to 50 percent
Mean annual precipitation: About 18 inches
Mean annual temperature: About 42 degrees F
Taxonomic class: Loamy-skeletal, mixed Typic Cryoborolls

Typical Pedon

From 3 to 15 percent of the surface is covered with stones, 10 percent with cobbles, and 40 percent with pebbles.

A1—0 to 6 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 fine and very fine roots; common fine and very fine interstitial pores; 35 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear smooth boundary.

A2—6 to 11 inches; brown (10YR 4/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and very fine roots; common fine and very fine interstitial and tubular pores; 35 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bw—11 to 24 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine angular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; common fine and very fine interstitial and tubular pores; 45 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

C—24 to 28 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist; weak fine and very fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine interstitial pores; 40 percent pebbles and 30 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

R—28 inches; andesite.

Typical Pedon Location

Soil name and map unit in which located: Decram very gravelly loam, 15 to 30 percent slopes, extremely stony, in Decram-Hapgood-Chad association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles northeast of Austin, in the Simpson Park Mountains; about 2,000 feet east and 2,300 feet north of the southwest corner of sec. 30, T. 21 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in summer and early in fall for 60 to 90 days
Average annual soil temperature: 42 to 45 degrees F
Thickness of the mollic epipedon: 7 to 15 inches
Average summer soil temperature: 55 to 59 degrees F
Depth to bedrock: 20 to 40 inches

Control section (when mixed):
Content of clay—18 to 25 percent
Content of angular rock fragments—35 to 70 percent

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Reaction—neutral or mildly alkaline

Bw horizon:
Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4
Texture—very gravelly loam or very cobbly loam
Structure—angular blocky or subangular blocky
Reaction—neutral or mildly alkaline

C horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—very gravelly loam, extremely gravelly loam, very cobbly loam, or extremely cobbly loam
Reaction—mildly alkaline or moderately alkaline
Other characteristics—coatings of lime on the underside of rock fragments in some pedons

Defler Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash
Positions on landscape: Inset fans
Slope: 0 to 4 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 4 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk1—4 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 very fine and fine roots; common very fine tubular pores; 30 percent pebbles and 5 percent cobbles; thin lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—11 to 16 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 45 percent pebbles, 5 percent cobbles, and 5 percent stones; thin lime coatings on rock fragments; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk—16 to 21 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 15 percent weakly silica-cemented durinodes 5 to 20 millimeters in diameter; 45 percent pebbles, 5 percent cobbles, and 5 percent stones; disseminated lime and common medium lime coatings on rock fragments; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

B'k1—21 to 34 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; common very fine interstitial pores; 50 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

B'k2—34 to 38 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; 45 percent pebbles; noneffervescent in matrix and common fine slightly effervescent lime filaments; mildly alkaline (pH 7.8); clear wavy boundary.

2C—38 to 60 inches; pale brown (10YR 6/3), stratified extremely gravelly coarse sand and very gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 50 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8).

Typical Pedon Location

Soil name and map unit in which located: Defler gravelly fine sandy loam, 0 to 2 percent slopes, in Defler-Orovada association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 24 miles southwest of Austin, in the Smith Creek Valley; about 1,200 feet west and 225 feet north of the southeast corner of sec. 35, T. 17 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in some part in November through May; dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to 2C horizon: 35 to 45 inches
Reaction: Mildly alkaline to strongly alkaline

Control section:
- Content of clay—8 to 18 percent
- Texture—averages very gravelly fine sandy loam, very gravelly loam, or very gravelly sandy loam
- Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—platy or granular

Bk horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 to 4
- Other characteristics—filaments or coatings of lime on rock fragments; strata that are 5 to 15 percent weakly silica-cemented durinodes present at a depth of more than 12 inches in some pedons

2C horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—stratified very gravelly sandy loam to extremely gravelly coarse sand
- Content of rock fragments—50 to 70 percent, mainly pebbles

Desatoya Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Fan piedmont remnants
Slope: 2 to 50 percent
Mean annual precipitation: About 11 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Clayey over loamy-skeletal, montmorillonitic, mesic Durixerollic Haplargids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, sticky and plastic; few very fine roots; many very fine vesicular pores; 35 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt1—3 to 6 inches; brown (10YR 5/3) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; soft, very friable, very sticky and very plastic; common very fine and fine roots; many very fine interstitial pores; few thin clay films bridging sand grains and on faces of peds; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt2—6 to 10 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine interstitial and tubular pores; many thin and common moderately thick clay films on faces of peds; 30 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

Btk—10 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine and fine roots and few medium roots; few very fine tubular and interstitial pores; common thin clay films on faces of peds; 30 percent pebbles; disseminated lime and common fine lime concretions; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk1—14 to 23 inches; very pale brown (10YR 7/3), continuous, weakly silica-cemented very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, firm, nonsticky and nonplastic; few fine and medium roots; few very fine tubular pores; 40 percent pebbles; 30 percent discontinuous strongly silica-cemented masses; disseminated lime and many fine lime concretions; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk2—23 to 38 inches; very pale brown (10YR 8/3), continuous, weakly silica-cemented very gravelly sandy loam, very pale brown (10YR 7/4) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; 20 percent discontinuous strongly silica-cemented lenses and 20 percent horizontal lenses of very gravelly loamy sand as much as 2 inches thick; many fine concretions and seams of lime; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Bqk3—38 to 60 inches; very pale brown (10YR 8/3) very gravelly loamy sand, very pale brown (10YR 7/4) moist; single grain; loose, nonsticky and

nonplastic; few very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; 30 percent discontinuous strongly silica-cemented masses; many fine concretions and seams of lime; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Desatoya very gravelly loam, 8 to 15 percent slopes, in Desatoya-Pineval-Grassval association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles west of Austin; about 2,000 feet east and 1,000 feet south of the northwest corner of sec. 10, T. 18 N., R. 39 E.

Range in Characteristics

Soil moisture content: Usually dry early in June through October; moist in winter and spring

Average annual soil temperature: 48 to 52 degrees F

Depth to weak cementation: 14 to 20 inches

Depth to carbonates: 10 to 20 inches

A horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—weak or moderate and subangular blocky or platy
- Reaction—neutral or mildly alkaline

Bt horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—3 or 4 moist
- Texture—gravelly clay loam or gravelly clay
- Content of clay—35 to 45 percent
- Content of rock fragments—20 to 30 percent, mainly pebbles
- Structure—moderate or strong, fine or medium, and subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
- Texture—stratified extremely gravelly sandy loam to very gravelly loamy sand, but averages very gravelly or extremely gravelly sandy loam
- Content of clay—8 to 18 percent
- Content of rock fragments—40 to 80 percent, mainly pebbles
- Consistence—hard or very hard (dry), firm or slightly brittle (moist)
- Reaction—moderately alkaline to very strongly alkaline
- Other characteristics—dominantly continuously weakly silica-cemented, but discontinuous, weakly or strongly silica-cemented strata present below a depth of 38 inches

Desatoya Variant

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Side slopes of deeply dissected fan piedmont remnants

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Xerollic Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 5 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine vesicular and interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt—3 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, very sticky and very plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

Btk—8 to 13 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 25 percent discontinuous, weakly lime-cemented masses; few thin clay films bridging sand grains; 35 percent pebbles; few thin lime pendants on the underside of coarse fragments; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk1—13 to 21 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 25 percent discontinuous, weakly lime-cemented masses; 50 percent pebbles; thin lime coatings on the underside of coarse fragments;

strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bk2—21 to 26 inches; very pale brown (10YR 7/3), continuous, weakly lime-cemented gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 20 percent pebbles; thin to medium lime coatings on coarse fragments; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bk3—26 to 50 inches; pale brown (10YR 6/3) very gravelly sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 50 percent pebbles; common thin lime coatings and pendants on the underside of coarse fragments; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Desatoya Variant very gravelly sandy loam, 15 to 50 percent slopes, in Spike-Desatoya Variant-Grassval association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles north of Austin; about 2,000 feet north and 1,000 feet west of the southeast corner of sec. 36, T. 23 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in summer and early in fall

Average annual soil temperature: 47 to 49 degrees F

Depth to the base of the Btk horizon: 10 to 18 inches

Depth to carbonates: 0 to 10 inches

Control section:
- Texture (when mixed)—dominantly gravelly clay loam or gravelly sandy clay loam, but gravelly loam in some pedons
- Content of clay—25 to 35 percent
- Content of rock fragments (when mixed)—averages 15 to 35 percent, mainly pebbles, but as much as 45 percent in a single layer

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Effervescence—slightly effervescent or noneffervescent

Bt and Btk horizons:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Effervescence—dominantly noneffervescent or slightly effervescent in the upper part, strongly effervescent in the lower part
- Reaction—mildly alkaline or moderately alkaline

Bk horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—dominantly as much as 60 percent discontinuous, weak lime cementation, but continuous, weak lime cementation in some pedons

Dewar Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Loess and mixed silty alluvium that includes some volcanic ash

Positions on landscape: Fan piedmont remnants, mountain valley fan remnants

Slope: 2 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durargids

Typical Pedon

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, very dark brownish gray (10YR 3/2) moist; moderate very thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine vesicular pores; 15 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and common very fine roots; many very fine interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

Bt—4 to 8 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine interstitial pores; common thin clay films on peds and bridging mineral grains; 15 percent pebbles; mildly alkaline (pH 7.6); gradual wavy boundary.

Btqk—8 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; common fine

and medium roots and few coarse roots; common fine interstitial pores; common thin clay films on peds; 15 percent moderate durinodes 5 to 15 millimeters in diameter; 15 percent pebbles and 5 percent cobbles and pan fragments; few fine soft lime masses; noneffervescent in matrix; mildly alkaline (pH 7.8); abrupt wavy boundary.

Bqkm—14 to 50 inches; very pale brown (10YR 7/3), indurated duripan, yellowish brown (10YR 5/4) moist; moderately thick and thick platy structure; extremely hard, extremely firm; few roots along horizontal fractures; continuous, 2- to 6-millimeter-thick, brown (10YR 5/3), silica laminae on top and in horizontal bands throughout horizon, alternating with thin, strongly or weakly cemented strata in some pedons; violently effervescent; moderately alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Dewar gravelly loam, 2 to 8 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 12 miles east of Austin; about 150 feet east and 2,200 feet north of the southwest corner of sec. 12, T. 19 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to indurated duripan: 13 to 20 inches

A horizon:
- Chroma—2 or 3
- Structure—moderate or strong, very thin to thick, and platy; or moderate or strong, fine or medium, and 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
- Content of clay—27 to 35 percent
- Content of rock fragments—15 to 30 percent, mainly pebbles
- Structure—weak to strong, fine to coarse, and subangular blocky
- Reaction—neutral to moderately alkaline

Btqk horizon (when present):
- Content of clay—15 to 35 percent
- Other characteristics—less than 30 percent weak or very weak durinodes

Bqkm horizon:
- Structure—massive, or moderately thick or very thick and platy
- Other characteristics—strongly cemented or discontinuously indurated strata below the duripan in some pedons; 1- to 3-inch-thick degraded duripan common on top in some pedons

Duco Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from rhyolite and andesite

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles, 15 percent with cobbles, and 10 percent with stones.

A1—0 to 3 inches; brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 10 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine and fine tubular pores; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

Bt1—7 to 15 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, very sticky and very plastic; common fine, medium, and coarse roots; common very fine and fine tubular pores; common thin and few thick clay films on faces of peds; 30 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear wavy boundary.

Bt2—15 to 19 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 3/4)

moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine, medium, and coarse roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.4); abrupt irregular boundary.

R—19 inches; hard, fine, crystalline tuff.

Typical Pedon Location

Soil name and map unit in which located: Duco stony loam, 15 to 30 percent slopes, in Duco-Clanalpine-Jung association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 38 miles southwest of Austin; in an unsectionalized area about 300 feet north and 1,300 feet east of the southwest corner of the assumed sec. 23, T. 15 N., R. 37 E.

Range in Characteristics

Soil moisture content: Moist in winter, dry in summer and fall

Average annual soil temperature: 50 to 53 degrees F

Mollic epipedon: 7 to 20 inches thick (commonly includes the upper part of the argillic horizon)

Combined thickness of the A and Bt horizons: 10 to 20 inches

Depth to bedrock: 10 to 20 inches

Reaction: Slightly acid to mildly alkaline

Control section:

Content of clay—27 to 35 percent

Content of rock fragments—35 to 75 percent, including 30 to 45 percent pebbles, 0 to 20 percent cobbles, and 0 to 40 percent stones (stones generally in the lower part)

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Structure—weak or moderate, fine or medium, and granular or subangular blocky

Bt1 horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Texture—gravelly or very gravelly loam, sandy clay loam, or clay loam

Structure—subangular blocky or angular blocky

Bt2 horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 to 4

Structure—moderate or strong, fine or medium, and subangular blocky or angular blocky

Eastwell Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Old gravelly and cobbly alluvial deposits that include some loess

Positions on landscape: Summits and side slopes of fan piedmont remnants

Slope: 4 to 15 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Haploxerollic Durorthids

Typical Pedon

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots; many fine vesicular pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—2 to 5 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; 25 percent pebbles; slightly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bw—5 to 10 inches; light brownish gray (10YR 6/2) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 40 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

Bqk—10 to 15 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 40 percent pebbles; 30 percent durinodes; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Bqkm—15 to 17 inches; white (10YR 8/2), strongly cemented duripan, pale brown (10YR 6/3) moist; weak very thick platy structure; extremely hard, extremely firm; thin, discontinuous, silica lamellae on top; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—17 to 60 inches; white (10YR 8/2) very gravelly loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; 40 percent pebbles and cobbles; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Eastwell gravelly loam, 4 to 15 percent slopes, in Eastwell-Blackhawk-Pineval association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 0.9 mile west of Red Bird Mine; about 600 feet west and 300 feet south of the northeast corner of sec. 24, T. 22 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to the duripan: 10 to 20 inches

Control section:
Content of clay—10 to 27 percent
Texture—sandy loam or loam
Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—platy, granular, or massive
Effervescence—noneffervescent or slightly effervescent

Bw horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—weak or moderate and prismatic or subangular blocky
Effervescence—slightly effervescent to violently effervescent

Bqkm horizon:
Effervescence—strongly effervescent or violently effervescent
Other characteristics—common continuous, strong silica cementation; thin discontinuous silica lamellae absent in some pedons

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—very gravelly loam or very cobbly loam
Content of rock fragments—35 to 60 percent, mainly pebbles and cobbles
Effervescence—strongly effervescent or violently effervescent
Other characteristics—common lime coatings on the underside of rock fragments; 10 to 40 percent durinodes or discontinuous, weak, lime and silica cementation

Enko Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy alluvium that is derived mainly from various kinds of rock and includes some loess and volcanic ash
Positions on landscape: Fan aprons, fan skirts, inset fans
Slope: 0 to 8 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical Pedon

A1—0 to 3 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine vesicular pores; 5 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.
A2—3 to 6 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.
Bw—6 to 12 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.
Bq1—12 to 18 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; 40 percent discontinuous, weak, silica cementation and 20 percent strongly cemented durinodes 5 to 15 millimeters in diameter; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.
Bq2—18 to 30 inches; light yellowish brown (10YR 6/4), continuous, weakly silica-cemented sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 20 percent strongly cemented durinodes 10 to 25 millimeters in diameter; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bq3—30 to 36 inches; light yellowish brown (2.5Y 6/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; 40 percent strongly cemented durinodes 5 to 25 millimeters in diameter; 10 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—36 to 60 inches; light yellowish brown (2.5Y 6/4), continuous, weakly silica-cemented fine sandy loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 10 percent pebbles; many fine lime seams and threads; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Enko sandy loam, 2 to 4 percent slopes, in Enko-Orovada association, gently sloping

Location in Nevada: Lander County, Nevada, South Part, survey area; about 6 miles southwest of Austin; about 1,650 feet north and 800 feet west of the southeast corner of sec. 20, T. 18 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 49 to 52 degrees F

Combined thickness of the A and Bw horizons: 12 to 30 inches

Depth to continuous, weak cementation: 14 to 30 inches

Other characteristics: Sandy strata or strata containing gypsum crystals present below a depth of 40 inches in some pedons; noneffervescent Bq horizon present above the Bqk horizon in some pedons

Control section:
- Content of clay—10 to 18 percent
- Content of rock fragments—0 to 15 percent pebbles

A horizon:
- Hue—10YR or 2.5Y
- Value—commonly 6 or 7 dry, but 5 dry in some pedons; 3 or 4 moist
- Chroma—2 or 3
- Structure—very fine or fine and granular, very thin to medium and platy, or massive
- Consistence—slightly sticky or sticky, slightly plastic or plastic
- Reaction—neutral to moderately alkaline

Bw horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—dominantly loam, fine sandy loam, or sandy loam, but strata of silt loam or clay loam in the upper part in some pedons
- Structure—prismatic, angular blocky, subangular blocky, or massive
- Consistence—slightly sticky or sticky, slightly plastic or plastic
- Reaction—neutral to moderately alkaline, increasing in alkalinity with increasing depth
- Other characteristics—calcareous in the lower part in some pedons

Bqk and Bq horizons (when present):
- Hue—10YR, 2.5Y, or 5Y
- Value—4 to 6 moist, 6 to 8 dry
- Chroma—1 to 4 dry, 2 to 4 moist
- Texture—loam, sandy loam, or fine sandy loam
- Cementation—common continuous, weakly silica-cemented strata 10 to 40 inches thick, but 20 to 50 percent durinodes or 20 to 75 percent discontinuous, weakly silica-cemented strata in some pedons
- Reaction—mildly alkaline to strongly alkaline, increasing in alkalinity with increasing depth
- Other characteristics—common relict iron mottles or mica particles in many pedons; very gravelly or extremely gravelly strata common below a depth of 40 inches in some pedons

Fenster Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium derived from highly calcareous sources

Positions on landscape: Stream terraces

Slope: 0 to 2 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), frigid Typic Torriorthents

Typical Pedon

A1—0 to 2 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; very few very fine and fine roots; many medium vesicular pores; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, friable, slightly

sticky and slightly plastic; few very fine and fine roots; common very fine interstitial and tubular pores; slightly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

C1—5 to 10 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate fine and very fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

C2—10 to 18 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 4/4) moist; common fine faint yellow (10YR 7/6) mottles, yellowish brown (10YR 5/6) moist; massive; hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine interstitial and tubular pores; violently effervescent; very strongly alkaline (pH 9.4); gradual smooth boundary.

C3—18 to 32 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 4/4) moist; common medium distinct pale yellow (2.5Y 7/4) mottles, light olive brown (2.5Y 5/4) moist; massive; hard, firm, sticky and plastic; common very fine and fine roots; common very fine interstitial and tubular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C4—32 to 38 inches; very pale brown (10YR 7/3) very fine sandy loam that is high in content of volcanic ash, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.4); abrupt smooth boundary.

3C5—38 to 60 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Fenster silt loam in Fenster-Jesse Camp association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 34 miles southeast of Austin; about 200 feet north and 700 feet west of the southeast corner of sec. 2, T. 15 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Control section:

Content of clay—18 to 35 percent

Reaction—moderately alkaline to very strongly alkaline

Effervescence—dominantly strongly effervescent or violently effervescent, but slightly effervescent in the upper part in some pedons

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture—dominantly silt loam or silty clay loam, but strata of fine sandy loam or loam at a depth of more than 40 inches or very fine sandy loam volcanic ash at a depth of less than 40 inches in some pedons

Other characteristics—relict mottles at a depth of less than 40 inches in some pedons

Filiran Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Alluvium that is derived from volcanic and metamorphic rock and includes some loess

Positions on landscape: Fan piedmonts

Slope: 2 to 4 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Haploxerollic Nadurargids

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; many very fine and fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and medium roots; common very fine and medium tubular pores; 5 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

E—7 to 9 inches; light brownish gray (10YR 6/2) gravelly silt loam, dark brown (10YR 4/3) moist; weak thick platy structure; hard, friable, slightly sticky and slightly plastic; common very fine and medium roots; common very fine and fine tubular pores; 15 percent pebbles and 5 percent cobbles; 20 percent bleached white (10YR 8/2) faces of peds; moderately alkaline (pH 8.0); abrupt wavy boundary.

E/B—9 to 12 inches; pale brown (10YR 6/3) gravelly silt loam, dark brown (10YR 3/3) moist; strong fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; common thick clay films on faces of peds; 15 percent pebbles and 5 percent cobbles; 60 percent bleached white (10YR 8/2) faces of peds; moderately alkaline (pH 8.4); abrupt wavy boundary.

2Btn—12 to 20 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many thick clay films on faces of peds and in pores; 5 percent pebbles; slightly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

2Btnk—20 to 28 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many thick clay films on faces of peds and in pores; 20 percent pebbles; common lime coatings on the underside of rock fragments; common medium threads and filaments of lime; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Btnqky—28 to 33 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; common thick clay films on faces of peds and in pores; 20 percent discontinuous, weak, silica cementation; 25 percent pebbles and 5 percent cobbles; many medium filaments of lime; common medium soft gypsum masses; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bqkm—33 to 60 inches; pale brown (10YR 6/3), strongly cemented duripan, dark brown (10YR 4/3) moist; massive; very hard, very firm; disseminated lime; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Filiran silt loam, 2 to 4 percent slopes, in Filiran-Pineval-Kingingham association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles north of Austin; about 2,000 feet north and 150 feet west of the southeast corner of sec. 16, T. 23 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 20 to 40 inches

Depth to carbonates: 12 to 25 inches

Control section:
- Content of clay—35 to 50 percent
- Content of rock fragments—5 to 20 percent when mixed, mainly pebbles

A horizon:
- Value—3 or 4 moist
- Chroma—2 or 3

E horizon:
- Value—3 or 4 moist
- Chroma—2 or 3
- Structure—platy, subangular blocky, or prismatic
- Other characteristics—15 to 60 percent of the faces of peds are bleached

Btn horizon:
- Hue—10YR or 2.5Y
- Value—4 to 6 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—clay, gravelly clay, silty clay, clay loam, or silty clay loam
- Content of exchangeable sodium: 15 to 35 percent
- Effervescence—noneffervescent or slightly effervescent in the upper part, strongly effervescent or violently effervescent in the lower part
- Reaction—strongly alkaline or very strongly alkaline

Fortank Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum derived from rhyolitic tuff

Positions on landscape: Side slopes of mountains

Slope: 4 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles, 15 percent with cobbles, and 10 percent with stones.

A1—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common fine and few very fine roots; common fine and few medium tubular pores and few fine vesicular pores; 20 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; few very fine and fine tubular pores; 25 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt1—6 to 11 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; 20 percent pebbles and 10 percent cobbles; common thin and few moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 7.9); clear smooth boundary.

Bt2—11 to 19 inches; brown (10YR 5/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; few very fine, fine, and medium roots; common very fine and fine and few medium tubular pores; 20 percent pebbles and 10 percent cobbles; many moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 7.9); clear smooth boundary.

Btk—19 to 30 inches; light brown (7.5YR 6/4) gravelly clay, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; common medium and few very fine and fine tubular pores; 30 percent pebbles; many moderately thick clay films on faces of peds and lining pores; few fine filaments and threads of lime; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cr—30 inches; weathered, rhyolitic tuff.

Typical Pedon Location

Map unit in which located: Fortank gravelly loam, 4 to 8 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin; about 900 feet south and 1,600 feet west of the northeast corner of sec. 29, T. 21 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 45 to 47 degrees F

Thickness of the solum and depth to bedrock: 30 to 40 inches

Control section:
- Texture—gravelly clay loam or gravelly clay
- Content of clay—35 to 45 percent
- Content of rock fragments—15 to 35 percent, dominantly pebbles

A horizon:
- Value—3 or 4 moist
- Structure—weak or moderate, very thin to thick, and platy; or weak or moderate, very fine to coarse, and subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bt horizon:
- Hue—7.5YR or 10YR
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3 or 4
- Structure—weak or moderate and angular blocky or prismatic

Gando Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from mixed sedimentary rock

Positions on landscape: Crests and side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Haploxerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 10 percent with cobbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) very

gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 35 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary.

A2—4 to 8 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bk—8 to 10 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 60 percent pebbles and 10 percent cobbles; common thin strongly effervescent lime coatings on the underside of coarse fragments; slightly effervescent in matrix; mildly alkaline (pH 7.4); abrupt wavy boundary.

R—10 inches; hard shale.

Typical Pedon Location

Soil name and map unit in which located: Gando stony loam, 15 to 30 percent slopes, in Loncan-Gando-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles northeast of Austin; about 1,000 feet south and 2,200 feet east of the northwest corner of sec. 5, T. 22 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter to early in summer, dry early in July to mid-October

Average annual 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

Control section:

- Content of clay—10 to 18 percent
- Content of rock fragments—50 to 70 percent, mainly pebbles
- Reaction—mildly alkaline or moderately alkaline, commonly increasing in alkalinity with increasing depth

A horizon:

- Value—4 or 5 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—moderate, very fine to medium, and granular; weak or moderate, very thin to medium, and platy; or weak, very fine, and angular blocky to moderate, medium, and subangular blocky
- Consistence—soft or slightly hard (dry), slightly sticky or sticky and nonplastic or plastic (moist)

Bk horizon:

- Value—5 or 6 dry, 3 to 5 moist
- Chroma—3 or 4
- Structure—subangular blocky, granular, or massive
- Consistence—soft or slightly hard (dry), slightly sticky or sticky and slightly plastic or plastic (moist)
- 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 or strongly effervescent

Genaw Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Mantle of loess over residuum derived from tuffaceous sediment

Positions on landscape: Rolling hills, rock pediments

Slope: 4 to 30 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Haplargids

Typical Pedon

About 5 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; many very fine and fine vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 6 inches; brown (10YR 5/3) gravelly very fine sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots; common fine and medium tubular and interstitial pores; 15 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—6 to 11 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4)

moist; moderate medium angular blocky structure; slightly hard, very friable, sticky and plastic; common very fine, fine, and medium roots; few very fine tubular pores; common fine and medium clay films on faces of peds and lining pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bkq—11 to 16 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few very fine tubular pores; 35 percent pebbles; common fine and medium lime filaments; 10 percent weak durinodes; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Cr—16 inches; soft, tuffaceous sediment.

Typical Pedon Location

Soil name and map unit in which located: Genaw very fine sandy loam, 4 to 15 percent slopes, in Genaw-Perlor-Puett association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 26 miles southwest of Battle Mountain; about 800 feet north and 2,400 feet west of the southeast corner of sec. 6, T. 27 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through November

Average annual soil temperature: 47 to 52 degrees F

Depth to paralithic contact: 14 to 20 inches

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3

Bt horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—loam or clay loam
- Content of rock fragments—15 to 35 percent, mainly pebbles
- Content of clay—18 to 30 percent

Bkq horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—sandy loam or loam
- Content of rock fragments—25 to 50 percent, mainly pebbles
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—5 to 15 percent discontinuous weak cementation or weakly cemented durinodes

Glean Series

Depth class: Deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from various kinds of rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Haploxerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 1 percent with stones.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium platy structure parting to moderate medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 30 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2—6 to 19 inches; very dark grayish brown (10YR 3/2) very gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; common very fine tubular pores; 35 percent pebbles; neutral (pH 7.0); clear wavy boundary.

AC—19 to 31 inches; dark brown (10YR 4/3) very gravelly loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; common very fine tubular pores; 35 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

C—31 to 49 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; few very fine tubular pores; 35 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

2R—49 inches; hard, altered andesite.

Typical Pedon Location

Soil name and map unit in which located: Glean gravelly loam, 30 to 50 percent slopes, in Glean-Walti-Cleavage association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 24 miles south of Battle

Mountain; about 1,500 feet south and 500 feet east of the northwest corner of sec. 29, T. 28 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in November to mid-July
Average annual soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 22 to 34 inches
Depth to bedrock: 40 to 60 inches

Control section:
Texture—very gravelly or very cobbly sandy loam or loam
Content of rock fragments—40 to 70 percent, mainly pebbles and cobbles
Reaction—slightly acid or neutral

A horizon:
Value—4 or 5 dry
Chroma—2 or 3

C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 to 4

Glyphs Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Mixed alluvium that is derived mainly from volcanic rock and includes some loess and volcanic ash
Positions on landscape: Fan piedmont remnants
Slope: 0 to 30 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 45 degrees F
Taxonomic class: Fine-loamy, mixed, mesic Durixerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles.

A1—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, nonsticky and slightly plastic; few fine roots; many fine and medium vesicular pores; 5 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine roots and few very fine and medium roots; common fine and medium vesicular and interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—7 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine roots and few very fine and medium roots; few fine interstitial pores; many moderately thick clay films on peds and in pores; 20 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary.

Btk—12 to 17 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few medium tubular pores; common thin clay films on peds; lime coatings on the underside of rock fragments; 20 percent pebbles; moderately alkaline (pH 7.9); gradual wavy boundary.

Bqk1—17 to 37 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine and fine roots; common fine filaments of lime; 30 percent pebbles; continuous weak silica cementation; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Bqk2—37 to 60 inches; pale brown (10YR 6/3) very gravelly coarse sand, brown (10YR 4/3) moist; single grain; hard, firm, nonsticky and nonplastic; few very fine and fine roots; lime coatings on the underside of rock fragments; 40 percent pebbles; continuous weak silica cementation; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Glyphs fine sandy loam, 2 to 8 percent slopes, in Glyphs-Muni-Orovada association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin, in the Monitor Valley; about 500 feet north and 1,580 feet east of the southeast corner of sec. 17, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from October to mid-June, dry in summer and early in fall
Average annual soil temperature: 47 to 52 degrees F
Depth to the Bqk horizon: 12 to 20 inches
Other characteristics: Base of continuous, weak, silica cementation at a depth of 36 to more than 60 inches

Control section:
Content of clay—20 to 35 percent
Content of rock fragments—15 to 30 percent pebbles, 0 to 5 percent cobbles
Reaction—mildly alkaline to strongly alkaline

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 to 4
Content of rock fragments—10 to 30 percent pebbles, 0 to 5 percent cobbles

Btk horizon:
Effervescence—noneffervescent or slightly effervescent in matrix
Other characteristics—few to many lime filaments or lime coatings on the underside of rock fragments

Bqk horizon:
Content of rock fragments—15 to 45 percent pebbles, 0 to 5 percent cobbles
Other characteristics—common, continuous, weak cementation; thin strata that are 30 to 60 percent durinodes in a friable matrix in some pedons

Granzan Series

Depth class: Deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from limestone and calcareous shale
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 16 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, frigid Typic Calcixerolls

Typical Pedon

About 35 percent of the surface is covered with pebbles and 35 percent with cobbles.

A1—0 to 4 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium and fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 25 percent pebbles and 20 percent cobbles; strongly effervescent; mildly alkaline (pH 7.6); clear smooth boundary.

A2—4 to 12 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine interstitial pores; 45 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

Bk1—12 to 29 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common very fine tubular pores; 50 percent pebbles and 5 percent cobbles; common thin to thick lime coatings and pendants on rock fragments; violently effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

Bk2—29 to 43 inches; light yellowish brown (10YR 6/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; few very fine tubular pores; 55 percent pebbles and 10 percent cobbles; common thick lime coatings and pendants on rock fragments; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

2R—43 inches; highly fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Granzan very cobbly loam, 30 to 50 percent slopes, in Halacan-Hapgood-Granzan association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles north of Austin; about 900 feet west and 2,000 feet north of the southeast corner of sec. 36, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually moist, but dry in mid-July to September
Average annual soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 11 to 19 inches
Depth to bedrock: 40 to 60 inches

Control section:
Content of clay—18 to 27 percent
Content of rock fragments—35 to 60 percent when mixed, dominantly pebbles but as much as 15 percent cobbles
Reaction—mildly alkaline or moderately alkaline
Calcium carbonate equivalent—40 to 50 percent

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3

Structure—weak or moderate, fine or medium, and granular or subangular blocky
Effervescence—slightly effervescent to violently effervescent

Bk horizon:
Value—6 or 7 dry, 3 or 4 moist
Chroma—3 or 4
Texture—dominantly very gravelly loam or very gravelly silt loam, but extremely gravelly loam in the lower part in some pedons
Effervescence—strongly effervescent or violently effervescent

Grassval Series

Depth class: Very shallow or shallow to duripan
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Fan piedmont remnants
Slope: 2 to 15 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durargids

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A—0 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; few fine and very fine roots; few medium and many fine vesicular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt—4 to 10 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few medium and coarse roots and common fine roots; common fine and very fine tubular pores; common thin clay films on peds; 20 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk—10 to 13 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate medium and coarse subangular blocky structure; hard, friable, sticky and plastic; common fine roots; common fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles and 5 percent cobbles; lime coatings on the underside of pebbles and many fine and medium soft lime masses; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bqkm—13 to 60 inches; white (10YR 8/1), indurated duripan and thin horizontal lenses that are weakly or strongly cemented; violently effervescent.

Typical Pedon Location

Soil name and map unit in which located: Grassval fine sandy loam, 8 to 15 percent slopes, in Grassval-Oxcorel association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 10 miles east of Austin, in the northern part of the Big Smoky Valley; about 1,950 feet north and 1,900 feet west of the southeast corner of sec. 25, T. 19 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October
Average annual soil temperature: 47 to 50 degrees F
Thickness of the solum and depth to the duripan: 8 to 14 inches
Other characteristics: Calcareous throughout; effervescence increasing with increasing depth; segregated lime common in the lower part of the solum

Control section:
Content of clay—18 to 27 percent
Content of rock fragments—15 to 35 percent, mainly pebbles

A horizon:
Value—3 or 4 moist
Chroma—2 or 3
Reaction—mildly alkaline or moderately alkaline

Bt horizon:
Value—4 or 5 moist
Chroma—3 or 4
Texture—gravelly loam or gravelly clay loam
Content of clay—25 to 35 percent
Structure—prismatic or subangular blocky
Reaction—moderately alkaline or strongly alkaline

Grina Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from soft sedimentary rock
Positions on landscape: Low, rolling hills
Slope: 15 to 50 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical Pedon

About 40 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine vesicular and tubular pores; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2—3 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and medium roots; few fine tubular pores and many fine interstitial pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A3—5 to 11 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

C—11 to 15 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common fine interstitial pores; 10 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

Cr—15 inches; soft, tuffaceous sediment; fractures 5 to 10 inches apart.

Typical Pedon Location

Soil name and map unit in which located: Grina gravelly loam, 15 to 30 percent slopes, in Grina-Grina, eroded-Caniwe association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 1,400 feet north and 1,300 feet east of the southwest corner of sec. 8, T. 25 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to paralithic contact: 14 to 20 inches

Calcium carbonate equivalent: 20 to 40 percent of the fraction less than 20 millimeters

Other characteristics: Thin Bk horizon above the paralithic contact in some pedons

Control section:
- Texture—loam, silt loam, or silty clay loam
- Content of clay—20 to 35 percent when mixed
- Content of rock fragments—0 to 15 percent when mixed

A horizon:
- Hue—10YR or 2.5Y
- Value—5 or 6 dry, 3 or 4 moist
- Structure—very fine or fine and granular, very thin to very thick and platy, or very fine to very coarse and subangular blocky
- Consistence—soft to hard (dry), very friable or friable (moist), slightly sticky or sticky and slightly plastic or plastic (wet)

C horizon:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 5 to 7 moist
- Chroma—2 to 4
- Structure—weak or moderate, very fine to medium and subangular blocky, very fine or fine and angular blocky, or very thin to thick and platy; or massive
- Effervescence—strongly effervescent or violently effervescent

Cr horizon:
- Hue—10YR to 5Y
- Value—7 or 8 dry, 5 to 7 moist
- Chroma—2 or 3
- Consistence—hard to extremely hard (dry), firm to very firm (moist)
- Other characteristics—precipitated lime or gypsum in filaments or threads and iron-manganese stains common along fracture planes

Gund Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty alluvium derived mainly from loess, volcanic ash, and various kinds of rock over lacustrine sediment

Positions on landscape: Lake plains, lake plain remnants, alluvial flat remnants

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine-silty over clayey, mixed, nonacid, mesic Aquic Durorthidic Torriorthents

Typical Pedon

A—0 to 4 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate thin and medium

platy structure; soft, very friable, sticky and slightly plastic; common very fine and fine roots; many very fine interstitial and vesicular pores; strongly alkaline (pH 8.7); gradual smooth boundary.

Cq1—4 to 14 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate thin and medium platy structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; 40 percent discontinuous weak silica cementation; strongly alkaline (pH 9.0); gradual smooth boundary.

Cq2—14 to 23 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; moderate thin and medium platy structure; hard, firm, slightly sticky and nonplastic; brittle; few very fine, fine, medium, and coarse roots; common very fine tubular pores; continuous weak silica cementation; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

2C—23 to 38 inches; light gray (2.5Y 7/2) clay, light brownish gray (2.5Y 6/2) moist; common medium distinct mottles that are olive yellow (2.5Y 6/6) moist; strong medium prismatic structure; hard, friable, sticky and very plastic; few very fine, fine, and medium roots; many very fine and fine interstitial and tubular pores; continuous moderately thick pressure faces; 60 percent of faces of peds, pores, and root channels coated with reddish brown (5YR 4/4) iron and manganese stains; strongly effervescent; strongly alkaline (pH 8.9); clear wavy boundary.

2Cy—38 to 60 inches; pale yellow (5Y 7/3) silty clay, light olive gray (5Y 6/2) moist; many medium distinct mottles that are olive yellow (2.5Y 6/6) moist; massive; hard, friable, very sticky and plastic; few very fine roots; many very fine tubular pores; common fine white (10YR 8/1) gypsum crystals; strongly effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Gund silt loam in Gund-Umberland association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 55 miles southeast of Battle Mountain; about 1,600 feet north and 1,260 feet west of the southeast corner of sec. 19, T. 23 N., R. 48 E.

Range in Characteristics

Soil moisture content: Usually moist in some part of the moisture control section in October through July; usually dry in August and September

Depth to an apparent seasonal high water table: 36 to 42 inches late in winter to early in summer

Average annual soil temperature: 47 to 52 degrees F

Depth to weak silica cementation: 3 to 6 inches

Depth to unconformable lacustrine sediment: 15 to 30 inches

Reaction: Moderately alkaline or strongly alkaline

Other characteristics: Thin A2 horizon or 2Cg horizon in some pedons

Control section:
- Texture—silt loam in the upper part, silty clay or clay in the lower part
- Content of clay—averages 18 to 25 percent in the upper part and 45 to 60 percent in the lower part

A horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Effervescence—commonly noneffervescent, but slightly effervescent in some pedons
- Other characteristics—strongly affected by salt and sodium, decreasing in degree with increasing depth

Cq horizon:
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—3 or 4
- Effervescence—commonly noneffervescent, but ranges to strongly effervescent
- Qther characteristics—30 to 60 percent discontinuous, weak, silica cementation in the upper part; continuous, weak, silica cementation in the lower part

2C horizon:
- Hue—2.5Y or 10YR in the upper part, 2.5Y or 5Y in the lower part
- Value—7 or 8 dry in the upper part and 6 or 7 dry in the lower part, 5 or 6 moist
- Chroma—2 or 3
- Content of gypsum crystals—few to many in the lower part
- Other characteristics—iron and manganese stains coating 50 to 60 percent of peds, pores, and root channels; common or many, distinct or prominent mottles

Hackwood Series

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Alluvium and colluvium that are derived from volcanic rock and include some loess

Positions on landscape: Concave side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: About 18 inches
Mean annual temperature: About 41 degrees F

Taxonomic class: Fine-loamy, mixed Pachic Cryoborolls

Typical Pedon

About 5 percent of the surface is covered with stones and 20 percent with boulders.

O—1 inch to 0; aspen litter.

A1—0 to 6 inches; dark gray (10YR 4/1) gravelly loam, black (10YR 2/1) moist; moderate very fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine interstitial pores; 10 percent pebbles and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

A2—6 to 18 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; common medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine, medium, and coarse roots; common fine and medium interstitial and tubular pores; 15 percent pebbles and 5 percent cobbles; slightly acid (pH 6.2); gradual irregular boundary.

A3—18 to 32 inches; grayish brown (10YR 5/2) gravelly loam, very dark brown (10YR 2/2) moist; common coarse subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine, medium, and coarse roots; common fine tubular pores; 20 percent pebbles and 5 percent stones; slightly acid (pH 6.2); gradual wavy boundary.

2C—32 to 60 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; few very thin silt coatings in pores; 30 percent pebbles, 5 percent cobbles, and 5 percent stones; slightly acid (pH 6.2).

Typical Pedon Location

Soil name and map unit in which located: Hackwood gravelly loam, 15 to 30 percent slopes, rubbly, in Hackwood-Newlands-Hapgood association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles northeast of Austin; about 1,650 feet east and 3,150 feet south of the northwest corner of sec. 26, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist late in fall to summer; dry in September and October

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

Other characteristics: Moisture in the lower part of the control section or the lower part of the profile supplied by the lateral movement of water

Control section:

Texture—dominantly silt loam, gravelly silt loam, or gravelly loam, but commonly very gravelly loam to very gravelly silty clay loam in the lower part

Content of clay—averages 18 to 30 percent

Content of rock fragments—averages 15 to 35 percent, mainly pebbles

Reaction—neutral or slightly acid, decreasing in acidity with increasing depth

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

C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Other characteristics (lower part of horizon)—pores lined with very thin silt coatings or uncoated sand grains; few fine distinct (10YR 5/6 dry, 10YR 4/4 moist) mottles in some pedons; few manganese stains coating pebbles and lining pores in some pedons

Halacan Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from limestone
Positions on landscape: Side slopes and crests of mountains
Slope: 8 to 50 percent
Mean annual precipitation: About 16 inches
Mean annual temperature: About 38 degrees F

Taxonomic class: Loamy-skeletal, carbonatic Cryic Lithic Rendolls

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A1—0 to 5 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many very fine and fine interstitial pores; thick lime coatings and

pendants on the underside of rock fragments; 40 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

A2—5 to 11 inches; brown (10YR 5/3) extremely channery loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and medium roots; common fine tubular pores; thick lime coatings and pendants on the underside of rock fragments; 45 percent channers and 15 percent flagstones; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bk—11 to 17 inches; brown (10YR 5/3) extremely channery loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine tubular and interstitial pores; thick continuous lime coatings and pendants on the underside of rock fragments; 45 percent channers and 30 percent flagstones; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

R—17 inches; hard, fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Halacan very gravelly loam, 30 to 50 percent slopes, in Halacan-Hatur-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles north of Austin, on Mount Callaghan; about 1,400 feet north and 2,300 feet west of the southeast corner of sec. 1, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Dry late in summer and early in fall, moist in winter and spring and early in summer

Average annual soil temperature: 37 to 42 degrees F

Mean summer soil temperature: 50 to 59 degrees F

Depth to bedrock: 10 to 20 inches

Thickness of the mollic epipedon: 7 to 11 inches

Calcium carbonate equivalent: 40 to 60 percent

Control section:

Content of clay—10 to 18 percent

Content of rock fragments—50 to 80 percent, mainly channers

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Bk horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline

Handy Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived dominantly from igneous rock and some limestone and dolostone

Positions on landscape: Fan piedmonts

Slope: 4 to 30 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

BA—6 to 9 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt—9 to 17 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; extremely hard, very firm, very sticky and very plastic; few fine roots; few fine tubular pores; many thick clay films on peds; 10 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Btk1—17 to 23 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; few fine roots; few fine tubular pores; many thick clay films on peds; 10

percent pebbles; few seams of lime; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Btk2—23 to 38 inches; light yellowish brown (10YR 6/4) gravelly 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 roots; few fine tubular pores; few moderately thick clay films on peds; 20 percent pebbles; many seams of lime; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—38 to 60 inches; very pale brown (10YR 7/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; very few fine tubular pores; common very fine very dark gray (10YR 3/1) manganese stains; 25 percent pebbles; common seams of lime; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Handy loam, 4 to 8 percent slopes, in Handy-Caniwe-Zoesta association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 40 miles south of Battle Mountain; about 350 feet south and 2,000 feet west of the northeast corner of sec. 29, T. 25 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to lime accumulation: 12 to 17 inches

Depth to the Bk horizon: 20 to 40 inches

Control section:
- Content of clay—40 to 50 percent
- Content of rock fragments—0 to 30 percent, mainly pebbles

A horizon:
- Value—4 to 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed); 3 or 4 moist
- Chroma—2 or 3
- Structure—granular, or thin to thick and platy
- Reaction—neutral or mildly alkaline

Bt and Btk horizons:
- Hue—dominantly 10YR or 7.5YR, but 5YR in some pedons
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—2 to 4
- Texture—clay or gravelly clay
- Structure—moderate or strong and angular blocky or prismatic
- Reaction—neutral to moderately alkaline, commonly increasing in alkalinity with increasing depth

Bk horizon:
- Texture—stratified gravelly loam to very gravelly loamy sand
- Content of rock fragments—25 to 60 percent, mainly pebbles
- Effervescence—strongly effervescent or violently effervescent
- Reaction—moderately alkaline or strongly alkaline

Hapgood Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Colluvium that is derived from volcanic rock and includes some volcanic ash

Positions on landscape: Side slopes of mountains

Slope: 2 to 75 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborolls

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and plastic; many very fine and fine roots and few medium and coarse roots; many very fine interstitial pores; 20 percent pebbles; neutral (pH 6.8); diffuse wavy boundary.

A2—7 to 17 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and plastic; many very fine and fine roots and few medium and coarse roots; many very fine interstitial pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

A3—17 to 33 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine interstitial pores; 30 percent pebbles and 15 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

AC—33 to 40 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 4/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine interstitial pores; 30 percent pebbles and 15 percent cobbles; neutral (pH 6.8); clear wavy boundary.

C—40 to 60 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, sticky and plastic; few fine interstitial pores; 15 percent pebbles, 30 percent cobbles, and 10 percent stones; neutral (pH 7.2).

Typical Pedon Location

Soil name and map unit in which located: Hapgood gravelly loam, 30 to 50 percent slopes, in Newlands-Packer-Hapgood association, moderately steep

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles north of Austin; about 1,300 feet west and 2,280 feet north of the southeast corner of sec. 15, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in July to early in October

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 more than 80 inches

Reaction: Slightly acid or neutral

Control section:

- Texture—dominantly loam, but includes strata of fine sandy loam, sandy loam, silt loam, or clay loam
- Content of clay—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 common only in A1 horizon and chroma of 3 common only in or below A3 horizon)
- Structure—platy, subangular blocky, granular, or massive
- Base saturation—50 to 75 percent in the upper part

C horizon:

- Hue—10YR or 7.5YR
- Value—4 to 7 dry, 3 to 5 moist
- Chroma—2 to 6
- Other characteristics: C horizon absent in areas where the mollic epipedon overlies bedrock at a depth of less than 48 inches

Hatur Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from limestone and dolostone

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, carbonatic Cryic Rendolls

Typical Pedon

About 90 percent of the surface is covered with pebbles.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 35 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 14 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 45 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Bw—14 to 22 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 3/4) moist; weak very fine and fine subangular blocky structure; soft, very friable, sticky and slightly plastic; many very fine and fine roots and few medium roots; common very fine and fine interstitial pores and few fine tubular pores; 60 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

C—22 to 29 inches; pale brown (10YR 6/3) extremely gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 65 percent pebbles and 15 percent cobbles; violently effervescent;

moderately alkaline (pH 8.4); gradual wavy boundary.
R—29 inches; highly fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Hatur gravelly loam, 30 to 50 percent slopes, in Halacan-Hatur-Rock outcrop association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles north of Austin; about 900 feet north and 750 feet west of the southeast corner of sec. 36, T. 22 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually moist, but dry for 45 to 60 days late in summer and early in fall
Average annual soil temperature: 43 to 47 degrees F
Average summer soil temperature: 52 to 56 degrees F
Thickness of the mollic epipedon: 10 to 14 inches
Depth to bedrock: 20 to 40 inches
Control section:
Texture—extremely gravelly loam or extremely gravelly sandy loam
Content of clay—12 to 25 percent
Content of rock fragments—averages 60 to 80 percent, mostly pebbles
Calcium carbonate equivalent—60 to 80 percent
A horizon:
Value—4 or 5 dry
Chroma—2 or 3
Bw horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
C horizon:
Value—4 or 5 moist
Chroma—2 or 3

Hessing Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loess and silty alluvium that include some volcanic ash over coarse alluvium derived mostly from tuff, basalt, rhyolite, and andesite
Positions on landscape: Fan skirts, inset fans
Slope: 0 to 2 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 49 degrees F
Taxonomic class: Coarse-loamy, mixed, mesic Typic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate thin and very thick platy structure; slightly hard, very friable, slightly sticky and plastic; few very fine, fine, and medium roots; many medium vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.
Bw—4 to 11 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; moderate coarse prismatic structure; hard, friable, sticky and very plastic; many very fine and few fine roots; many very fine interstitial and tubular pores; moderately alkaline (pH 8.4); abrupt smooth boundary.
Bqk—11 to 13 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak thick platy structure; hard, very friable and firm, sticky and plastic; few very fine roots; common very fine tubular pores; 50 percent weak discontinuous silica cementation; 10 percent weak, rounded durinodes 15 to 25 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
C—13 to 18 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine tubular pores; 5 percent fine pebbles; strongly alkaline (pH 9.0); abrupt wavy boundary.
2Ck1—18 to 26 inches; light gray (10YR 7/2) gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent pebbles; common fine lime filaments and lime coatings on pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
2Ck2—26 to 30 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; 35 percent pebbles; few fine lime filaments; slightly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
3Ck3—30 to 60 inches; variegated extremely gravelly loamy coarse sand; single grain; loose, nonsticky and nonplastic; few very fine roots; 65 percent pebbles; many fine lime filaments; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Hessing silt loam
Location in Nevada: Lander County, Nevada, North Part, survey area; about 61 miles southwest of Battle

Mountain; about 790 feet east and 300 feet north of the southwest corner of sec. 7, T. 24 N., R. 41 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May
Average annual soil temperature: 47 to 53 degrees F
Depth to the base of the Bw horizon: 11 to 16 inches
Depth to the unconformable 2Ck horizon: 15 to 25 inches
Depth to the unconformable 3Ck horizon: 25 to 36 inches
Other characteristics: As much as 50 percent thin, discontinuous, weakly silica-cemented lenses and as much as 20 percent weak durinodes present below a depth of 11 inches in some pedons

Control section:
- Texture—averages gravelly loam or gravelly sandy loam
- Content of clay—8 to 18 percent when mixed
- Content of rock fragments—15 to 35 percent when mixed

A horizon:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Structure—thin to thick and platy, fine to coarse and prismatic, or massive
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—slightly effervescent in some pedons because of calcareous dust recharge

Bw horizon:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Texture—silt loam or silty clay loam
- Structure—platy, prismatic, angular blocky, subangular blocky, or massive

2Ck horizon:
- Texture—gravelly loam or gravelly sandy loam
- Content of clay—15 to 30 percent
- Content of rock fragments—15 to 35 percent, mainly pebbles
- Consistence—slightly plastic or plastic (wet)

3Ck horizon:
- Texture—stratified very gravelly loamy coarse sand to extremely gravelly sand
- Content of rock fragments—50 to 70 percent, mainly pebbles
- Consistence—soft or loose (dry), nonplastic or slightly plastic (wet)
- Reaction—mildly alkaline to strongly alkaline

Hooplite Series

Depth class: Very shallow or shallow
Drainage class: Well drained
Parent material: Residuum derived from rhyolitic rock and undifferentiated volcanic rock
Positions on landscape: Side slopes of hills and mountains
Slope: 4 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical Pedon

About 10 percent of the surface is covered with cobbles and 45 percent with pebbles.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; many fine and medium vesicular pores; 40 percent pebbles and 5 percent cobbles; slightly effervescent; mildly alkaline (pH 7.6); clear smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 20 percent pebbles and 5 percent cobbles; common thin strongly effervescent lime coatings on the underside of rock fragments; slightly effervescent in matrix; mildly alkaline (pH 7.8); clear wavy boundary.

Bt—4 to 8 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 45 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

R—8 inches; hard, fractured rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Hooplite very gravelly fine sandy loam, 4 to 15 percent slopes, in Hooplite-Stingdorn association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles northeast of

Austin; about 1,100 feet south of the northwest corner of sec. 25, T. 22 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in mid-June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to hard bedrock: 6 to 14 inches
Other characteristics: As much as 3 inches of highly fractured bedrock overlying the lithic contact in some pedons

Control section:
Content of clay—18 to 25 percent when mixed
Content of rock fragments—35 to 50 percent pebbles, 0 to 10 percent cobbles
Reaction—mildly alkaline or moderately alkaline

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Effervescence—noneffervescent or slightly effervescent
Structure—platy or subangular blocky

Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—very gravelly loam or very gravelly clay loam
Content of rock fragments—35 to 50 percent
Structure—subangular blocky or granular
Effervescence—slightly effervescent or strongly effervescent

Hopeka Series

Depth class: Very shallow
Drainage class: Well drained
Parent material: Residuum derived from limestone and dolostone
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 12 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents

Typical Pedon

About 20 percent of the surface is covered with pebbles and 25 percent with cobbles.

A—0 to 4 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots and few medium and coarse roots; many very fine and fine interstitial pores and common fine tubular pores; 50 percent pebbles; lime coatings on the underside of pebbles; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—4 to 8 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots and few coarse roots; common fine interstitial pores and common very fine and fine and few medium tubular pores; 55 percent pebbles; lime coatings on the underside of pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—8 inches; limestone.

Typical Pedon Location

Soil name and map unit in which located: Hopeka very gravelly loam, 30 to 50 percent slopes, in Kram-Hopeka-Rock outcrop association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles west of Austin; about 550 feet south and 1,050 feet west of the northeast corner of sec. 32, T. 21 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June to mid-October
Average annual soil temperature: 43 to 47 degrees
Depth to bedrock: 4 to 10 inches
Calcium carbonate equivalent: 40 to 85 percent
Reaction: Moderately alkaline or strongly alkaline
Effervescence: Dominantly violently effervescent, but strongly effervescent in the upper part in some pedons

Control section:
Content of clay—18 to 25 percent
Content of rock fragments—35 to 60 percent limestone or dolostone pebbles, cobbles, or stones

A horizon:
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3

C horizon:
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3
Structure—weak or moderate and subangular blocky, or massive

Hymas Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum and colluvium derived from limestone
Positions on landscape: Crests and side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 5 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial and tubular pores; 20 percent pebbles and 5 percent cobbles; thin violently effervescent lime coatings on rock fragments; slightly effervescent in matrix; moderately alkaline (pH 8.0); clear smooth boundary.

A2—5 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial and tubular pores; 15 percent pebbles and 5 percent cobbles; violently effervescent in matrix; moderately alkaline (pH 8.0); clear wavy boundary.

C—9 to 15 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and plastic; common very fine, fine, and medium roots and few coarse roots; common very fine and fine interstitial and tubular pores; 30 percent pebbles and 15 percent cobbles; thick violently effervescent lime coatings and pendants on rock fragments; slightly effervescent in matrix; moderately alkaline (pH 8.2); abrupt wavy boundary.

2R—15 inches; fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Hymas gravelly loam, 30 to 50 percent slopes, in Hymas-Xine-Attella association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 12 miles north of Austin; about 1,770 feet west and 600 feet north of the southeast corner of sec. 21, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist late in fall and in winter and spring, dry late in June through September
Average annual soil temperature: 42 to 47 degrees F
Average summer soil temperature: 59 to 66 degrees F
Thickness of the mollic epipedon: 7 to 14 inches
Depth to bedrock: 10 to 20 inches

Control section:
Content of clay—8 to 27 percent
Content of rock fragments—35 to 80 percent, dominantly angular limestone fragments

A horizon:
Hue—10YR or 2.5Y
Value—4.5 to 5.5 dry, 2.5 to 3.5 moist
Chroma—2 or 3 moist or dry
Structure—weak or moderate and platy or granular
Reaction—neutral to moderately alkaline
Effervescence—slightly effervescent or strongly effervescent

C horizon:
Hue—10YR or 2.5Y
Value—5 to 8 dry, 4 to 7 moist
Chroma—2.0 to 3.5 moist or dry
Content of rock fragments—averages 35 to 80 percent
Structure—massive, or weak and subangular blocky or granular
Reaction—mildly alkaline or moderately alkaline

Isolde Series

Depth class: Very deep
Drainage class: Excessively drained
Parent material: Eolian sand derived from various kinds of rock
Positions on landscape: Stabilized dunes on lakebeds, playas, terraces, alluvial fans, and uplands
Slope: 0 to 30 percent
Mean annual precipitation: About 6 inches
Mean annual temperature: About 52 degrees F

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical Pedon

A—0 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; moderately alkaline (pH 8.2); clear smooth boundary.

C1—7 to 26 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; moderately alkaline (pH 8.4); diffuse smooth boundary.

C2—26 to 60 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Isolde fine sand, 4 to 30 percent slopes, in Bubus-Isolde association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles southwest of Battle Mountain; about 2,100 feet west and 1,300 feet south of the northeast corner of sec. 4, T. 29 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry in April to mid-November, moist for short periods in mid-November through March

Average annual soil temperature: 53 to 57 degrees F

Control section:

Texture—dominantly fine sand, but sand in some pedons

Reaction—neutral to moderately alkaline

A horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3

C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline in the lower part

Effervescence—noneffervescent to strongly effervescent in the lower part

Other characteristics—2C horizon present below a depth of 40 inches in some pedons

Itca Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from extrusive volcanic and pyroclastic rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles, 35 percent with cobbles, and 25 percent with stones.

A1—0 to 6 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak very fine granular; slightly hard, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many fine interstitial pores; 30 percent pebbles, 15 percent cobbles, and 15 percent stones; neutral (pH 7.2); clear wavy boundary.

A2—6 to 9 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine interstitial pores; 20 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); abrupt wavy boundary.

Bt1—9 to 13 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, very sticky and very plastic; common fine roots and few medium and coarse roots; common fine interstitial pores; many thin clay films in pores and on peds; 25 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.4); clear irregular boundary.

Bt2—13 to 17 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; hard, firm, very sticky and very plastic; few fine, medium, and coarse roots; few fine tubular pores; common moderately thick clay films in pores and on peds; 20 percent pebbles, 20 percent cobbles, and 10 percent stones; mildly alkaline (pH 7.4); abrupt broken boundary.

R—17 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Itca extremely stony loam, 50 to 75 percent slopes, in Itca-Ninemile-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles east of Austin; about 1,950 feet east and 320 feet south of the northwest corner of sec. 21, T. 2 S., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry for 60 to 90 days consecutively in July through October

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 7 to 15 inches (includes the upper part of the Bt horizon in some pedons)

Depth to bedrock: 10 to 20 inches

A horizon:

- Hue—10YR or 7.5YR
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—weak or moderate, medium or thick, and platy; or weak or moderate, medium or coarse, and subangular blocky
- Consistence—soft or slightly hard (dry), very friable or friable (moist), nonsticky to slightly sticky and slightly plastic to plastic (wet)
- Reaction—neutral or mildly alkaline

Bt horizon:

- Hue—7.5YR or 10YR
- Value—4 to 6 dry, 3 or 4 moist
- Chroma—2 to 4
- Texture—clay or clay loam
- Content of clay—35 to 45 percent
- Content of rock fragments—averages 35 to 60 percent, mainly pebbles and cobbles, but as much as 85 percent in the lower part in some pedons
- Consistence—slightly hard or hard (dry), friable or firm (moist), sticky or very sticky (wet)
- Reaction—neutral to moderately alkaline
- Other characteristics—thin BC or C horizon that is dominantly very soft, decomposing rock present in some pedons; tongues of Bt horizon extending into the fractures in the underlying bedrock in the shallower areas

Itca Variant

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from tuffaceous sediment

Positions on landscape: Convex side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid, shallow Aridic Argixerolls

Typical Pedon

About 30 percent of the surface is covered with pebbles and 5 percent with cobbles.

A—0 to 3 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate fine granular; slightly hard, friable, sticky and plastic; few very fine, medium, and coarse roots; many very fine and fine interstitial pores; 30 percent pebbles and 5 percent cobbles; slightly effervescent; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—3 to 8 inches; grayish brown (10YR 5/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common fine and medium roots and few coarse roots; common very fine and fine tubular pores; common moderately thick clay films on faces of peds; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Btk—8 to 12 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; hard, firm, very sticky and very plastic; common fine and medium roots and few coarse roots; common very fine and fine tubular pores; common thin and few moderately thick clay films on faces of peds; 10 percent pebbles; few fine lime masses; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

Cr—12 to 24 inches; weathered tuffaceous sediment that is highly fractured in the upper part; few fine roots along fractures.

Typical Pedon Location

Soil name and map unit in which located: Itca Variant very gravelly loam, 15 to 30 percent slopes, in Itca Variant-Reluctan-Handy association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles north of Austin; about 500 feet north and 1,700 feet west of the southeast corner of sec. 28, T. 22 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in some part in mid-October

to mid-June, dry in summer and early in fall
Average annual soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 7 to 14 inches (includes the Bt horizon)
Depth to paralithic contact: 10 to 20 inches
Effervescence: Dominantly slightly effervescent to strongly effervescent, but noneffervescent in the upper part in some pedons
Reaction: Mildly alkaline or moderately alkaline
Control section:
Texture (when mixed)—loam, clay loam, sandy clay loam, or gravelly loam
Content of clay—25 to 35 percent
Content of rock fragments—0 to 20 percent, mainly pebbles
A horizon:
Value—4 or 5 dry
Chroma—2 or 3

Izo Series

Depth class: Very deep
Drainage class: Excessively drained
Parent material: Alluvium derived from mixed igneous and sedimentary rock
Positions on landscape: Channels, inset fans, fan skirts
Slope: 0 to 4 percent
Mean annual precipitation: About 6 inches
Mean annual temperature: About 51 degrees F
Taxonomic class: Sandy-skeletal, mixed, mesic Typic Torriorthents

Typical Pedon

A—0 to 2 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; few medium and many very fine and fine vesicular pores; 15 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
C1—2 to 8 inches; light gray (2.5Y 7/2) gravelly loamy sand, light olive brown (2.5Y 5/4) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; 30 percent pebbles; white (2.5Y 8/2) very thin lime coatings on the underside of 30 percent of pebbles; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.
C2—8 to 34 inches; light gray (2.5Y 7/2) very gravelly coarse sand, light olive brown (2.5Y 5/4) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 55 percent pebbles; white (2.5Y 8/2) very thin lime coatings on the underside of 30 percent of pebbles; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
C3—34 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly coarse sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Izo gravelly loam, 0 to 4 percent slopes, in Izo-Bubus association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles southeast of Austin; about 1,850 feet south and 800 feet east of the northwest corner of sec. 12, T. 15 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively in July through October as a result of convection storms
Average annual soil temperature: 53 to 59 degrees F
Reaction: Moderately alkaline or strongly alkaline, commonly increasing in alkalinity with increasing depth
Effervescence: Slightly effervescent to strongly effervescent
Other characteristics: Thin noncalcareous strata in some pedons
Control section:
Texture (fraction less than 2 millimeters)—stratified coarse sand, loamy sand, or loamy coarse sand
Content of rock fragments—averages 50 to 75 percent, mainly pebbles
A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4
Structure—platy, massive, or single grain
C horizon:
Hue—2.5Y or 10YR
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Structure—massive or single grain
Texture (fraction less than 2 millimeters)—commonly stratified sand, coarse sand, loamy sand, or loamy coarse sand
Content of rock fragments—dominantly 50 to 75 percent, mainly pebbles, but strata that are 15

to 85 percent rock fragments present in some pedons
Other characteristics—coatings of lime on as much as 50 percent of the underside of the rock fragments in some pedons

Izod Series

Depth class: Very shallow or shallow
Drainage class: Well drained
Parent material: Residuum derived from shale and some limestone, dolomite, and sandstone
Positions on landscape: Side slopes and crests of hills and mountains
Slope: 15 to 75 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

Typical Pedon

About 30 percent of the surface is covered with pebbles, 25 percent with cobbles, and 5 percent with stones.

A—0 to 4 inches; pale brown (10YR 6/3) extremely cobbly fine sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; many very fine vesicular pores; 35 percent pebbles and 35 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

C—4 to 10 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 30 percent pebbles, 10 percent cobbles, and 5 percent stones; few fine soft lime masses; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

2R—10 inches; limestone that is weathered and fractured in the upper 1 inch and is hard below this depth; few fine roots in fractures; common lime pendants on rock fragments.

Typical Pedon Location

Soil name and map unit in which located: Izod extremely cobbly fine sandy loam, 15 to 50 percent slopes, in Izod-Rock outcrop association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 1,800 feet north and 800 feet east of the southwest corner of sec. 5, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist late in fall to early in spring, dry in June through October
Average annual soil temperature: 47 to 50 degrees F
Depth to bedrock: 7 to 14 inches
Reaction: Mildly alkaline or moderately alkaline
Calcium carbonate equivalent: 50 to 60 percent
Other characteristics: Silica and lime laminae commonly covering as much as 75 percent of the underlying bedrock

Control section:
Content of clay—18 to 25 percent
Content of rock fragments—40 to 75 percent, mainly pebbles

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—weak or moderate, very thin or thin, and 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 and subangular blocky, or massive

Jesse Camp Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Silty alluvium that is derived mainly from volcanic rock and includes some volcanic ash
Positions on landscape: Inset fans, stream terraces
Slope: 0 to 2 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Fine-silty, mixed, frigid Xerollic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and medium roots; many fine and medium vesicular and interstitial pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw—4 to 12 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common

very fine and coarse roots; common very fine and medium tubular pores; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—12 to 26 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate thin platy; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common fine and medium tubular pores; 5 percent durinodes; strongly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bqk2—26 to 60 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 15 percent durinodes; common medium faint light gray (10YR 7/2) lime seams; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Jesse Camp silt loam, 0 to 2 percent slopes, in Fenster-Jesse Camp association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles east of Austin; about 400 feet south and 700 feet west of the northeast corner of sec. 19, T. 19 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Combined thickness of the A and Bw horizons: 10 to 17 inches

Content of clay in the control section: 18 to 27 percent

Other characteristics: C horizon below a depth of 50 inches in some pedons

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate, very thin to medium, and platy, or massive
- Consistence—soft or slightly hard
- Effervescence—noneffervescent or slightly effervescent

Bw horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Texture—silt loam or very fine sandy loam
- Structure—weak or moderate, very thin to medium, and platy; or weak, fine or medium, and subangular blocky
- Effervescence—noneffervescent or slightly effervescent

Bk horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Texture—dominantly silt loam, but thin strata of very fine sandy loam or silty clay loam
- Structure—prismatic, angular blocky, or massive
- Reaction—moderately alkaline to very strongly alkaline
- Effervescence—strongly effervescent or violently effervescent
- Other characteristics—few to many, very fine, fine, and medium, soft lime masses, filaments, or seams in the lower part; as much as 20 percent brittle durinodes in a friable matrix (durinodes are as much as 0.5 inch in diameter and 0.5 to 2.0 inches in length and are hard to extremely hard)

Jung Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from metavolcanic and volcanic rock

Positions on landscape: Crests and side slopes of mountains and hills

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 25 percent with cobbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; few fine roots; many fine vesicular pores; 25 percent pebbles and 25 percent cobbles; neutral (pH 7.0); clear smooth boundary.

A2—3 to 8 inches; light brownish gray (10YR 6/2) cobbly loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; common fine roots; many very fine interstitial pores; 10 percent pebbles and 20 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt—8 to 15 inches; brown (10YR 5/3) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate medium and fine subangular blocky; very hard, firm, sticky and plastic; common fine roots; few very fine tubular pores; continuous thick clay films on peds; 20 percent pebbles and 20 percent cobbles; moderately alkaline (pH 8.4); gradual wavy boundary.

Btk—15 to 19 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few very fine tubular pores; thin discontinuous clay films on peds; 30 percent pebbles and 20 percent cobbles; lime coatings on the underside of rock fragments; slightly effervescent; moderately alkaline (pH 8.4); abrupt irregular boundary.

R—19 inches; fractured, hard rhyolite; fractures more than 4 inches apart.

Typical Pedon Location

Soil name and map unit in which located: Jung very cobbly loam, 15 to 30 percent slopes, in Newpass-Jung association

Location in Nevada: Lander County, Nevada, South Part, survey area; in cut at side of powerline access road about 17.5 miles west of Austin, near Mount Airy; about 50 feet south and 1,300 feet west of the northeast corner of sec. 5, T. 19 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June to early in November

Average annual soil temperature: 47 to 52 degrees F

Depth to bedrock: 14 to 20 inches

Control section:
- Content of clay—35 to 45 percent
- Content of rock fragments—35 to 50 percent, mainly pebbles and cobbles

A horizon:
- Value—3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate, thin or medium, and platy
- Reaction—neutral or mildly alkaline

Bt horizon:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—very gravelly clay loam, very cobbly clay loam, or very cobbly clay
- Structure—dominantly weak to strong and prismatic or angular blocky, but subangular blocky in the lower part in some pedons
- Reaction—moderately alkaline or strongly alkaline

Btk horizon:
- Effervescence—slightly effervescent or strongly effervescent

Kawich Series

Depth class: Very deep

Drainage class: Excessively drained

Parent material: Eolian sand derived from various kinds of rock

Positions on landscape: Stabilized dunes

Slope: 4 to 30 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 53 degrees F

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical Pedon

A—0 to 4 inches; very pale brown (10YR 7/3) fine sand, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common fine and medium interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C1—4 to 42 inches; very pale brown (10YR 7/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common fine and medium roots; many fine interstitial pores and common fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C2—42 to 52 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C3—52 to 54 inches; white (10YR 8/2) fine sand (volcanic ash), light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C4—54 to 60 inches; very pale brown (10YR 7/3) fine sand, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Kawich fine sand, 4 to 30 percent slopes, in Yobe-Kawich-Playas association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles south of Austin; about 550 feet east of the southwest corner of sec. 8, T. 15 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively in July and October as a result of convection storms
Average annual soil temperature: 54 to 59 degrees F
Depth to unconformable material: 40 to more than 120 inches
Texture of the control section: Averages fine sand, but strata of sand or loamy fine sand present in some pedons
Effervescence: Slightly effervescent to violently effervescent
Reaction: Moderately alkaline to very strongly alkaline
Hue: 10YR or 7.5YR
Value: 5 to 8 dry, 4 to 6 moist
Chroma: 2 to 4
Other characteristics: Significant amounts of pyroclastic material present

Kelk Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loess that includes some volcanic ash and mixed silty alluvium derived from various kinds of rock
Positions on landscape: Inset fans, alluvial plains
Slope: 0 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: 48 degrees F
Taxonomic class: Fine-silty, mixed, mesic Durixerollic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.
Bw—4 to 12 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, very sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral (pH 7.2); clear smooth boundary.
Bq1—12 to 20 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, very sticky and plastic; few very fine and fine roots; few very fine tubular pores; 20 percent hard, firm, strongly cemented durinodes; 20 percent discontinuous weak cementation; mildly alkaline (pH 7.4); clear wavy boundary.
Bq2—20 to 27 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 40 percent hard, firm, strongly cemented durinodes; 20 percent discontinuous weak cementation; moderately alkaline (pH 8.4); clear wavy boundary.
Bqk1—27 to 31 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 40 percent strongly cemented durinodes in continuous, weakly silica-cemented matrix; 5 percent pebbles; common fine seams and threads of lime; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
Bqk2—31 to 40 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; 40 percent strongly cemented durinodes in continuous, weakly silica-cemented matrix; common fine seams and threads of lime; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
2Bk—40 to 60 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; few faint light yellowish brown (10YR 6/4) mottles; moderate medium platy structure parting to fine medium angular blocky; hard, friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; few fine seams and threads of lime; common moderately thick pressure faces; slightly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Kelk very fine sandy loam, lacustrine substratum, 0 to 2 percent slopes, in Allor-Kelk association
Location in Nevada: Lander County, Nevada, South Part, survey area; in an unsectionalized area about 1,100 feet east and 550 feet south of the northwest corner of the assumed sec. 6, T. 14 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to the base of the Bw horizon: 12 to 18 inches

Depth to continuous, weak, silica cementation: 18 to 35 inches
Depth to carbonates: 12 to 35 inches
Content of clay in the control section: 18 to 25 percent
Other characteristics: Typically slightly or moderately affected by salt below a depth of 24 to 48 inches

A horizon:
- Hue—10YR or 2.5Y
- Structure—very thin or thin and platy, very fine or fine and prismatic, or massive
- Consistence—slightly sticky or sticky and slightly plastic or plastic
- 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—angular blocky, subangular blocky, prismatic, or massive
- Reaction—dominantly neutral to moderately alkaline, but strongly alkaline in the lower part
- Effervescence—noneffervescent or slightly effervescent
- Other characteristics—10 to 20 percent weak durinodes in the lower part in some pedons

Bq and Bqk horizons:
- Value—6 to 8 dry, 3 to 6 moist
- Chroma—2 to 4
- Texture—dominantly silt loam, but thin strata of silty clay loam common in some pedons below a depth of 30 inches
- Reaction—neutral to strongly alkaline, increasing in alkalinity with increasing depth
- Effervescence (Bqk horizon)—slightly effervescent to violently effervescent
- Other characteristics—strata are discontinuously cemented with silica and are 30 to 90 percent durinodes or are 20 to 50 percent discontinuously weakly cemented with silica; relict mottles absent in the lower part of the Bqk horizon in some pedons; lenses that are 5 to 15 percent pebbles in the Bqk horizon in some pedons; extremely gravelly strata below a depth of 42 inches in some pedons; silty clay loam 2Bk horizon below a depth of 39 inches in some pedons

Kingingham Series

Depth class: Moderately deep to duripan
Drainage class: Well drained
Parent material: Thin mantle of loess over alluvium derived from various kinds of rock
Slope: 2 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Typic Nadurargids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 3 inches; very pale brown (10YR 7/3) gravelly very fine sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine and fine vesicular pores; 15 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, dark brown (10YR 4/3) moist; strong thick platy structure; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine and fine vesicular pores; 20 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

2Btnk1—7 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4) moist; strong medium angular blocky structure; slightly hard, very friable, very sticky and very plastic; common fine and medium roots; many very fine and fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 15 percent pebbles; common fine seams of lime; slightly effervescent in matrix; strongly alkaline (pH 8.6); clear wavy boundary.

2Btnk2—12 to 18 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common fine and medium roots; common very fine tubular pores; many moderately thick and thick clay films on faces of peds and lining pores; 20 percent pebbles; common fine seams of lime; slightly effervescent in matrix; strongly alkaline (pH 8.8); clear wavy boundary.

2Btqk—18 to 22 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 10 percent weakly cemented durinodes; 50 percent pebbles; common fine seams

of lime; strongly effervescent; strongly alkaline (pH 8.6); abrupt irregular boundary.

2Bqkm1—22 to 28 inches; very pale brown (10YR 8/3), indurated duripan, very pale brown (10YR 7/4) moist; massive; extremely hard, extremely firm; violently effervescent.

2Bqkm2—28 to 60 inches; very pale brown (10YR 8/3), indurated duripan alternating with thin horizontal lenses that are weakly to strongly cemented; very pale brown (10YR 7/4) moist; massive; violently effervescent.

Typical Pedon Location

Soil name and map unit in which located: Kingingham gravelly very fine sandy loam, 2 to 8 percent slopes, in Kingingham-Golconda-Whirlo association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles south of Battle Mountain; about 2,630 feet south and 2,630 feet east of the northwest corner of sec. 6, T. 30 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and early in spring, dry late in May through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 20 to 30 inches

Reaction: Moderately alkaline or strongly alkaline, increasing in alkalinity with increasing depth

Other characteristics: Bqk horizon present above the indurated duripan in some pedons

A horizon:

Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3

Bt horizon:

Value—4 to 6 dry, 4 or 5 moist
Chroma—4 to 6
Texture—gravelly clay loam, gravelly silty clay loam, gravelly clay, or gravelly silty clay
Content of clay—35 to 50 percent
Content of rock fragments—15 to 35 percent when mixed, mainly pebbles
Exchangeable sodium percentage—15 to 30

Kobeh Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Mixed alluvium that includes some volcanic ash

Positions on landscape: Inset fans, fan skirts, stream terraces

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Durixerollic Camborthids

Typical Pedon

A—0 to 7 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; common fine and very fine interstitial pores; 25 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bw—7 to 15 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; common fine and very fine interstitial pores; 30 percent pebbles; neutral (pH 7.0); clear wavy boundary.

2Bqk—15 to 32 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine and very fine roots; few fine and very fine interstitial pores; discontinuous, thin, weakly cemented laminae; 20 percent brittle durinodes; 50 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bk1—32 to 52 inches; very pale brown (10YR 7/3) very gravelly sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common fine and very fine roots; common fine and very fine interstitial pores; 45 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

3Bk2—52 to 60 inches; light gray (10YR 7/2) gravelly fine sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; few medium roots; common fine and very fine interstitial pores; 30 percent pebbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Kobeh gravelly loam, 0 to 4 percent slopes, in Kobeh-Shipley association

Location in Nevada: Eureka County Area, Nevada, survey area; about 14 miles west of Eureka; about 280 feet south and 660 feet east of the northwest corner of sec. 11, T. 18 N., R. 51 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 44 to 47 degrees F
Combined thickness of the A and Bw horizons: 12 to 30 inches
Depth to the 2Bk horizon: 20 to 35 inches
Control section:
- Texture—gravelly sandy loam or gravelly fine sandy loam in the upper part; dominantly very gravelly sand in the lower part, but strata of very gravelly sandy loam common in some pedons
- Content of clay—5 to 15 percent in the upper part, less than 10 percent in the lower part
- Content of rock fragments—averages 35 to 60 percent, mainly pebbles

A horizon:
- Value—5 or 6 dry, 3 or 4 moist (value of more than 5.5 dry and 3.5 moist occurs when the upper 7 inches is mixed)
- Structure—weak or moderate, very thin to medium, and platy; weak or moderate, very fine to medium, and subangular blocky; single grain; or massive
- Reaction—slightly acid or neutral

Bw horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—weak, coarse or very coarse, and prismatic; moderate, medium or coarse, and subangular blocky, or massive

Bq and 2Bk horizons:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Reaction—neutral to strongly alkaline
- Other characteristics—20 to 70 percent 0.5- to 1-inch-thick, hard or very hard durinodes in the Bq horizon; few to many silica bridges; discontinuous, weakly or strongly cemented layer that extends 6 to 36 inches horizontally and is as much as 3 inches thick present at the top of the 2Bk horizon in some pedons

2C or 3Bk horizon (when present):
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 3 to 6 moist
- Chroma—1 to 3
- Other characteristics—strata of gravelly fine sandy loam or very gravelly fine sandy loam below a depth of 50 inches in some pedons

Koyen Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy alluvium derived dominantly from volcanic rock
Positions on landscape: Fan skirts
Slope: 2 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 52 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Typic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, slightly sticky and nonplastic; few fine and medium roots; common fine and medium vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw1—4 to 8 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine roots and common fine and medium roots; common fine and medium tubular pores; 10 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bw2—8 to 14 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common fine and medium roots; common fine and medium tubular pores; few fine filaments or threads of lime; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk1—14 to 34 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few fine and medium roots; common fine tubular pores; common medium filaments or threads of lime; 10 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bk2—34 to 60 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; few fine lime filaments or threads and lime coatings on pebbles; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Koyen fine sandy loam, 2 to 4 percent slopes
Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles southeast of

Austin; about 500 feet south and 1,100 feet west of the northeast corner of sec. 17, T. 15 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms
Average annual soil temperature: 53 to 59 degrees F
Depth to the Bk horizon: 14 to 21 inches
Reaction: Moderately alkaline or strongly alkaline (strongly alkaline in the Bk horizon)
Other characteristics: 2C horizon present in some pedons
Control section:
Texture—dominantly sandy loam, but strata of fine sandy loam, loam, or loamy sand in some pedons
Content of clay—10 to 18 percent
Content of rock fragments—averages 10 to 25 percent, but individual layers are as much as 40 percent pebbles
A horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Structure—very thin to medium and platy, very fine to medium and subangular blocky, or massive
Bw horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Structure—very weak or weak, coarse or medium, and subangular blocky; or massive
Other characteristics—calcareous only in the lower part
Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Effervescence—strongly effervescent or violently effervescent
Structure—subangular blocky or massive

Koynik Series

Depth class: Very shallow or shallow
Drainage class: Well drained
Parent material: Residuum derived from limestone and calcareous shale
Positions on landscape: Hillsides
Slope: 15 to 30 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 49 degrees F
Taxonomic class: Loamy-skeletal, carbonatic, mesic Lithic Torriorthents

Typical Pedon

About 40 percent of the surface is covered with pebbles and 10 percent with cobbles.

A1—0 to 3 inches; very pale brown (10YR 7/3) very gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine vesicular pores; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
A2—3 to 6 inches; pale brown (10YR 6/3) very gravelly silt loam, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; many very fine vesicular pores and few very fine tubular pores; 40 percent pebbles; common medium lime pendants on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
Bk—6 to 8 inches; very pale brown (10YR 7/3) very gravelly loam, brown (10YR 5/3) moist; moderate thin platy structure parting to moderate fine granular; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine and fine interstitial and tubular pores; 40 percent pebbles; common fine soft masses of lime and common medium pendants of lime on the underside of or coating rock fragments; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
2R—8 inches; hard limestone.

Typical Pedon Location

Soil name and map unit in which located: Koynik very gravelly very fine sandy loam, 15 to 30 percent slopes, in Koynik, steep-Koynik-Rock outcrop association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain, in the Fish Creek Mountains; in an unsectionalized area about 1,000 feet north and 3,000 feet west of the southwest corner of the assumed sec. 6, T. 28 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and early in spring, dry in May through October
Average annual soil temperature: 47 to 52 degrees F
Depth to lithic contact: 8 to 14 inches

Reaction: Moderately alkaline or strongly alkaline
Calcium carbonate equivalent: 40 to 60 percent, usually increasing with increasing depth
Other characteristics: Thin Cr horizon or 1 to 2 inches of highly fractured bedrock present at the lithic contact
Control section:
Texture—very gravelly silt loam, very gravelly loam, or very gravelly very fine sandy loam
Content of clay—15 to 25 percent
Content of rock fragments—35 to 50 percent, mainly pebbles
A horizon:
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 to 4
Bk horizon:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—3 or 4
Structure—weak or moderate and platy or subangular blocky, or massive

Kram Series

Depth class: Very shallow or shallow
Drainage class: Somewhat excessively drained
Parent material: Residuum derived from limestone
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 48 degrees F
Taxonomic class: Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

Typical Pedon

About 25 percent of the surface is covered with pebbles, 15 percent with cobbles, and 2 percent with stones.
A—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 30 percent pebbles and 20 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
C—4 to 13 inches; pale brown (10YR 6/3) very gravelly very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots and few coarse roots; common very fine interstitial pores; 45 percent pebbles and 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); abrupt irregular boundary.
R—13 inches; fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Kram very cobbly loam in Attella-Xine-Kram association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 46 miles north of Austin; about 2,400 feet south and 1,100 feet west of the northeast corner of sec. 19, T. 25 N., R. 40 E.

Range in Characteristics

Soil moisture content: Usually dry in mid-June through October
Average annual soil temperature: 49 to 52 degrees F
Depth to bedrock: 8 to 14 inches
Reaction: Moderately alkaline or strongly alkaline
Calcium carbonate equivalent (fraction less than 20 millimeters): 40 to 50 percent
Control section:
Content of clay—8 to 18 percent
Content of rock fragments—40 to 50 percent pebbles; averages 5 to 10 percent cobbles and stones
A horizon:
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—granular or platy
Effervescence—slightly effervescent to violently effervescent
C horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4
Texture—very gravelly very fine sandy loam or very gravelly loam
Content of rock fragments—45 to 55 percent pebbles, 5 to 10 percent cobbles and stones
Structure—subangular blocky or massive
Effervescence—strongly effervescent or violently effervescent

Labshaft Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from siliceous rock
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, mixed Lithic Cryoborolls

Typical Pedon

About 10 percent of the surface is covered with pebbles, 30 percent with cobbles, and 30 percent with stones.

A1—0 to 3 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine tubular pores; 15 percent pebbles, 25 percent cobbles, and 20 percent stones; neutral (pH 6.8); clear smooth boundary.

A2—3 to 8 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 15 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear irregular boundary.

Bw—8 to 15 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine angular blocky structure; slightly hard, friable, sticky and plastic; common fine, medium, and coarse roots; common very fine tubular pores; 45 percent pebbles, 10 percent cobbles, and 10 percent stones; neutral (pH 7.2); abrupt irregular boundary.

R—15 inches; fractured siliceous rock; few fine roots in crevices.

Typical Pedon Location

Soil name and map unit in which located: Labshaft extremely stony loam, 30 to 50 percent slopes, in Labshaft-Hapgood-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 40 miles southwest of Austin; in an unsectionalized area about 2,000 feet south of the northwest corner of the assumed sec. 9, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to early in October

Average annual soil temperature: 43 to 47 degrees F

Average summer soil temperature: 54 to 59 degrees F

Thickness of the mollic epipedon: 7 to 14 inches (commonly includes part or all of the Bw horizon)

Depth to bedrock: 10 to 20 inches

Reaction: Neutral or slightly acid

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3

B horizon:
- Value—5 or 6 dry, 2 or 3 moist
- Chroma—2 to 4
- Texture—very gravelly loam, very gravelly clay loam, extremely gravelly sandy clay loam, or extremely gravelly loam
- Content of clay—25 to 35 percent
- Content of rock fragments—40 to 70 percent, mostly pebbles

Laped Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolitic tuff and andesite

Positions on landscape: Crests, shoulder slopes, and side slopes of hills

Slope: 8 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Typic Durargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light gray (10YR 7/2) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine vesicular pores; 20 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; many very fine and fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bt—6 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common medium roots; common very fine and fine tubular pores; few thin clay films on peds and bridging sand grains; 10 percent pebbles and 5

percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—12 to 18 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine prismatic structure parting to strong fine angular blocky; hard, firm, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; 15 percent pebbles and 5 percent cobbles; few fine strongly effervescent lime filaments and thin strongly effervescent lime coatings on the underside of coarse fragments; noneffervescent in matrix; moderately alkaline (pH 8.3); abrupt wavy boundary.

Bqkm—18 to 23 inches; white (10YR 8/2), indurated duripan that has a laminar cap 2 millimeters thick; pale brown (10YR 6/3) moist; massive; extremely hard, extremely firm; violently effervescent; clear wavy boundary.

2R—23 inches; hard bedrock.

Typical Pedon Location

Soil name and map unit in which located: Laped gravelly loam, 8 to 15 percent slopes, in Laped-Colbar-Osoll association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 1,800 feet south and 400 feet west of the northeast corner of sec. 22, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and early in spring, dry in May through October

Average annual soil temperature: 47 to 51 degrees F

Thickness of the solum and depth to the duripan: 14 to 20 inches

Depth to bedrock: 20 to 30 inches

Other characteristics: Thin Bqk horizon above the duripan in some pedons

Control section:
- Content of clay—27 to 35 percent
- Content of rock fragments—15 to 35 percent, mainly pebbles

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4

Bt horizon:
- Hue—7.5YR or 10YR
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—4 to 6
- Reaction—dominantly moderately alkaline, but strongly alkaline in the lower part in some pedons
- Sodium adsorption ratio—2 to 10, generally increasing in concentration with increasing depth
- Effervescence—noneffervescent or slightly effervescent in the matrix in the lower part
- Other characteristics—filaments or coatings of lime common in most pedons

Laxal Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Alluvium derived from shale and volcanic rock

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 52 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, brown (10YR 4/3) moist; moderate fine and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine and fine vesicular pores; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—3 to 6 inches; light gray (10YR 7/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; strong fine and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine and fine vesicular pores and common very fine tubular pores; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqk1—6 to 12 inches; light brownish gray (2.5Y 6/2) very gravelly loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; white (2.5Y 8/2) lime coatings and olive yellow (2.5Y 6/8) silica coatings 0.5 to 2.0 millimeters thick on the underside of pebbles; common firm coarse durinodes; 45 percent discontinuous weak silica and lime cementation bridging pebbles; 40 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Bqk2—12 to 17 inches; light brownish gray (2.5Y 6/2)

very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine and fine tubular pores; white (2.5Y 8/2) lime coatings and olive yellow (2.5Y 6/8) silica coatings 0.5 to 2.0 millimeters thick on the underside of pebbles; 50 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Bqk3—17 to 23 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, very dark grayish brown (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and common fine roots; white (2.5Y 8/2) lime coatings and olive yellow (2.5Y 6/8) silica coatings 0.5 to 1.0 millimeter thick on the underside of pebbles; 60 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Bqk4—23 to 31 inches; light olive gray (2.5Y 6/2) very gravelly loamy coarse sand, dark olive gray (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; light gray (10YR 7/2) lime coatings and very pale brown (10YR 7/4) silica coatings 0.5 to 1.0 millimeter thick on the underside of pebbles; 60 percent pebbles; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bqk5—31 to 60 inches; light olive gray (2.5Y 6/2) extremely gravelly loamy sand, dark olive gray (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; olive gray (10YR 7/2) lime coatings and very pale brown (10YR 7/4) silica coatings less than 1 millimeter thick on the underside of pebbles; 55 percent discontinuous weak silica cementation bridging pebbles; 65 percent pebbles and 5 percent cobbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Laxal gravelly fine sandy loam, 2 to 4 percent slopes, in Laxal association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles southeast of Austin, in the Big Smoky Valley; about 1,600 feet east and 550 feet north of the southwest corner of sec. 28, T. 16 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Reaction: Strongly alkaline or very strongly alkaline

Effervescence: Strongly effervescent or violently effervescent

Other characteristics: Buried very gravelly clay loam Bt horizon or gravel layers present below a depth of 40 inches in some pedons

Control section:

Texture—dominantly stratified very gravelly fine sandy loam, sandy loam, coarse sandy loam, and loamy coarse sand and common thin strata of sand and clay loam; fine sandy loam, sandy loam, or coarse sandy loam when mixed

Content of rock fragments—averages 35 to 60 percent, mainly pebbles

A horizon:

Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry, 2 to 4 moist
Structure—platy or massive

Bqk horizon:

Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry, 2 to 4 moist
Other characteristics—discontinuous, weak, silica cementation bridging rock fragments at a depth of less than 40 inches in some pedons; lime and silica coatings and pendants common on the underside of rock fragments

Layview Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from andesite, rhyolite, and tuff

Positions on landscape: Crests and shoulder slopes of mountains

Slope: 4 to 15 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed Argic Lithic Cryoborolls

Typical Pedon

About 50 percent of the surface is covered with pebbles and 25 percent with cobbles and stones.

A—0 to 3 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine

roots; many very fine vesicular pores; 35 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.
Bt1—3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate fine granular structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; 35 percent pebbles; neutral (pH 7.2); clear wavy boundary.
Bt2—7 to 12 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; few fine and common medium roots; few very fine tubular pores; 40 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt irregular boundary.
2R—12 inches; fractured tuff.

Typical Pedon Location

Soil name and map unit in which located: Layview very gravelly sandy loam, 8 to 15 percent slopes, in Packer-Layview-Hapgood association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 41 miles southwest of Austin; about 1,700 feet west and 1,100 feet south of the northeast corner of sec. 1, R. 33 E., T. 16 N.

Range in Characteristics

Soil moisture content: Usually dry in summer and fall, moist in mid-October to mid-July
Average annual soil temperature: 43 to 47 degrees F
Average summer soil temperature: 50 to 59 degrees F
Thickness of the mollic epipedon: 7 to 12 inches
Depth to bedrock: 10 to 14 inches
Reaction: Neutral or mildly alkaline

Control section:
Content of clay—18 to 30 percent
Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Other characteristics—weak or moderate structure

Bt horizon:
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 to 4
Texture—very gravelly loam or very gravelly clay loam
Content of clay—22 to 35 percent
Structure—weak or moderate and subangular or angular blocky
Content of rock fragments—35 to 60 percent, mainly pebbles

Locane Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from shale and tuffaceous or siliceous conglomerate
Positions on landscape: Side slopes of mountains
Slope: 2 to 50 percent
Mean annual precipitation: About 12 inches
Mean annual temperature: About 45 degrees F
Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles and 10 percent with cobbles.
A1—0 to 4 inches; very pale brown (10YR 7/3) gravelly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine vesicular pores; 30 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.
A2—4 to 6 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 25 percent pebbles; neutral (pH 7.2); clear smooth boundary.
Bt1—6 to 9 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few fine and medium roots; common very fine tubular pores; many thin and few moderately thick clay films on faces of peds; 35 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.
Bt2—9 to 14 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; few very fine tubular pores; many thin and moderately thick clay films on faces of peds; 45 percent pebbles and 10 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.
R—14 inches; hard, slightly fractured, tuffaceous conglomerate.

Typical Pedon Location

Soil name and map unit in which located: Locane gravelly loam, 8 to 15 percent slopes, in Locane-Coztur-Punchbowl association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 30 miles west of Austin; in an unsectionalized area about 700 feet south and 2,000 feet east of the northwest corner of the assumed sec. 26, T. 18 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October
Average annual soil temperature: 44 to 47 degrees F
Depth to bedrock: 10 to 20 inches
Reaction: Slightly acid or neutral

A horizon:
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—granular, platy, or subangular blocky
Consistence—slightly hard or hard (dry)

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 to 4
Structure—weak to strong and angular blocky or subangular blocky, or massive
Thickness—7 to 15 inches
Content of clay—35 to 50 percent
Content of rock fragments—averages 35 to 50 percent

Loncan Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived mainly from chert or sedimentary and volcanic rock
Positions on landscape: Side slopes of mountains
Slope: 15 to 50 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Haploxerolls

Typical Pedon

About 30 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 6.8); clear smooth boundary.
A2—4 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; soft, very friable, sticky and plastic; common very fine roots; common very fine tubular pores; 30 percent pebbles; neutral (pH 6.8); clear smooth boundary.
A3—9 to 16 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, sticky and plastic; common medium and coarse roots; common very fine interstitial pores; 45 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.
C—16 to 22 inches; pale brown (10YR 6/3) extremely gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, sticky and plastic; few fine roots; few very fine interstitial pores; 65 percent pebbles and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.
2R—22 inches; chert.

Typical Pedon Location

Soil name and map unit in which located: Loncan gravelly loam, 15 to 50 percent slopes, in Loncan-Gando-Glean association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 55 miles south of Beowawe; about 1,100 feet south and 2,000 feet east of the northwest corner of sec. 5, T. 22 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to mid-October
Average annual soil temperature: 42 to 47 degrees F
Thickness of the mollic epipedon: 10 to 17 inches
Depth to bedrock: 21 to 38 inches
Other characteristics: AC horizon present in some pedons

Control section:
Texture—very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam, or extremely gravelly loam
Content of clay—18 to 27 percent
Content of rock fragments—averages 50 to 70 percent pebbles and cobbles and very few stones

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
Content of rock fragments—40 to 70 percent pebbles and cobbles

Lopwash Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock and loess
Positions on landscape: Inset fans
Slope: 0 to 4 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Typic Camborthids

Typical Pedon

A—0 to 6 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; weak medium platy structure; slightly hard, friable, nonsticky and nonplastic; few fine and medium roots; common very fine roots and few fine and medium vesicular pores; 10 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw—6 to 12 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots and few medium and very fine roots; common very fine and fine tubular pores and few fine vesicular pores; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

C—12 to 19 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few medium roots and common very fine and fine roots; common very fine and fine interstitial pores and few fine and medium tubular pores; 40 percent pebbles; lime coatings on the underside of pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Ck—19 to 60 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common very fine and fine interstitial pores and few fine and medium tubular pores; 40 percent pebbles; lime coatings on the underside of pebbles; slightly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Lopwash loam, 0 to 4 percent slopes, in Poorcal-Lopwash association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles east of Austin; about 1,500 feet south and 500 feet west of the northeast corner of sec. 20, T. 19 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry late in May to early in November
Average annual soil temperature: 45 to 47 degrees F
Combined thickness of the A and Bw horizons: 10 to 16 inches
Depth to carbonates: 14 to 20 inches

Control section:
- Content of clay—5 to 18 percent
- Content of rock fragments—35 to 70 percent when mixed

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Reaction—moderately alkaline or strongly alkaline

Bw horizon:
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3 or 4 moist
- Texture—sandy loam, gravelly sandy loam, loam, or gravelly loam
- Reaction—moderately alkaline or strongly alkaline

C horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 6
- Texture (fraction less than 2 millimeters)—dominantly sandy loam, but loamy sand or sand in the lower part in some pedons
- Content of rock fragments—35 to 70 percent, mostly pebbles
- Reaction—moderately alkaline or strongly alkaline

McConnel Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash over lacustrine beach sediment or gravelly alluvium
Positions on landscape: Inset fans, beach terraces, fan skirts, offshore bars
Slope: 0 to 8 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 50 degrees F

Taxonomic class: Sandy-skeletal, mixed, mesic Xerollic Camborthids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 2 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; many fine and common medium roots; common very fine tubular pores; 10 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 6 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure parting to weak very fine granular; slightly hard, friable, slightly sticky and nonplastic; many fine and common medium roots; common very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bw—6 to 12 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

2Bk1—12 to 19 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; few very fine tubular pores; 55 percent pebbles; thin lime coatings on the underside of pebbles; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

3Bk2—19 to 28 inches; light brownish gray (10YR 6/2) extremely gravelly loamy coarse sand, grayish brown (10YR 5/2) moist; single grain; nonsticky and nonplastic; common fine and medium roots; many fine interstitial pores; 65 percent pebbles; thin lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

3Bk3—28 to 60 inches; pale brown (10YR 6/3) extremely gravelly coarse sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many fine interstitial pores; 70 percent pebbles; few thin lime coatings on the underside of pebbles; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: McConnel loam, 0 to 4 percent slopes, in Tulase-Bubus-McConnel association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 38 miles southeast of Battle Mountain; about 1,500 feet north of the southeast corner of sec. 30, T. 26 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 50 to 54 degrees F

Depth to the 2Bk horizon: 10 to 20 inches

Control section:
- Content of clay—averages as much as 5 percent
- Content of rock fragments—averages 50 to 80 percent, mainly pebbles, but is as much as 70 percent in the upper part and 60 to 85 percent in the lower part
- Texture—stratified very fine sandy loam to extremely gravelly sandy loam or sandy loam in the upper part; stratified very gravelly loamy sand to extremely gravelly coarse sand in the lower part

A horizon:
- Hue—10YR or 2.5Y
- Value—5 or 6 dry and 3 or 4 moist (5 dry and 3 moist occur only in the upper 3 inches)
- Chroma—1 to 3
- Structure—weak or moderate, thin to thick, and platy; weak or moderate, fine or medium, and granular; or massive
- Reaction—neutral to moderately alkaline

Bw horizon:
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—dominantly 2 to 4, but 1 when dark sand grains are present
- Texture—loam, sandy loam, or fine sandy loam
- Structure—very fine to medium and granular or subangular blocky, or massive
- Reaction—neutral to moderately alkaline

2Bk, 3Bk, and 3C horizons:
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—dominantly 2 to 4, but 1 when dark sand grains are present
- Reaction—moderately alkaline to very strongly alkaline

McVegas Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum derived from metavolcanic and volcanic rock

Positions on landscape: Hills

Slope: 8 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F
Taxonomic class: Clayey-skeletal, montmorillonitic, mesic, shallow Haplic Nadurargids

Typical Pedon

About 10 percent of the surface is covered with pebbles and 30 percent with cobbles.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few medium roots; many fine vesicular pores; 30 percent cobbles and 20 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2—2 to 5 inches; light brownish gray (10YR 6/2) cobbly loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; few medium roots; many very fine tubular pores; 15 percent pebbles and 15 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Btn—5 to 10 inches; brown (10YR 5/3) very cobbly silty clay, dark brown (10YR 3/3; 10YR 4/3, crushed) moist; weak medium prismatic structure parting to strong fine and medium angular blocky; very hard, very firm, very sticky and very plastic; few medium roots; common fine tubular pores; continuous thick clay films on peds; 25 percent pebbles and 15 percent cobbles; strongly alkaline (pH 8.8); clear wavy boundary.

Btnk—10 to 19 inches; light yellowish brown (10YR 6/4) very cobbly silty clay, dark yellowish brown (10YR 3/4; 10YR 4/4, crushed) moist; moderate fine angular blocky structure; very hard, very firm, very sticky and very plastic; few medium roots; common very fine tubular pores; continuous thick clay films on peds; 25 percent pebbles and 20 percent cobbles; common medium lime filaments and threads; strongly effervescent; strongly alkaline (pH 9.0); abrupt irregular boundary.

Bqkm—19 to 22 inches; very pale brown (10YR 7/4), strongly cemented duripan capping bedrock and extending into cracks in the bedrock; some discontinuous indurated laminar deposits; 50 percent pebbles and 30 percent cobbles; strongly effervescent; abrupt smooth boundary.

R—22 inches; rhyolite.

Typical Pedon Location

Soil name and map unit in which located: McVegas very cobbly loam, 15 to 30 percent slopes, in McVegas-Stingdorn-Colbar association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles northwest of Austin; in an unsectionalized area about 1,200 feet south and 1,100 feet west of the northeast corner of the assumed sec. 30, T. 24 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May
Average annual soil temperature: 47 to 52 degrees F
Depth to strongly cemented duripan: 14 to 20 inches
Depth to bedrock: 15 to 35 inches

Control section:
- Content of clay—35 to 45 percent
- Content of rock fragments—35 to 60 percent, mainly cobbles
- Reaction—moderately alkaline to very strongly alkaline, generally increasing in alkalinity with increasing depth

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Structure—weak to moderate, thin or medium, and platy

Btn horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—very cobbly silty clay, very cobbly clay, very cobbly silty clay loam, or very cobbly clay loam
- Structure—weak to strong, fine to medium, and prismatic
- Consistence—hard to very hard (dry), friable to very firm (moist)

Btnk horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—4 to 6
- Texture—very cobbly silty clay, very cobbly clay, very cobbly silty clay loam, or very cobbly clay loam
- Structure—moderate or strong, fine or medium, and angular blocky or prismatic
- Consistence—hard or very hard (dry), friable to very firm (moist)

Minat Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Colluvium that is derived from chert, shale, and mixed volcanic rock and includes some volcanic ash
Positions on landscape: Side slopes of hills and mountains

Slope: 30 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Xerollic Camborthids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 25 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common fine tubular pores; 30 percent pebbles and 20 percent cobbles; moderately alkaline (pH 7.8); gradual smooth boundary.

A2—3 to 9 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine tubular pores; 35 percent pebbles; moderately alkaline (pH 8.0); gradual wavy boundary.

Bw1—9 to 19 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; common fine tubular pores; 50 percent pebbles; moderately alkaline (pH 8.0); gradual wavy boundary.

Bw2—19 to 27 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots and few fine and medium roots; few fine tubular pores; 40 percent pebbles; effervescent in spots; lime coatings on the underside of pebbles; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk1—27 to 44 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, sticky and plastic; common very fine roots and few fine and medium roots; 50 percent pebbles; 15 percent weakly cemented durinodes; lime coatings on pebbles; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bqk2—44 to 60 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; many very fine roots; 50 percent pebbles; 15 percent weakly cemented durinodes; common medium soft lime masses and lime coatings on pebbles; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Minat very cobbly sandy loam, 30 to 50 percent slopes, in Minat-Bojo-Stingdorn association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 32 miles south of Battle Mountain; in an unsectionalized area about 2,600 feet south and 1,500 feet east of the northwest corner of the assumed sec. 6, T. 24 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in winter and spring
Average annual soil temperature: 47 to 50 degrees F
Combined thickness of the A and Bw horizons: 20 to 30 inches
Depth to carbonates: 18 to 27 inches

Control section:
- Content of clay—15 to 27 percent
- Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Reaction—mildly alkaline or moderately alkaline
- Other characteristics—carbonate recharge in the A1 horizon in some pedons

Bw horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—3 or 4
- Other characteristics—as much as 15 percent weakly cemented durinodes
- Reaction—moderately alkaline or strongly alkaline

Misad Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium or lakeshore sediment that is derived from various kinds of rock and includes some loess and volcanic ash
Positions on landscape: Fan skirts, inset fans, offshore bars
Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate thin and medium platy structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; many very fine vesicular and tubular pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine vesicular and tubular pores; 30 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

Bq—7 to 14 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; common fine distinct relict iron mottles that are brown (7.5YR 5/4 and 4/4) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots and few fine and medium roots; many very fine tubular pores; 10 percent pebbles; 15 percent weakly cemented durinodes 5 to 15 millimeters in diameter; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Bqk1—14 to 26 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; common fine distinct relict iron mottles that are brown (7.5YR 5/4 and 4/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; very few very fine and fine roots; common very fine tubular pores; 25 percent pebbles; 35 percent weakly cemented or strongly cemented durinodes 5 to 30 millimeters in diameter; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bqk2—26 to 31 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; few fine distinct relict iron mottles that are brown (7.5YR 5/4 and 4/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; very few very fine roots; many very fine tubular pores; 45 percent pebbles; 10 percent weakly cemented durinodes 5 to 15 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

2C—31 to 43 inches; pale brown (10YR 6/3) very gravelly loamy coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; very few very fine roots; many very fine interstitial and tubular pores; 55 percent pebbles; strongly alkaline (pH 9.0); clear wavy boundary.

2Cq—43 to 60 inches; variegated extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; very few fine roots; 75 percent pebbles; few horizontal discontinuous strongly silica-cemented lenses 2 to 3 inches thick; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Misad gravelly sandy loam, strongly saline-sodic
Location in Nevada: Lander County, Nevada, North Part, survey area; about 2.6 miles southeast of Battle Mountain; in an unsectionalized area about 2,500 feet east and 1,000 feet south of the northwest corner of the assumed sec. 27, T. 32 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in summer and fall
Average annual soil temperature: 47 to 51 degrees F
Depth to the Bqk horizon: 8 to 25 inches
Depth to the unconformable 2C horizon: 20 to 35 inches
Other characteristics: Commonly calcareous, commonly noneffervescent in the upper part or the lower part, common relict iron mottles below a depth of 7 inches

Control section:
- Texture—stratified sandy loam, fine sandy loam, very fine sandy loam, loamy coarse sand, and loamy sand
- Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3

B horizon:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—2 to 4
- Other characteristics—10 to 40 percent weakly cemented to strongly cemented durinodes in the Bq horizon

2C horizon:
- Texture—stratified loamy sand, sand, and loamy coarse sand
- Content of rock fragments—50 to 70 percent, mainly pebbles
- Effervescence—noneffervescent to strongly effervescent

Other characteristics—common discontinuous, weakly or strongly silica-cemented lenses between pebbles

Muni Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Mixed alluvium that is derived from volcanic rock and siliceous sedimentary rock and includes some loess and volcanic ash
Positions on landscape: Fan piedmont remnants
Slope: 2 to 8 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Haploxerollic Durargids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate very thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine vesicular pores; neutral (pH 7.2); clear wavy boundary.

AB—3 to 8 inches; light yellowish brown (10YR 6/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate thick platy structure parting to weak medium subangular blocky; soft, very friable, sticky and slightly plastic; common very fine and fine roots; few medium and many very fine and fine vesicular pores; neutral (pH 7.2); clear wavy boundary.

Bt1—8 to 13 inches; very pale brown (10YR 7/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, sticky and slightly plastic; few very fine and fine roots; many thin clay films on peds and in pores; mildly alkaline (pH 7/6); clear wavy boundary.

Bt2—13 to 18 inches; yellow (10YR 7/6) clay loam, yellowish brown (10YR 5/6) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; few fine roots; many moderately thick clay films on peds and in pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bqkm—18 to 28 inches; very pale brown (10YR 8/4), strongly silica-cemented duripan, light yellowish brown (10YR 6/4) moist; massive; very hard, very firm; brittle; violently effervescent; moderately alkaline (pH 8/2); clear wavy boundary.

Cqk—28 to 32 inches; very pale brown (10YR 7/4) gravelly loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 20 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cqkm—32 to 49 inches; very pale brown (10YR 8/3), strongly silica-cemented duripan, light yellowish brown (10YR 6/4) moist; massive; very hard, very firm; brittle; silica-cemented fragments in the upper part; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Ck—49 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, light yellowish brown (10YR 6/4) moist; single grain; loose, nonsticky and nonplastic; 45 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Muni fine sandy loam, 2 to 8 percent slopes, in Muni-Orovada-Unius association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles east of Austin, in the Monitor Valley; in an unsectionalized area about 0.4 mile west and 0.2 mile north of the southeast corner of the assumed sec. 29, T. 18 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from mid-October through June; dry in July to early in October
Average annual soil temperature: 47 to 52 degrees F
Depth to the strongly cemented duripan: 14 to 20 inches

Control section (when mixed):
Content of clay—18 to 35 percent
Content of rock fragments—0 to 15 percent pebbles

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 to 7 dry, 4 or 5 moist
Chroma—4 to 6
Texture—loam, clay loam, or sandy clay loam
Reaction—neutral or mildly alkaline
Other characteristics—as much as 20 percent pebbles in some strata in some pedons

Bqkm horizon:
Effervescence—slightly effervescent to violently effervescent

Content of rock fragments—as much as 30 percent pebbles in some strata in some pedons
Cementation—continuous, strongly cemented plates alternating with weakly cemented or noncemented layers

2Ck horizon:
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Content of rock fragments—35 to 60 percent pebbles, as much as 5 percent cobbles

Needle Peak Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash
Positions on landscape: Inset fans, fan skirts
Slope: 0 to 2 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aquic Torriorthents

Typical Pedon

A—0 to 3 inches; light brownish gray (2.5Y 6/2) silt loam, very dark grayish brown (2.5Y 3/2) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

C—3 to 8 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots and many very fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Ck1—8 to 16 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores; few fine lime threads; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Ck2—16 to 23 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine distinct mottles that are yellowish brown (10YR 5/4) and brownish yellow (10YR 6/6) moist; massive; slightly hard, very friable, sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; few fine lime threads; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

C'1—23 to 45 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; many fine and medium distinct mottles that are dark yellowish brown (10YR 4/6) and yellow (10YR 7/8) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; many very fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

C'2—45 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; many coarse and medium faint and distinct mottles that are dark yellowish brown (10YR 4/4) and light yellowish brown (2.5Y 6/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; many very fine and few fine tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Needle Peak silt loam in Needle Peak-Batan-Yobe association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles southeast of Austin; about 1,400 feet south and 400 feet west of the northeast corner of sec. 26, T. 16 N., R. 44 E.

Range in Characteristics

Depth to the seasonal high water table: 48 to 72 inches
Average annual soil temperature: 47 to 52 degrees F
Depth to lime accumulation: Less than 10 inches
Other characteristics: Mottles at a depth of more than 20 inches in most pedons

Control section:
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent

A horizon:
Hue—10YR or 2.5Y
Value—3 or 4 moist
Chroma—2 or 3
Structure—platy or subangular blocky
Reaction—mildly alkaline to strongly alkaline
Other characteristics—slightly effervescent in some pedons

C horizon:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 or 3
Structure—angular blocky, subangular blocky, or massive
Reaction—moderately alkaline to very strongly alkaline

Newlands Series

Depth class: Deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from rhyolite and andesite
Slope: 8 to 15 percent
Mean annual precipitation: About 15 inches
Mean annual temperature: About 41 degrees F

Taxonomic class: Fine-loamy, mixed Argic Cryoborolls

Typical Pedon

About 10 percent of the surface is covered with pebbles, 5 percent with cobbles, 5 percent with stones, and 15 percent with boulders.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) bouldery loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 10 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

A2—4 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; common fine roots and few very fine and medium roots; common very fine interstitial pores; 10 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt1—10 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots and few very fine and medium roots; common very fine and fine interstitial pores; few thin clay films on faces of peds; 20 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bt2—14 to 22 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine interstitial pores; common thin clay films on faces of peds; 25 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

Bt3—22 to 35 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine and fine interstitial pores; few thin clay films on faces of peds; 30 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt4—35 to 46 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; few fine roots; common fine interstitial pores; 55 percent pebbles; neutral (pH 7.2); abrupt broken boundary.

Cr—46 to 57 inches; light yellowish brown (10YR 6/4) saprolite, dark yellowish brown (10YR 4/4) variegated with reddish yellow (7.5YR 6/6) and strong brown (7.5YR 5/6) moist; massive; slightly hard, friable, sticky and plastic; neutral (pH 7.2); gradual wavy boundary.

R—57 inches; fractured, unweathered tuff.

Typical Pedon Location

Soil name and map unit in which located: Newlands extremely bouldery loam, 8 to 15 percent slopes, in Newlands-Packer-Hapgood association, strongly sloping

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin; about 1,300 feet west of the northeast corner of sec. 35, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in some part in October to mid-July; dry late in summer to early in fall
Average annual soil temperature: 41 to 45 degrees F
Mean summer soil temperature: 56 to 59 degrees F
Thickness of the mollic epipedon: 12 to 16 inches
Depth to bedrock: 40 to 60 inches

A horizon:
- Hue—10YR or 7.5YR
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—granular or subangular blocky

Bt2 horizon:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—clay loam or sandy clay loam
- Content of clay—averages 27 to 35 percent
- Content of rock fragments—averages 15 to 35 percent gravel
- Structure—subangular blocky, angular blocky, or prismatic

Newpass Series

Depth class: Moderately deep to duripan and bedrock
Drainage class: Well drained
Parent material: Residuum that is derived from volcanic and metavolcanic rock and includes some loess

Positions on landscape: Hills, mountains
Slope: 8 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Haploxerollic Nadurargids

Typical Pedon

About 75 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 4 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure; slightly hard, very friable, slightly sticky and nonplastic; common fine and medium roots; few very fine and fine vesicular pores; 40 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

Btn1—4 to 7 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; hard, firm, very sticky and very plastic; many very fine roots and few fine and medium roots; common fine and medium tubular pores; continuous thick clay films on faces of peds and lining pores; 5 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Btn2—7 to 14 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few fine and medium roots and common very fine exped roots; few fine and medium tubular pores; continuous thick clay films on faces of peds and lining pores; 10 percent pebbles; lime coatings on the underside of pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—14 to 17 inches; dark yellowish brown (10YR 4/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; few fine roots; common fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 40 percent pebbles; common medium soft lime masses and thin lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk—17 to 24 inches; brown (7.5YR 5/4) very cobbly silty clay, brown (7.5YR 4/4) moist; massive; slightly hard, friable, very sticky and very plastic; few fine roots; common fine tubular pores; 30 percent weak discontinuous silica cementation; 15 percent pebbles and 40 percent cobbles; common medium soft lime masses and silica coatings on rock fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqkm—24 to 26 inches; strongly cemented duripan that has a thin discontinuous laminar cap; very hard, very firm; violently effervescent; clear wavy boundary.

R—26 inches; rhyolite.

Typical Pedon Location

Soil name and map unit in which located: Newpass very gravelly fine sandy loam, 15 to 30 percent slopes, in Newpass-Jung association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 6 miles northwest of Austin; about 100 feet south and 400 feet west of the northeast corner of sec. 36, T. 20 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 20 to 29 inches

Depth to bedrock: 21 to 36 inches

Control section:
- Content of clay—45 to 60 percent
- Content of rock fragments—averages 15 to 35 percent, but is less than 15 percent, mainly pebbles, in the upper part and 25 to 50 percent, mainly pebbles and cobbles, in the lower part

A horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—platy or subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bt horizon:
- Hue—10YR or 7.5YR
- Value—dominantly 4 or 5 dry, but 6 in the upper part in some pedons; 3 or 4 moist
- Chroma—3, 4, or 6
- Reaction—moderately alkaline to very strongly alkaline, commonly increasing in alkalinity with increasing depth
- Exchangeable sodium percentage: 15 to 30 in the upper part, 5 to 15 in the lower part

Ninemile Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum that is derived from andesite, basalt, and tuff and includes some volcanic ash
Positions on landscape: Stable side slopes of mountains

Slope: 15 to 30 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical Pedon

About 25 percent of the surface is covered with pebbles and 50 percent with cobbles and stones.

A1—0 to 4 inches; dark brown (10YR 4/3) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; 20 percent pebbles and 40 percent cobbles and stones; neutral (pH 7.0); abrupt wavy boundary.

A2—4 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate very fine and fine granular structure; slightly hard, friable, sticky and plastic; common fine roots and few very fine and medium roots; common fine interstitial pores; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1—7 to 14 inches; dark brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure; hard, firm, very sticky and very plastic; common medium and few fine exped roots along the faces of peds; common fine and very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 10 percent cobbles; neutral (pH 6.8); clear wavy boundary.

Bt2—14 to 19 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, firm, very sticky and very plastic; few fine roots; few very fine tubular pores; many thick pressure faces; 10 percent cobbles; neutral (pH 6.8); abrupt wavy boundary.

R—19 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Ninemile extremely cobbly loam, 15 to 30 percent slopes, in Robson-Ninemile-Ravenswood association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles east of Austin; 1,300 feet north of the southwest corner of sec. 28, T. 19 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry mainly late in June to early in October
Average annual soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 6 to 15 inches (commonly includes part or all of the argillic horizon)
Content of clay in the control section: Averages 40 to 60 percent
Reaction: Slightly acid to mildly alkaline
Depth to bedrock: 10 to 20 inches
Other characteristics: The upper 1 to 3 inches of bedrock weathered in some pedons where the depth to bedrock is less than 15 inches

A horizon:
- Value—3 to 5 dry, 2 or 3 moist
- Chroma—1 to 3
- Structure—thin to thick and platy, or fine or medium and granular
- Consistence—soft or slightly hard (dry), nonsticky or slightly sticky and nonplastic to plastic (wet)
- Reaction—slightly acid to mildly alkaline
- Other characteristics—value of 6 in the upper 1 or 2 inches and massive in some pedons

Bt horizon:
- Hue—5YR, 7.5YR, or 10YR
- Value—3 to 6 dry, 3 or 4 moist
- Chroma—2 to 4
- Content of clay—40 to 60 percent
- Texture—clay or gravelly clay
- Content of rock fragments—0 to 30 percent pebbles or cobbles
- Structure—moderate or strong and subangular blocky, angular blocky, or prismatic

Nobuck Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Colluvium derived from various kinds of volcanic rock
Positions on landscape: Side slopes of mountains
Slope: 15 to 30 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Xerollic Haplargids

Typical Pedon

About 35 percent of the surface is covered with pebbles and 25 percent with cobbles and stones.

A1—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine

roots; common very fine and fine vesicular pores; 35 percent pebbles and 20 percent cobbles; neutral (pH 7.0); clear wavy boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial pores; 40 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

A3—7 to 12 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine interstitial pores; 35 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt—12 to 23 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and few fine interstitial pores; common thin clay films on faces of peds; 35 percent pebbles, 5 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.6); clear wavy boundary.

Btk1—23 to 32 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine interstitial pores; common thin clay films on faces of peds; 35 percent pebbles and 10 percent cobbles; few fine irregularly shaped lime seams and filaments; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Btk2—32 to 38 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and very plastic; common very fine and fine roots; common fine interstitial pores; many moderately thick clay films on faces of peds; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; common medium irregularly shaped lime seams and filaments; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk—38 to 42 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/6) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine interstitial pores; 10 percent weak durinodes 5 to 15 millimeters in diameter; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; few fine irregularly shaped lime seams and filaments; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk—42 to 60 inches; very pale brown (10YR 7/4) very gravelly loam, brownish yellow (10YR 6/6) moist; massive; hard, firm, sticky and nonplastic; few fine roots; few very fine interstitial pores; continuous weak silica and lime cementation and about 10 percent discontinuous strong silica and lime cementation; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; violently effervescent; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Nobuck very cobbly loam, 15 to 30 percent slopes, in Punchbowl-Locane-Nobuck association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles east of Austin; about 650 feet west and 1,950 feet north of the southwest corner of sec. 6, T. 19 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in some part in mid-October to mid-June; dry in mid-June to mid-October

Average annual soil temperature: 43 to 47 degrees F

Depth to the Btk horizon: 22 to 40 inches

Depth to the Bqk horizon: 40 to 60 inches

Control section:

- Content of clay—25 to 35 percent
- Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:

- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—platy or granular
- Consistence—soft or slightly hard (dry), very friable or friable (moist)
- Reaction—neutral or mildly alkaline

Bt and Btk horizons:

- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—very gravelly loam, very gravelly clay loam, or very gravelly sandy clay loam
- Structure—prismatic, angular blocky, or subangular blocky
- Reaction—mildly alkaline or moderately alkaline
- Effervescence (matrix)—noneffervescent or slightly effervescent in the upper part, strongly

effervescent or violently effervescent in the lower part
Content of lime—few or common seams and filaments

Bqk horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—3, 4, or 6
Texture—very gravelly sandy loam or very gravelly loam
Reaction—moderately alkaline or strongly alkaline
Other characteristics—continuous weak silica and lime cementation or 20 to 40 percent durinodes in a firm and brittle matrix

Novacan Series

Depth class: Moderately deep to duripan
Drainage class: Well drained
Parent material: Mixed volcanic alluvium
Positions on landscape: Fan piedmonts
Slope: 2 to 8 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Haploxerollic Durargids

Typical Pedon

About 10 percent of the surface is covered with pebbles and 25 percent with cobbles.

A1—0 to 3 inches; brown (10YR 5/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 15 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots and common fine and medium roots; common very fine interstitial pores; 15 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.6); abrupt wavy boundary.

Bt1—5 to 11 inches; brown (7.5YR 4/4) gravelly clay, dark brown (7.5YR 3/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine exped roots and few fine and medium roots; common fine interstitial pores; common moderately thick clay films on faces of peds; 25 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt2—11 to 18 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; few very fine, fine, and medium roots; common fine interstitial pores; common moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Btk—18 to 24 inches; brownish yellow (10YR 6/6) gravelly clay loam, dark yellowish brown (10YR 4/6) moist; massive; hard, firm, very sticky and very plastic; common thin clay films bridging mineral grains; 30 percent pebbles; common fine seams and filaments or threads of lime; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

Bqkm—24 to 45 inches; light yellowish brown (10YR 6/4), continuous, strongly cemented duripan, dark yellowish brown (10YR 3/4) moist; massive; very hard, very firm; 15 percent pebbles, 35 percent cobbles, and 10 percent stones; discontinuous thin laminar cap; common medium silica and lime coatings and pendants on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk—45 to 60 inches; pale brown (10YR 6/3) very cobbly loamy sand, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine pores; 20 percent pebbles, 30 percent cobbles, and 5 percent stones; 50 percent discontinuous strong cementation; common fine concretions and seams of lime; common medium silica and lime coatings and pendants on the underside of rock fragments; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Novacan cobbly loam, 2 to 8 percent slopes
Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin, in the Monitor Valley; about 1,550 feet south and 3,650 feet east of the northwest corner of sec. 6, T. 17 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from November through June; dry in July through October
Average annual soil temperature: 47 to 52 degrees F
Depth to the duripan and the base of the argillic horizon: 20 to 30 inches

Depth to carbonates: 14 to 24 inches
Other characteristics: Abrupt textural change occurs at the boundary between the A and B horizons
Control section:
Content of clay—45 to 60 percent
Content of rock fragments—10 to 25 percent, mainly pebbles
A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Reaction—neutral or mildly alkaline
Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—4 to 6
Reaction—mildly alkaline or moderately alkaline

Ocala Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Silty alluvium that is derived from various kinds of rock and includes some volcanic ash
Positions on landscape: Lake plains, alluvial flats
Slope: 0 to 2 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 50 degrees F
Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical Pedon

A1—0 to 2 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; common fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.
A2—2 to 6 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate fine granular structure; slightly hard, friable, sticky and plastic; common fine and medium roots; few fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.
C—6 to 13 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); abrupt wavy boundary.
Cqk1—13 to 18 inches; white (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; few medium faint mottles that are yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 15 percent weakly cemented durinodes; strongly effervescent; very strongly alkaline (pH 9.2); abrupt broken boundary.
Cqk2—18 to 26 inches; very pale brown (10YR 7/3), continuous, weakly silica-cemented silt loam, brown (10YR 5/3) moist; common medium faint mottles that are dark grayish brown (10YR 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; brittle; few fine roots; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
Cqk3—26 to 36 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; common medium faint mottles that are pale brown (10YR 6/3) and dark grayish brown (10YR 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; weak fine tubular pores; 30 percent discontinuous weak cementation; strongly alkaline (pH 8.8); gradual wavy boundary.
Cqk4—36 to 60 inches; white (10YR 8/2), continuous, weakly silica-cemented silt loam, pale brown (10YR 6/3) moist; few medium faint mottles that are yellowish brown (10YR 5/4) moist; massive; very hard, very firm, slightly sticky and slightly plastic; brittle; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Ocala silty clay loam, occasionally flooded, in Batan-Ocala-Ocala, rarely flooded, association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 26 miles southeast of Battle Mountain; about 1,000 feet north and 500 feet east of the southwest corner of sec. 19, T. 28 N., R. 48 E.

Range in Characteristics

Soil moisture content: Saturated to a depth of 40 inches for 1 month or more in most years
Average annual soil temperature: 50 to 54 degrees F
Depth to the weakly cemented horizon: 13 to 30 inches
Cementation: Weakly cemented layers present in some pedons, strata that are 20 to 70 percent durinodes in a friable matrix present above the weakly cemented layers in some pedons
Reaction: Strongly alkaline or very strongly alkaline
Content of salt and sodium: Generally strongly affected by salt and sodium in the upper 10 inches only, but areas that have been flood-irrigated affected below this depth

Depth to lime concretions: More than 35 inches in most pedons
Depth to iron mottles: More than 12 inches
Other characteristics: Strata or lenses of noncalcareous, mildly alkaline volcanic ash as much as 4 inches thick present in most pedons, generally below a depth of 30 inches
Control section:
Texture—dominantly silty clay loam or silt loam, but thin strata of clay loam, loam, or silty clay in some pedons
Content of clay—18 to 35 percent
A horizon:
Hue—10YR to 5Y
Value—6 to 8 dry, 4 to 7 moist
Chroma—1 to 3
Structure—granular or platy
C and Cqk horizons:
Hue—10YR to 5Y
Value—6 to 8 dry, 4 to 7 moist
Chroma—1 to 3
Structure—platy or massive

Old Camp Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum that is derived from basalt and andesite and includes some volcanic ash
Positions on landscape: Crests and side slopes of hills and mountains
Slope: 4 to 50 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 47 degrees F
Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical Pedon

About 50 percent of the surface is covered with pebbles.
A—0 to 2 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 35 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.
Bt—2 to 5 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial pores; 45 percent pebbles and 10 percent cobbles; few moderately thick clay films on faces of peds; mildly alkaline (pH 7.8); clear smooth boundary.
Btk—5 to 11 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; 50 percent pebbles and 5 percent cobbles; common moderately thick clay films on faces of peds and lining pores; few very thin lime coatings on the underside of rock fragments; mildly alkaline (pH 7.8); abrupt irregular boundary.
R—11 inches; fractured andesite; lime coatings in fractures.

Typical Pedon Location

Soil name and map unit in which located: Old Camp very gravelly loam, 15 to 30 percent slopes, in Old Camp-Minat-Osoll association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 14 miles southwest of Battle Mountain; about 1,050 feet south of the northeast corner of sec. 22, T. 31 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in November through May
Average annual soil temperature: 47 to 52 degrees F
Depth to bedrock: 10 to 20 inches
Content of rock fragments in the control section: Dominantly 50 to 75 percent, mainly cobbles and stones, but 35 to 50 percent in the upper part in some pedons
A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak and granular or platy, or massive
Reaction—neutral or mildly alkaline
Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—dominantly clay loam or sandy clay loam, but strata of loam in some pedons
Content of rock fragments—averages 50 to 75 percent, mainly pebbles
Content of clay—27 to 35 percent
Structure—weak or moderate, fine to coarse, and angular blocky or subangular blocky
Reaction—neutral or mildly alkaline in the upper part, moderately alkaline or strongly alkaline in the lower part

Other characteristics—few to continuous lime coatings on rock fragments or bedrock

Taxadjunct Features

The Old Camp soils in this survey area are taxadjuncts because the rock fragments in the Bt horizon are mainly pebbles instead of the cobbles or stones that are typical for the series. This difference, however, does not significantly affect use and management.

Orovada Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loess that is high in content of volcanic ash over alluvium derived from various kinds of rock
Positions on landscape: Fan skirts, fan aprons, inset fans
Slope: 0 to 8 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical Pedon

A1—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; strong coarse prismatic structure parting to moderate thin platy; slightly hard, very friable, slightly sticky and slightly plastic; many very fine random roots; many very fine vesicular, interstitial, and tubular pores; neutral (pH 7.2); abrupt wavy boundary.

A2—4 to 8 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak coarse and very coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine random roots and few fine and medium oblique roots; common very fine tubular and interstitial pores; mildly alkaline (pH 7.8); clear wavy boundary.

Bw—8 to 20 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine random roots and very few very fine, fine, and medium oblique roots; common very fine tubular pores and many very fine interstitial pores; moderately alkaline (pH 7.8); clear wavy boundary.

Bqk1—20 to 31 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine random roots and very few fine and medium oblique roots; common very fine tubular and interstitial pores; 25 percent moderately strong durinodes 10 to 30 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

Bqk2—31 to 44 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine random roots and very few fine and medium oblique roots; few very fine tubular pores and common very fine interstitial pores; 5 percent pebbles; 25 percent moderately strong durinodes 10 to 30 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Bqk3—44 to 65 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine tubular pores and common very fine interstitial pores; 5 percent pebbles; 15 percent moderately strong and strong durinodes 2 to 20 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Orovada fine sandy loam, 2 to 4 percent slopes
Location in Nevada: Lander County, Nevada, North Part, survey area; about 9 miles north of Battle Mountain; about 1,550 feet east and 1,400 feet north of the southwest corner of sec. 28, T. 34 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to early in November
Average annual soil temperature: 47 to 52 degrees F
Depth to the Bq or Bqk horizon: 10 to 28 inches
Control section:
- Texture—dominantly stratified fine sandy loam, very fine sandy loam, loam, or silt loam with strata of loamy fine sand or sandy loam in some pedons
- Content of clay—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 and 3 or 4 moist (value of more than 5.5 dry and 3.5 moist occurs when the upper 7 inches is mixed)
- Chroma—2 to 4
- Structure—platy, prismatic, or massive
- Consistence—soft or slightly hard
- 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
Content of clay—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 or Bqk horizon:
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 strata in some pedons
Consistence—soft to hard, very friable or friable
Reaction—moderately alkaline to very strongly alkaline, increasing in alkalinity with increasing depth
Content of durinodes—20 to 80 percent
Other characteristics—gypsum crystals below a depth of 37 inches in some pedons, duripan or very gravelly strata below a depth of 40 inches in some pedons

Osoll Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Residuum and colluvium that is derived from various kinds of rock and includes some loess
Positions on landscape: Crests and side slopes of hills
Slope: 8 to 50 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 50 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Durorthids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 5 inches; light gray (10YR 7/2) gravelly loam, dark brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—5 to 12 inches; very pale brown (10YR 7/3) very gravelly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial pores; 20 percent weak or moderate durinodes 5 to 20 millimeters in diameter; 30 percent pebbles and 15 percent cobbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Bqkm—12 to 35 inches; very pale brown (10YR 7/4), cobbly, indurated duripan, yellowish brown (10YR 5/4) moist; strong thick plates alternating with massive strata; extremely hard, extremely firm; continuous fractured silica-cemented laminae on top of and in bands throughout the horizon alternating with discontinuous, strongly and weakly silica-cemented strata that are 20 percent hard silica and lime concretions 5 to 20 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

2R—35 inches; hard rhyolite capped with silica-cemented laminae 0.5 inch thick.

Typical Pedon Location

Soil name and map unit in which located: Osoll gravelly loam, 2 to 8 percent slopes, in Laped-Colbar-Osoll association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 800 feet north of the southwest corner of sec. 36, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist intermittently in winter and spring, dry late in May through November
Average annual soil temperature: 47 to 52 degrees F
Depth to the duripan: 8 to 14 inches
Depth to bedrock: 20 to 40 inches

Control section:
Texture—very gravelly loam or very gravelly fine sandy loam
Content of clay—10 to 18 percent
Content of rock fragments—averages 35 to 60 percent, mostly pebbles and some cobbles

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
Reaction—moderately alkaline or strongly alkaline
Other characteristics—commonly as much as 30 percent weak to hard durinodes

Oxcorel Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium that is derived from various kinds of rock and includes some loess
Positions on landscape: Dissected summits and side slopes of fan piedmonts
Slope: 2 to 15 percent
Mean annual temperature: About 48 degrees F
Mean annual precipitation: About 6 inches

Taxonomic class: Fine, montmorillonitic, mesic Duric Natrargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 6 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and medium roots; common fine and medium vesicular pores; 20 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

Btn1—6 to 14 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few medium exped roots and few fine inped roots; few fine and common medium tubular pores; continuous thick pressure faces; 10 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.

Btn2—14 to 27 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; few fine and medium inped roots and common fine exped roots; common fine and medium and few very fine tubular pores; 5 percent pebbles; continuous moderately thick clay films on faces of peds and lining pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Btnqk—27 to 37 inches; yellowish brown (10YR 5/6) gravelly clay loam, dark yellowish brown (10YR 4/6) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few fine and medium tubular pores; 20 percent pebbles; common fine clay films on faces of peds and lining pores; 20 percent strongly cemented durinodes; common medium filaments or threads of lime; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk—37 to 60 inches; brown (10YR 5/3) very gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few fine roots; few fine tubular pores; 40 percent pebbles; 35 percent strong durinodes; 10 percent weak discontinuous cementation; moderate fine filaments or threads and soft masses of lime; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Oxcorel gravelly very fine sandy loam, 2 to 8 percent slopes, in Oxcorel-Wieland-Spasprey association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles northwest of Austin; about 200 feet south and 1,000 feet west of the northeast corner of sec. 2, T. 22 N., R. 41 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist for short periods in winter and early in spring
Average annual soil temperature: 47 to 52 degrees F
Depth to the base of the natric horizon: 20 to 40 inches
Depth to durinodes: 20 to 34 inches
Other characteristics: 0.5- to 2.0-inch-thick E horizon capping the Bt horizon in some pedons

Control section:
- Texture—clay or clay loam
- Content of clay—35 to 50 percent
- Content of rock fragments—0 to 10 percent pebbles in the upper part, 10 to 20 percent pebbles in the lower part

A horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3

Bt horizon:
- Hue—7.5YR or 10YR
- Value—5 to 7 dry, 4 to 6 moist
- Chroma—3 to 6 (chroma of 3 common in the upper part in some pedons)
- Reaction—moderately alkaline to very strongly alkaline
- Other characteristics—noneffervescent to strongly effervescent in the upper part in the matrix, segregated lime common in the lower part in the matrix, commonly 10 to 30 percent durinodes in the lower part, gypsum present in the lower part in some pedons

Bqk horizon:
- Value—5 to 7 dry, 4 to 6 moist
- Chroma—3 to 6
- Content of rock fragments—35 to 60 percent
- Texture—very gravelly sandy loam or very gravelly loam

Other characteristics—dominantly 20 to 60 percent weakly or strongly cemented durinodes and as much as 30 percent discontinuous weak cementation, but less than 20 percent durinodes in the upper part in some pedons

Packer Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Residuum that is derived from chert, shale, quartzite, and extrusive volcanic rock and includes some loess and volcanic ash
Positions on landscape: Crests and side slopes of mountains
Slope: 8 to 75 percent
Mean annual precipitation: About 15 inches
Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed Argic Cryoborolls

Typical Pedon

About 70 percent of the surface is covered with pebbles and 20 percent with cobbles and stones.

A1—0 to 7 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common very fine interstitial and tubular pores; 45 percent pebbles and 20 percent cobbles and stones; neutral (pH 6.8); clear smooth boundary.

A2—7 to 10 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots and common medium roots; common very fine tubular pores; 20 percent pebbles and 30 percent cobbles and stones; neutral (pH 6.8); abrupt wavy boundary.

2Bt—10 to 21 inches; yellowish brown (10YR 5/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 25 percent pebbles, 30 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear wavy boundary.

2C1—21 to 46 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, sticky and plastic; common fine and medium roots; common very fine interstitial pores; 30 percent pebbles, 35 percent cobbles, and 10 percent stones; neutral (pH 7.3); gradual wavy boundary.

2C2—46 to 60 inches; brown (10YR 5/3) extremely cobbly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; common very fine interstitial pores; 30 percent pebbles, 35 percent cobbles, and 10 percent stones; neutral (pH 7.3).

Typical Pedon Location

Soil name and map unit in which located: Packer extremely gravelly loam, 15 to 30 percent slopes, in Packer-Newlands association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 40 miles northeast of Austin; about 1,400 feet east of the southwest corner of sec. 14, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in October to late in June
Average annual soil temperature: 42 to 45 degrees F
Average summer soil temperature: 57 to 59 degrees F
Thickness of the mollic epipedon: 7 to 10 inches (includes the upper part of the Bt horizon in some pedons)
Depth to the base of the Bt horizon: 9 to 21 inches
Depth to bedrock: 40 to more than 60 inches
Other characteristics: Thin BA and BC horizons common in some pedons

Control section:
- Texture—extremely cobbly clay loam, extremely cobbly sandy clay loam, or extremely cobbly loam
- Content of clay—averages 18 to 30 percent
- Content of rock fragments—60 to 80 percent, including 25 to 60 percent pebbles, 20 to 40 percent cobbles, and as much as 10 percent stones

A horizon:
- Chroma—2 or 3
- Structure—weak or moderate, very fine, fine, or medium, and granular or subangular blocky
- Consistence—soft or slightly hard (dry), very friable or friable (moist)

Bt horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Structure—weak or moderate, very fine, fine, or

medium, and angular blocky or subangular blocky, or massive
Consistence—slightly hard or hard (dry), slightly sticky to very sticky and slightly plastic to very plastic (wet)

C horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 to 6
Texture—extremely cobbly loam, extremely cobbly fine sandy loam, extremely cobbly sandy loam, or extremely cobbly loamy sand
Content of rock fragments—25 to 50 percent pebbles, 20 to 35 percent cobbles, and as much as 10 percent stones
Consistence—soft to very hard (dry), very friable or friable (moist), slightly sticky or sticky and nonplastic to plastic (wet)

Paranat Series

Depth class: Very deep
Drainage class: Poorly drained, but drainage has been altered by stream entrenchment or channel realignment in some areas
Parent material: Silty fluvial deposits
Positions on landscape: Flood plains
Slope: 0 to 2 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Fluvaquentic Haplaquolls

Typical Pedon

A1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2—3 to 11 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

AC—11 to 21 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct mottles that are dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular and interstitial pores; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

C1—21 to 32 inches; white (10YR 8/1) silt loam, gray (10YR 5/1) moist; common fine and medium distinct mottles that are brown (10YR 5/3) moist; massive; soft, very friable, very sticky and plastic; strongly effervescent; 10 percent lime concretions; moderately alkaline (pH 8.0); clear wavy boundary.

C2—32 to 43 inches; white (10YR 8/1) silt loam, light gray (10YR 7/1) moist; many fine distinct mottles that are dark brown (10YR 4/3) moist and many coarse distinct mottles that are grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, very sticky and plastic; few very fine roots; common very fine tubular pores; slightly effervescent; 10 percent lime concretions; moderately alkaline (pH 8.0); gradual wavy boundary.

C3—43 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; many medium distinct mottles that are very dark grayish brown (10YR 3/2) and olive (5Y 4/3) moist; massive; slightly hard, friable, sticky and plastic; common very fine tubular pores; slightly effervescent; 35 percent lime concretions; moderately alkaline (pH 7.9).

Typical Pedon Location

Soil name and map unit in which located: Paranat silt loam, strongly saline, in Ocala-Sonoma-Paranat association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 5 miles west of Austin; about 500 feet north and 4,000 feet west of the southeast corner of sec. 29, T. 19 N., R. 43 E.

Range in Characteristics

Soil moisture content: Dry in mid-summer and early in fall; moist late in fall, in winter and spring, and early in summer
Depth to an apparent seasonal high water table: Commonly 18 to 40 inches in winter to early in summer, but some pedons have been drained
Average annual soil temperature: 47 to 52 degrees F
Thickness of the mollic epipedon: 10 to 20 inches
Reaction: Moderately alkaline or strongly alkaline, usually decreasing in alkalinity with increasing depth
Calcium carbonate equivalent: 1 to 10 percent
Exchangeable sodium percentage: 0 to 15

Control section:
Texture—dominantly stratified silty clay loam and silt loam, but thin strata of very fine sandy loam or silty clay in some pedons

Content of clay—18 to 35 percent
Content of rock fragments—less than 5 percent

A horizon:
Hue—10YR or 2.5Y
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Structure—prismatic, subangular blocky, platy, or granular
Other characteristics—one or more buried A horizons as much as 8 inches thick in some pedons

C horizon:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 7 moist
Chroma—1 to 4
Consistence—soft or slightly hard (dry), very friable or friable (moist)
Other characteristics—as much as 15 percent filaments, soft masses, or concretions of lime in the upper part in some pedons and as much as 40 percent below a depth of 40 inches in some pedons

Perlor Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Loess over residuum derived from soft, tuffaceous sedimentary rock
Positions on landscape: Rolling crests and side slopes of hills
Slope: 8 to 15 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine interstitial pores; 5 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

2C1—7 to 12 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine interstitial pores; 5 percent pebbles; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.

2C2—12 to 14 inches; very pale brown (10YR 7/3) gravelly sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common fine interstitial pores; 30 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Cr—14 inches; fractured, soft, tuffaceous sedimentary rock; few very fine roots along fractures.

Typical Pedon Location

Soil name and map unit in which located: Perlor very fine sandy loam in Genaw-Perlor-Puett association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain, in the Fish Creek Basin area; about 1,375 feet north and 1,450 feet west of the southeast corner of sec. 11, T. 27 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in mid-May through November
Average annual soil temperature: 47 to 52 degrees F
Depth to paralithic contact: 10 to 14 inches
Reaction: Moderately alkaline or strongly alkaline, usually increasing in alkalinity with increasing depth

Control section:
Content of clay—averages 10 to 18 percent
Content of rock fragments—averages 5 to 20 percent pebbles, but as much as 30 percent in an individual horizon (as much as 20 percent are soft and platy in some pedons)

A horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—subangular blocky, platy, or massive
Effervescence—dominantly noneffervescent or slightly effervescent, but strongly effervescent in some pedons

C horizon:
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 or 3

Texture—loam, sandy loam, or gravelly sandy loam
Structure—subangular blocky or massive
Effervescence—slightly effervescent to violently effervescent

Pineval Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Mixed gravelly alluvium
Positions on landscape: Fan piedmonts, fan aprons
Slope: 2 to 30 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Durixerollic Haplargids

Typical Pedon

About 60 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 5 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and nonplastic; few fine roots; common very fine and fine vesicular pores; 25 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bt1—5 to 8 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine interstitial pores; few thin clay films on faces of peds; 35 percent pebbles and 15 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bt2—8 to 11 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine, fine, and medium roots; common very fine interstitial pores; common thin and few moderately thick clay films on faces of peds; 10 percent weak durinodes 5 to 15 millimeters in diameter; 35 percent pebbles and 15 percent cobbles; few fine lime filaments; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk1—11 to 24 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 50 percent discontinuous weak silica cementation; 55 percent pebbles and 15 percent cobbles; many lime particles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk2—24 to 33 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; 40 percent continuous weak silica cementation; 55 percent pebbles and 15 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bk—33 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; 60 percent pebbles and 10 percent cobbles; common thin lime coatings on the underside of rock fragments; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Pineval gravelly loam, 2 to 4 percent slopes
Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles northeast of Austin; about 650 feet south and 2,100 feet west of the northeast corner of sec. 17, T. 21 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October
Average annual soil temperature: 47 to 52 degrees F
Reaction: Mildly alkaline or moderately alkaline

A horizon:
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 or 6 dry
Chroma—3 or 4
Texture—very gravelly loam, very gravelly clay loam, or very gravelly sandy clay loam
Content of clay—25 to 35 percent
Content of rock fragments—35 to 60 percent, mostly pebbles

Bqk horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Texture—stratified very gravelly sandy loam to extremely gravelly sand

Content of rock fragments—35 to 70 percent, mostly pebbles

Poorcal Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium derived dominantly from sedimentary rock with a component of loess and volcanic ash
Positions on landscape: Inset fan remnants
Slope: 0 to 4 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 45 degrees F

Taxonomic class: Coarse-loamy, mixed, frigid Durixerollic Calciorthids

Typical Pedon

About 5 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light gray (10YR 7/2) loam, brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine vesicular pores; 5 percent pebbles; few fine filaments or threads of lime; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

A2—3 to 5 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; moderate thick platy structure parting to weak medium subangular blocky; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 5 percent pebbles; common fine filaments or threads of lime; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—5 to 9 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 5 percent pebbles; common fine filaments or threads of lime; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—9 to 19 inches; white (10YR 8/2) loam, very pale brown (10YR 7/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 5 percent pebbles; 50 percent very hard, very firm, strongly cemented durinodes; many fine filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk2—19 to 30 inches; light gray (10YR 7/2) gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; few very fine tubular pores; 25 percent pebbles; 30 percent hard, firm, weakly cemented durinodes; common fine filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Bqk3—30 to 52 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; 35 percent pebbles; 30 percent hard, firm, weakly cemented durinodes; few fine filaments or threads of lime; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

2Bqk4—52 to 62 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; 45 percent pebbles; 30 percent hard, firm durinodes; slightly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Poorcal loam, 0 to 4 percent slopes, in Poorcal-Lopwash association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 21 miles east of Austin; about 500 feet north and 1,500 feet west of the southeast corner of sec. 13, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October
Average annual soil temperature: 45 to 47 degrees F
Depth to the calcic horizon: 8 to 20 inches
Depth to the 2Bqk horizon: 29 to 40 inches
Calcium carbonate equivalent in the calcic horizon: 15 to 35 percent
Control section:
Content of clay—5 to 18 percent
Content of rock fragments—15 to 35 percent when mixed, mainly pebbles
A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Reaction—moderately alkaline or strongly alkaline
Consistence—very friable or friable (moist)
Bw horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—3 or 4

Texture—loam, sandy loam, or fine sandy loam
Reaction—moderately alkaline or strongly alkaline
Consistence—soft or slightly hard (dry)

Bqk horizon:
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 to 4
Texture—gravelly sandy loam, loam, or gravelly loam
Content of durinodes—20 to 50 percent
Reaction—strongly alkaline or very strongly alkaline

2Bqk horizon:
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 to 4
Texture—very gravelly loamy sand, very gravelly sandy loam, or very gravelly loam
Content of durinodes—20 to 40 percent

Puett Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum derived from tuff and tuffaceous sandstone
Positions on landscape: Low hills
Slope: 15 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical Pedon

About 25 percent of the surface is covered with pebbles, 10 percent with cobbles, and 2 percent with stones.

A—0 to 4 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine tubular pores; 15 percent pebbles; lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C—4 to 15 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Cr—15 inches; highly weathered tuff.

Typical Pedon Location

Soil name and map unit in which located: Puett gravelly sandy loam, 15 to 30 percent slopes, very stony, in Bioya-Shabliss-Puett association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 22 miles northeast of Battle Mountain; about 100 feet south and 2,000 feet east of the northwest corner of sec. 1, T. 35 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to bedrock: 10 to 20 inches
Reaction: Moderately alkaline or strongly alkaline
Effervescence: Strongly effervescent or violently effervescent
Other characteristics: Lime coatings on pebbles in the lower part in some pedons

Control section:
Content of clay—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, and 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 fraction—dominantly coarse sandy loam to loam, but ranges from loamy fine sand to loam; gravelly loam or gravelly sandy loam common in some pedons
Structure—subangular blocky or massive

Pula Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Side slopes of fan piedmont remnants
Slope: 15 to 50 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 30 percent with cobbles.

A—0 to 2 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable, sticky and plastic; common very fine and fine roots; common fine vesicular and tubular pores; 15 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bt1—2 to 6 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, very sticky and very plastic; common very fine and fine roots and few medium roots; common fine interstitial and 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 smooth boundary.

Bt2—6 to 10 inches; yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to moderate fine angular blocky; very hard, firm, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; many moderately thick clay films on faces of peds and lining pores and common moderately thick clay films coating coarse fragments; 35 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt3—10 to 16 inches; brown (10YR 5/3) extremely gravelly clay, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine and fine roots; common very fine and many fine tubular pores; common moderately thick clay films on faces of peds and coating coarse fragments; 50 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt4—16 to 24 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy clay, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; hard, friable, very sticky and very plastic; few very fine and fine roots; common fine tubular pores; common moderately thick clay films on faces of peds and coating coarse fragments; 45 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.

C—24 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; few fine tubular pores; 55 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.8).

Typical Pedon Location

Soil name and map unit in which located: Pula very cobbly loam, 30 to 50 percent slopes, in Pula-Spike association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles north of Austin; 1,000 feet east and 2,600 feet south of the northwest corner of sec. 23, T. 23 N., R. 43 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in November through June

Average annual soil temperature: 47 to 51 degrees F

Combined thickness of the A and Bt horizons: 22 to 40 inches

Reaction: Slightly acid to mildly alkaline

Control section:
- Content of clay—35 to 55 percent
- Content of rock fragments—55 to 75 percent, mostly pebbles

A horizon:
- Value—5 or 6 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—platy, granular, or subangular blocky

Bt horizon:
- Hue—10YR or 7.5YR
- Value—4 to 6 dry, 3 or 4 moist
- Chroma—2, 3, 4, or 6
- Texture—very gravelly or extremely gravelly clay, sandy clay, or clay loam
- Structure—moderate or strong, fine or medium, and subangular blocky or prismatic

C horizon:
- Value—5 to 8 dry, 4 to 6 moist
- Chroma—2 to 4

Punchbowl Series

Depth class: Very shallow or shallow

Drainage class: Well drained

Parent material: Residuum derived from andesite, dacite, rhyolite, tuff, and some shale

Positions on landscape: Crests and side slopes of hills and mountains

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid Lithic Xerollic Haplargids

Typical Pedon

About 25 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, sticky and plastic; few very fine roots; many very fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, very sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bt—6 to 10 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots and few medium roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores and few moderately thick clay films on faces of peds; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R—10 inches; fractured andesite; soft lime in fractures.

Typical Pedon Location

Soil name and map unit in which located: Punchbowl loam, 15 to 30 percent slopes, in Punchbowl-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles east of Austin; about 600 feet south and 600 feet east of the northwest corner of sec. 4, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June to early in November

Average annual soil temperature: 45 to 47 degrees F

Depth to bedrock: 8 to 14 inches

Reaction: Neutral to moderately alkaline, increasing in alkalinity with increasing depth

Control section:
- Content of clay—18 to 35 percent
- Content of rock fragments—15 to 35 percent

A horizon:
- Value—4 to 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Effervescence—noneffervescent to strongly effervescent in the lower part

Bt horizon:
- Hue—7.5YR or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—gravelly loam, gravelly sandy clay loam, or gravelly clay loam
- Content of clay—25 to 35 percent
- Content of rock fragments—25 to 35 percent, mostly pebbles
- Effervescence—noneffervescent to strongly effervescent in the matrix
- Other characteristics—very thin lime coatings on the underside of rock fragments or few soft lime segregations in the lower part in some pedons; few thin discontinuous colloid coatings common on rock fragments in some pedons

Rasille Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium derived from loess and various kinds of rock

Positions on landscape: Beach terraces, inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Coarse-silty, mixed, mesic Durixerollic Camborthids

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

A2—2 to 6 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; mildly alkaline (pH 7.6); clear smooth boundary.

Bw—6 to 15 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots and few medium roots; common very fine

tubular and interstitial pores; mildly alkaline (pH 7.8); clear wavy boundary.

Bq—15 to 24 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 20 percent weakly cemented durinodes 5 to 15 millimeters in diameter; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—24 to 33 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 40 percent strongly cemented durinodes 5 to 15 millimeters in diameter; common fine lime filaments and threads; slightly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk2—33 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 25 percent weakly cemented durinodes 10 to 25 millimeters in diameter; few fine lime filaments and threads; slightly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Rasille silt loam, 0 to 2 percent slopes, in McConnel-Rasille-Wholan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles east of Austin; in an unsectionalized area about 1,000 feet south and 1,000 feet east of the southwest corner of the assumed sec. 2, T. 19 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to carbonates: 12 to 24 inches

Depth to the Bq or Bqk horizon: 12 to 24 inches

Other characteristics: Bq or Bqk horizon has 20 to 50 percent durinodes in a friable matrix

Other characteristics: Some pedons have gravelly strata below a depth of 40 inches

Control section:

Texture—silt loam or very fine sandy loam that is less than 15 percent fine sand or coarser textured material

Content of clay—10 to 18 percent

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bw horizon:

Chroma—3 or 4

Reaction—mildly alkaline or moderately alkaline

Bqk horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Reaction—moderately alkaline to very strongly alkaline

Ravenswood Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from volcanic, metavolcanic, and metamorphic rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

Typical Pedon

About 65 percent of the surface is covered with pebbles, 10 percent with cobbles, and 3 percent with stones.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; 10 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt1—9 to 13 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common very fine tubular pores; many thin and common moderately thick clay films on faces of peds; 30 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt2—13 to 29 inches; yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine and medium roots; few very fine tubular pores; many moderately thick clay films in pores and on faces of peds; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt3—29 to 36 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; few coarse roots; few fine tubular pores; many pressure faces; 25 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); abrupt irregular boundary.

R—36 inches; fractured, welded tuff.

Typical Pedon Location

Soil name and map unit in which located: Ravenswood gravelly loam, 15 to 50 percent slopes, very stony, in Ravenswood-Itca-Walti association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 35 miles southwest of Austin; about 1,000 feet north and 500 feet east of the southwest corner of sec. 7, T. 15 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry for 45 to 90 days consecutively in mid-July through October

Average annual soil temperature: 43 to 47 degrees F (more than 41 degrees from May through November)

Thickness of the mollic epipedon: 10 to 16 inches (includes the upper part of the argillic horizon)

Thickness of the solum and depth to unweathered bedrock: 30 to 40 inches

Reaction: Slightly acid to mildly alkaline, increasing in alkalinity with increasing depth

Control section:
- Content of clay—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

Bt horizon:
- Hue—10YR or 7.5YR
- Value—5 dry in the upper part and 5 or 6 dry in the lower part, 3 moist in the upper part and 3 to 5 moist in the lower part
- Chroma—3 in the upper part; 3, 4, or 6 in the lower part
- Texture—very gravelly clay loam in the upper part, very gravelly clay or very gravelly clay loam in the lower part
- Structure—angular blocky in the upper part, angular blocky or prismatic in the lower part

Relley Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed silty alluvium that is derived mainly from volcanic rock and includes some loess and volcanic ash

Positions on landscape: Fan skirts, inset fans

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-silty, mixed, mesic Duric Camborthids

Typical Pedon

Ap—0 to 4 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; weak coarse and very coarse subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few very fine roots; many very fine vesicular and tubular pores; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A—4 to 8 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to moderate thin and medium platy; slightly hard, very friable, slightly sticky and plastic; common very fine roots and few fine and medium roots; many very fine vesicular, interstitial, and tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bw—8 to 16 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure; slightly hard, very friable, slightly sticky and plastic; common very fine roots; many very fine and few fine tubular pores; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk1—16 to 21 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and plastic; common very fine and few fine roots; common very fine tubular pores; 25 percent weakly or strongly silica-cemented durinodes 5 to 40 millimeters in diameter; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

Bqk2—21 to 28 inches; very pale brown (10YR 8/3) silt loam, light yellowish brown (10YR 6/4) moist; weak or moderate thin platy structure; slightly hard, friable, slightly sticky and plastic; common very fine and few fine roots; common very fine tubular pores; 10 percent weak durinodes; 40 percent discontinuous weak silica cementation; violently effervescent; many medium white (10YR 8/1, moist) and very pale brown (10YR 8/3, moist) coatings of lime on peds; strongly alkaline (pH 8.6); clear wavy boundary.

Bk1—28 to 52 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; violently effervescent; common fine filaments or threads and small isolated pockets of lime; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk2—52 to 63 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; common fine distinct brown (7.5YR 5/4) mottles, common fine faint dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and plastic; few very fine roots; many very fine tubular pores; violently effervescent; common fine filaments or threads of lime; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Relley silt loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 660 feet south and 530 feet east of the northwest corner of sec. 12, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 53 degrees F

Content of clay in the control section: 18 to 27 percent

Depth to the Bqk horizon: 11 to 24 inches

Content of salt and sodium: Generally moderately or strongly affected by salt and sodium at a depth of more than 30 inches

Other characteristics: Common, faint or distinct, relict mottles at a depth of more than 16 inches; volcanic ash layer 4 to 8 inches thick commonly at a depth of 16 to 45 inches; coarse sandy loam at a depth of more than 50 inches in some pedons

A horizon:
- Value—6 or 7 dry, 3 or 4 moist
- Consistence—slightly hard or hard (dry), very friable or friable (moist)
- Reaction—moderately alkaline or strongly alkaline

Bw horizon:
- Value—6 or 7 dry
- Chroma—2 or 3 dry, 3 or 4 moist
- Consistence—slightly hard or hard, very friable or friable
- Reaction—moderately alkaline or strongly alkaline

Bq, Bk, or Bqk horizons (when present):
- Value—5 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Texture—dominantly silt loam, but strata of very fine sandy loam or silty clay loam in some pedons
- Structure—platy or massive
- Reaction—moderately alkaline to very strongly alkaline
- Effervescence—strongly effervescent or violently effervescent
- Other characteristics—20 to 50 percent weakly or strongly cemented durinodes; 4- to 7-inch-thick layer that has 30 to 50 percent discontinuous weak silica cementation, is hard and brittle, and commonly is at a depth of 16 to 34 inches; continuous, weakly or strongly cemented hardpan at a depth of more than 50 inches in some pedons

Reluctan Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolite and other intrusive rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine-loamy, mixed, frigid Aridic Argixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; 15 percent pebbles; neutral (pH 7.2); clear smooth boundary.

A2—2 to 13 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 15 percent pebbles;

mildly alkaline (pH 7.6); clear smooth boundary.
Bt1—13 to 23 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; common very fine tubular pores; few thin clay films on faces of peds and in pores; 15 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.
Bt2—23 to 38 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; common very fine tubular pores; 30 percent pebbles; mildly alkaline (pH 7.6); abrupt wavy boundary.
2R—38 inches; rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Reluctan gravelly loam, 15 to 30 percent slopes, in Millerlux-Reluctan-Cleavage association
Location in Nevada: Lander County, Nevada, North Part, survey area; near Maysville Summit, about 14 miles southeast of Battle Mountain; about 2,000 feet south and 500 feet west of the northeast corner of sec. 7, T. 29 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October
Average annual soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 7 to 17 inches (commonly includes part of the argillic horizon)
Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches

A horizon:
Value—4 or 5 dry
Chroma—2 or 3
Reaction—neutral or mildly alkaline

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—gravelly loam or gravelly clay loam
Content of clay—25 to 35 percent
Content of rock fragments—15 to 35 percent, mainly pebbles
Reaction—neutral or mildly alkaline, commonly increasing in alkalinity with increasing depth

Ricert Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Thin loess deposits over alluvium derived from various kinds of rock
Positions on landscape: Fan piedmonts
Slope: 2 to 15 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Natrargids

Typical Pedon

About 90 percent of the surface is covered with pebbles.

A1—0 to 4 inches; pale brown (10YR 6/3) very gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate very thin platy structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine interstitial pores and few fine and medium vesicular pores; 35 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.
A2—4 to 7 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and few fine and medium tubular pores; 25 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.
Btn—7 to 11 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; many fine roots and few very fine and medium roots; common very fine and few fine interstitial pores and few very fine and medium tubular pores; 5 percent pebbles; common moderately thick clay films on faces of peds; strongly alkaline (pH 8.8); clear wavy boundary.
Btnk—11 to 14 inches; yellowish brown (10YR 5/6) loam, dark yellowish brown (10YR 4/6) moist; weak medium prismatic structure parting to moderate fine subangular blocky; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine and few very fine and medium tubular pores; common thin clay films on faces of peds; 10 percent pebbles; few fine lime filaments or threads; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.
Bqk—14 to 20 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/6) moist; massive; hard, firm, nonsticky and nonplastic; few fine and medium roots; few fine tubular pores; 15 percent pebbles; continuous weak silica cementation;

common fine lime filaments or threads; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

2Bk1—20 to 31 inches; very pale brown (10YR 7/4) very gravelly sandy loam, yellowish brown (10YR 5/6) moist; massive; soft, very friable, nonsticky and nonplastic; many fine interstitial pores; 35 percent pebbles and 10 percent cobbles; common fine lime filaments or threads and lime coatings on the underside of pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bk2—31 to 60 inches; very pale brown (10YR 8/4) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, nonsticky and nonplastic; many fine interstitial pores; 25 percent pebbles and 10 percent cobbles; common fine lime filaments or threads and lime coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Ricert very gravelly very fine sandy loam, 2 to 4 percent slopes, in Ricert-Orovada-Broyles association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles southwest of Austin; about 2,000 feet north and 1,300 feet east of the southwest corner of sec. 3, T. 17 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-May through November

Average annual soil temperature: 47 to 52 degrees F

Depth to the Bqk horizon: 14 to 25 inches

Depth to the 2Bk horizon: 20 to 40 inches

Control section:
- Content of clay—25 to 35 percent
- Content of rock fragments—0 to 10 percent, mainly pebbles

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4

Btn and Btnk horizons:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3, 4, or 6
- Texture—loam or clay loam
- Reaction—strongly alkaline or very strongly alkaline
- Exchangeable sodium percentage—15 to 35

Bqk horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3, 4, or 6
- Texture—loam, silt loam, or clay loam
- Reaction—strongly alkaline or very strongly alkaline

2Bk and 2Bky horizons (when present):
- Texture—dominantly very gravelly sandy loam, very gravelly loamy sand, or extremely gravelly loamy sand, but strata of coarse sand in some pedons
- Content of rock fragments—30 to 70 percent, mainly pebbles, commonly increasing with increasing depth
- Reaction—strongly alkaline or very strongly alkaline
- Other characteristics—gypsum absent in many pedons

Robson Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from igneous rock

Positions on landscape: Crests and side slopes of hills and mountains

Slope: 8 to 30 percent

Mean annual precipitation: About 15 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical Pedon

About 30 percent of the surface is covered with pebbles and 50 percent with cobbles and stones.

A—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate thin platy structure parting to moderate fine granular; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and fine vesicular pores; 10 percent pebbles, 40 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

Bt1—2 to 5 inches; pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; few fine clay films on faces of peds; 10 percent pebbles and 35 percent cobbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

Bt2—5 to 15 inches; pale brown (10YR 6/3) very cobbly clay, dark brown (10YR 4/3) moist; strong medium and coarse angular blocky structure; hard, 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; 20 percent

pebbles and 35 percent cobbles; mildly alkaline (pH 7.8); clear irregular boundary.
R—15 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Robson very cobbly loam, 15 to 30 percent slopes, in Zoesta-Robson-Softscrabble association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 1,500 feet east and 750 north of the southwest corner of sec. 29, T. 20 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October
Average annual soil temperature: 44 to 47 degrees F
Depth to bedrock: 12 to 20 inches

Control section:
Content of clay—40 to 50 percent
Content of rock fragments—50 to 75 percent when mixed, mainly cobbles

A horizon:
Hue—7.5YR or 10YR
Value—5 or 6 dry (value of 5.5 dry occurs when the upper 7 inches is mixed); 3 or 4 moist
Chroma—2 or 3
Structure—very thin or thin and platy, or very fine to medium and subangular blocky or granular

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Structure—weak to strong, very fine to coarse, and prismatic, subangular blocky, or angular blocky
Reaction—neutral or mildly alkaline
Other characteristics—the upper few inches of bedrock commonly fractured into angular, cobble- or pebble-sized fragments

Roca Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from shale and chert
Positions on landscape: Side slopes of mountains
Slope: 15 to 50 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 43 degrees F
Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles.
A—0 to 5 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 and common fine roots; many very fine tubular pores and common very fine vesicular pores; 40 percent pebbles and 1 percent cobbles; neutral (pH 7.2); clear smooth boundary.
Bt1—5 to 10 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and common fine roots; many very fine tubular pores; 35 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.
Bt2—10 to 18 inches; yellowish brown (10YR 5/4) very gravelly clay, brown (10YR 4/3) moist; strong very fine and fine angular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; many very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 50 percent pebbles; mildly alkaline (pH 7.4); gradual wavy boundary.
Bt3—18 to 27 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong very fine and fine angular blocky structure; hard, firm, sticky and plastic; common very fine roots; many very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 50 percent pebbles; mildly alkaline (pH 7.8); abrupt wavy boundary.
R—27 inches; fractured chert.

Typical Pedon Location

Soil name and map unit in which located: Roca very gravelly loam, 30 to 50 percent slopes, in Roca-Linrose-Wiskan association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 15 miles southeast of Battle Mountain; about 1,000 feet south and 2,000 feet east of the northwest corner of sec. 24, T. 30 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to early in November
Average annual 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—dominantly 10YR or 7.5YR, but 2.5Y common in the lower part 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
Content of clay—35 to 50 percent
Content of rock fragments—35 to 50 percent, mainly pebbles
Structure—moderate or strong, medium or fine, and angular blocky or subangular blocky
Reaction—neutral to moderately alkaline, commonly increasing in alkalinity with increasing depth
Other characteristics—contains lime and is violently effervescent in the lower part in some pedons

Rotinom Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loess and alluvium that is derived from various kinds of rock and includes some volcanic ash
Positions on landscape: Stream terraces
Slope: 0 to 2 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Durorthidic Torrifluvents

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong thin and medium platy structure; slightly hard, friable, sticky and plastic; few fine and very fine roots; many very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong thick platy structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; many very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A3—4 to 9 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong thin platy structure; slightly hard, friable, sticky and plastic; few very fine and common fine roots; many very fine and few fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bk—9 to 13 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; moderate medium platy structure; soft, very friable, slightly sticky and plastic; few very fine and common fine roots; common very fine and fine tubular pores; few fine and medium lime coatings on plates; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bqk1—13 to 16 inches; white and pale brown (10YR 8/2 and 6/3) silt loam, light brownish gray and yellowish brown (10YR 6/2 and 5/4) moist; strong thin platy structure; soft, very friable, slightly sticky and plastic; few very fine and common fine roots; common very fine and fine tubular pores; banded lenses of lighter colored volcanic ash; 50 percent hard, firm and brittle, discontinuous, weak, silica cementation; common medium lime coatings on plates; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Bqk2—16 to 24 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and plastic; few very fine and common fine roots; few medium and common very fine and fine tubular pores; thin discontinuous lenses of ash; 60 percent hard, firm and brittle, discontinuous, weak, silica cementation; many medium lime coatings on plates; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Akb1—24 to 32 inches; gray (10YR 5/1) silty clay loam, very dark gray (10YR 3/1) moist; strong fine angular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine roots; few medium and common very fine and fine tubular pores; continuous thin silica coatings on faces of peds; common fine and medium lime filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Akb2—32 to 40 inches; light gray (10YR 6/1) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; silica bridges between sand grains; common fine lime filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Ck1—40 to 49 inches; gray (5Y 6/1) sandy loam, olive gray (5Y 4/2) moist; common fine distinct yellowish brown (10YR 5/6) relict mottles, dark yellowish brown (10YR 3/6) moist; massive; slightly hard,

friable, slightly sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; few fine lime filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Ck2—49 to 65 inches; gray (10YR 6/1) sandy loam, olive gray (5Y 4/2) moist; common medium distinct yellowish brown (10YR 5/6) relict mottles, dark yellowish brown (10YR 4/6) moist, and few fine prominent yellowish red (5YR 5/6) relict mottles, dark reddish brown (5YR 3/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common fine manganese coatings and concretions; common fine lime filaments; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

4C—65 to 69 inches; gray (5Y 6/1) extremely gravelly coarse sand, olive gray (5Y 4/2) moist; single grain; loose, nonsticky and nonplastic; 65 percent pebbles; common fine lime filaments on pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Rotinom silt loam, 0 to 2 percent slopes, in Rotinom-Wholan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles southeast of Austin, in the Monitor Valley, 1.8 miles south and 0.4 mile west of an isolated windmill; in an unsectionalized area about 1.5 miles east and 2.8 miles north of the southwest corner of the assumed sec. 31, T. 17 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from November to early in May; dry late in May through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the buried A horizon: 20 to 35 inches

Other characteristics: 20 to 60 percent discontinuous silica cementation at a depth of 10 to 20 inches; relict mottles at a depth of more than 40 inches in some pedons

Reaction: Moderately alkaline or strongly alkaline

Control section:
- Content of clay—18 to 27 percent
- Content of sand—less than 15 percent particles coarser than very fine sand
- Content of rock fragments—as much as 5 percent in some horizons

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Effervescence—noneffervescent to strongly effervescent

Bk and Bqk horizons:
- Hue—10YR, 2.5Y, or 5Y
- Value—5 to 8 dry, 3 to 5 moist
- Chroma—1 to 4
- Texture—dominantly silt loam, but strata of silty clay loam common in most pedons and very thin lenses of loam, very fine sandy loam, or sandy clay loam in some pedons
- Effervescence (matrix)—slightly effervescent to violently effervescent
- Other characteristics—lime filaments, threads, or soft masses present

Rutab Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan skirts, stream terraces

Slope: 0 to 2 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Xerollic Camborthids

Typical Pedon

About 5 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate medium platy structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and few fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bw1—5 to 8 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak medium and moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores and few very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bw2—8 to 16 inches; pale brown (10YR 6/3) loam, dark

brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular and interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

2Bw3—16 to 21 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine interstitial pores; 15 percent moderate or strong durinodes 10 to 30 millimeters in diameter; 20 percent pebbles; mildly alkaline (pH 7.8); gradual wavy boundary.

3C—21 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; many fine interstitial pores; 50 percent pebbles and 10 percent cobbles; few thin slightly effervescent lime coatings on the underside of rock fragments; noneffervescent in matrix; mildly alkaline (pH 7.8).

Typical Pedon Location

Map unit in which located: Rutab loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 24 miles east of Austin; about 1,000 feet south and 1,000 feet west of the northeast corner of sec. 20, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in mid-June through October

Average annual soil temperature: 45 to 47 degrees F

Combined thickness of the A and Bw horizons: 13 to 23 inches

Control section:
- Content of clay—5 to 18 percent
- Content of rock fragments—35 to 60 percent

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Consistence—soft or slightly hard (dry)
- Reaction—neutral or mildly alkaline

Bw horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—loam or gravelly loam

2Bw horizon:
- Texture—very gravelly sandy loam or very gravelly loam
- Content of rock fragments—35 to 50 percent, mainly pebbles
- Structure—subangular blocky or massive
- Content of durinodes: As much as 15 percent in some pedons

3C horizon:
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—extremely gravelly loamy sand, extremely gravelly sandy loam, or very gravelly sandy loam
- Content of rock fragments—35 to 70 percent, mainly pebbles
- Other characteristics—5 to 10 percent durinodes that commonly are very hard, firm, and brittle present in some pedons

Settlemeyer Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Flood plains, inset fans

Slope: 0 to 4 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Fluvaquentic Haplaquolls

Typical Pedon

A1—0 to 5 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin and thin platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine vesicular pores; mildly alkaline (pH 7.7); clear smooth boundary.

A2—5 to 10 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; mildly alkaline (pH 7.8); clear smooth boundary.

A3—10 to 16 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; common medium faint mottles that are dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common worm casts; moderately alkaline (pH 7.9); clear smooth boundary.

AC—16 to 24 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; common medium distinct mottles that are yellowish brown (10YR 5/4) and very dark brown (10YR 2/2) moist; weak medium angular blocky structure; slightly hard, friable, very sticky and plastic; common very fine and fine roots; common very fine tubular pores; common fine slightly effervescent lime filaments; noneffervescent in matrix; moderately alkaline (pH 8.0); clear smooth boundary.

C1—24 to 36 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; few fine distinct mottles that are dark brown (7.5YR 4/4) and gray (2.5Y 5/0) moist; massive; slightly hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; few fine slightly effervescent lime seams; noneffervescent in matrix; moderately alkaline (pH 8.0); gradual smooth boundary.

2C2—36 to 65 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; few fine distinct mottles that are dark brown (7.5YR 4/4) and gray (2.5Y 5/0) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; common very fine tubular pores; mildly alkaline (pH 7.8).

Typical Pedon Location

Map unit in which located: Settlemeyer fine sandy loam, drained, 0 to 4 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 32 miles southwest of Battle Mountain; about 900 feet east and 2,550 feet south of the northwest corner of sec. 7, T. 27 N., R. 42 E.

Range in Characteristics

Soil moisture content: Dry in midsummer to early in fall, moist late in fall to early in summer

Depth to an apparent seasonal high water table: Commonly 12 to 36 inches in winter and spring, but some areas have been drained

Average annual soil temperature: 47 to 52 degrees F

Thickness of the mollic epipedon: 12 to 24 inches

Reaction: Neutral to very strongly alkaline (higher reaction only in sodium-affected pedons)

Other characteristics: O horizon that consists of as much as 6 inches of mainly undecomposed plant material present at top

Control section:
- Texture—stratified clay, silty clay, silty clay loam, clay loam, loam, silt loam, or very fine sandy loam
- Content of clay—25 to 35 percent when mixed
- Content of fine sand or coarser fragments—15 to 30 percent

A and AC horizons:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—1 to 3
- Structure—weak to strong, fine or medium, and prismatic, angular blocky, subangular blocky, or granular; weak to strong, very thin to medium, and platy; or massive
- Consistence—slightly hard or hard (dry)
- Effervescence—noneffervescent or slightly effervescent in the upper part of the A horizon, but noneffervescent between depths of 10 and 20 inches

C horizon:
- Hue—10YR, 2.5Y, or 5Y
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—1 to 3
- Structure—weak, medium or fine, and angular blocky, or massive
- Consistence—slightly hard or hard (dry)
- Other characteristics—distinct or prominent iron mottles that have reddish, greenish, or yellowish hue and chroma of 1 to 4 are present; base color indicative of gleying present in matrix; few lime concretions 0.25 to 0.75 inch in diameter

2C horizon:
- Effervescence: Noneffervescent or slightly effervescent

Shagnasty Series

Depth class: Deep or very deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolite, andesite, and quartzite

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Typic Argixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles, 30 percent with cobbles, and 40 percent with stones.

O—1 inch to 0; partially decomposed plant litter.

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine vesicular pores; 10 percent pebbles and 30 percent cobbles

and stones; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; 10 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—10 to 15 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; strong medium angular blocky structure; hard, friable, very sticky and plastic; few fine and medium roots; few very fine tubular pores; many thin and few moderately thick clay films on faces of peds; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—15 to 27 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few fine, medium, and coarse roots; few very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 10 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bt3—27 to 36 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure; hard, friable, very sticky and very plastic; few medium and coarse roots; few very fine tubular pores; many thick pressure faces; 10 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bt4—36 to 44 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few medium and coarse roots; few fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 25 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt5—44 to 57 inches; light yellowish brown (10YR 6/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few medium roots; common moderately thick clay films lining pores and on faces of peds; 10 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Cr—57 inches; weathered rhyolite.

Typical Pedon Location

Soil name and map unit in which located: Shagnasty very cobbly loam, 30 to 50 percent slopes, rubbly, in Shagnasty-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 29 miles east of Austin; about 100 feet north and 800 feet east of the southwest corner of sec. 3, T. 20 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter to early in summer, dry in mid-July through October

Average annual soil temperature: 44 to 46 degrees F

Thickness of the mollic epipedon: 10 to 16 inches (includes the upper part of the argillic horizon)

Depth to the base of the Bt horizon: 40 to more than 60 inches

Depth to weathered bedrock: 50 to 80 inches

Reaction: Slightly acid to mildly alkaline

Other characteristics: Lime below a depth of 40 inches in some pedons, lithologic discontinuity absent in some pedons

Control section:
- Content of clay—35 to 50 percent
- Content of rock fragments—5 to 15 percent when mixed

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3

Bt horizon:
- Hue—7.5YR or 10YR
- Value—4 to 6 dry, 3 to 5 moist
- Chroma—3 or 4 in the upper part, 4 to 6 in the lower part
- Structure—dominantly prismatic or angular blocky, but massive in the lower part in some pedons

Shipley Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Inset fans

Slope: 0 to 2 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), frigid Xeric Torriorthents

Typical Pedon

About 5 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium platy structure; hard, friable, slightly sticky and

slightly plastic; few very fine roots; many fine and medium vesicular pores; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 5 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

C1—5 to 11 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and few fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C2—11 to 30 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Ck1—30 to 41 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 10 percent pebbles; common medium lime filaments; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

2Ck2—41 to 60 inches; pale brown (10YR 6/3) extremely gravelly sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 45 percent pebbles and 20 percent cobbles; common thin lime coatings on the underside of rock fragments; violently effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Map unit in which located: Shipley silt loam, occasionally flooded, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 23 miles southeast of Austin; about 1,800 feet south and 2,000 feet west of the northeast corner of sec. 3, T. 16 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Reaction: Moderately alkaline to very strongly alkaline

Other characteristics: Thin strata of sand or gravel at a depth of more than 40 inches in some pedons, gravelly in the lower part in some pedons

Control section:

- Content of clay—8 to 18 percent
- Content of rock fragments—dominantly nongravelly, but as much as 35 percent gravel in individual strata

A horizon:

- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Structure—strong or moderate, very thin to medium, and platy, or massive
- Consistence—soft to hard (dry), very friable or friable (moist)

C horizon:

- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 or 3
- Texture—dominantly silt loam, fine sandy loam, or very fine sandy loam, but thin strata of loam or sandy loam in some pedons
- Structure—weak and platy or subangular blocky, or massive
- Consistence—soft or slightly hard (dry)
- Other characteristics—as much as 20 percent slightly hard or hard, brittle durinodes 0.5 to 1.0 inch in diameter at a depth of more than 15 inches in some pedons; few fine or medium lime segregations at a depth of more than 24 inches

Silverado Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some volcanic ash

Positions on landscape: Inset fans

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Coarse-loamy, mixed, frigid Durixerollic Camborthids

Typical Pedon

A1—0 to 4 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine interstitial pores; 5 percent pebbles; slightly acid (pH 6.2); abrupt smooth boundary.

A2—4 to 6 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine and very fine

subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; common fine and very fine interstitial pores; 5 percent pebbles; slightly acid (pH 6.2); clear wavy boundary.

Bw—6 to 14 inches; brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; common fine and very fine interstitial pores; 5 percent pebbles; slightly acid (pH 6.2); clear wavy boundary.

Bq—14 to 26 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine and very fine roots; common fine and very fine interstitial pores; continuously weakly cemented with common very thin silica bridges and few very thin discontinuous silica laminae; 20 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

Bqk1—26 to 35 inches; white (10YR 8/1) gravelly sandy loam, very pale brown (10YR 7/3) moist; massive; very hard, very firm, nonsticky and nonplastic; few fine roots; common fine and very fine interstitial pores; continuously weakly cemented with common thin discontinuous silica and lime laminae; 20 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

2Bqk2—35 to 60 inches; light gray (10YR 7/2) very gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine interstitial pores; few discontinuous thin strongly cemented and common weakly cemented silica and lime laminae; 50 percent pebbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Map unit in which located: Silverado sandy loam, 0 to 2 percent slopes

Location in Nevada: Eureka County Area, Nevada, survey area; about 20 miles west of Eureka; about 300 feet west and 1,100 feet south of the northeast corner of sec. 10, T. 19 N., R. 50 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to the Bq horizon: 10 to 25 inches

Depth to the 2Bqk horizon: 30 to 40 inches

Control section:

Content of clay—5 to 15 percent

Content of rock fragments—10 to 30 percent pebbles when mixed

A horizon:

Value—5 or 6 dry and 3 or 4 moist (value of more than 5.5 dry and 3.5 moist occurs when the upper 7 inches is mixed)

Chroma—2 or 3

Reaction—slightly acid to mildly alkaline

Structure—granular, platy, or massive

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Content of rock fragments—0 to 15 percent

Reaction—slightly acid to mildly alkaline

Bq and Bqk horizons:

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Texture—sandy loam or gravelly sandy loam

Reaction—neutral to moderately alkaline

Other characteristics—continuous weak silica cementation and few or common very thin discontinuous horizontal and vertical silica laminae; strata that are not continuously cemented have durinodes or common pendants on rock fragments in the noncemented part

2Bk or 2Bqk horizon:

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Texture—very gravelly sand or very gravelly coarse sand

Reaction—moderately alkaline or strongly alkaline

Other characteristics—discontinuous, thin, weakly or strongly silica-cemented laminae in the 2Bqk horizon in some pedons

Simpark Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum and colluvium that are derived from andesite, rhyolite, and quartzite and include some volcanic ash

Positions on landscape: Side slopes of low hills and mountains

Slope: 2 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid, shallow Xerollic Durargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 40 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine, fine, and medium vesicular pores; 10 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

BA—3 to 13 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 15 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bt—13 to 18 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; few fine and medium roots; few fine tubular pores; common thin and few moderately thick clay films coating faces of peds and sand grains; 20 percent pebbles and 15 percent cobbles; thin silica coatings on the underside of rock fragments; moderately alkaline (pH 8.2); clear wavy boundary.

Bqkm—18 to 22 inches; very pale brown (10YR 7/3), indurated duripan that has a 0.5-inch-thick continuous laminar cap, brown (10YR 5/3) moist; massive; extremely hard, extremely firm; violently effervescent; clear wavy boundary.

2R—22 inches; andesite.

Typical Pedon Location

Soil name and map unit in which located: Simpark very cobbly loam, 15 to 30 percent slopes, in Akerue-Simpark-Punchbowl association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles east of Austin; in an unsectionalized area about 5.4 miles south and 2,200 feet east of the northwest corner of the assumed sec. 6, T. 18 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June to mid-October

Average annual soil temperature: 44 to 46 degrees F

Depth to the duripan: 14 to 20 inches

Depth to lithic contact: 20 to 30 inches

Other characteristics: Thin Bk or Btq horizon above the duripan in some pedons

Control section:

Content of clay—18 to 27 percent

Content of rock fragments—35 to 60 percent, mainly cobbles or pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 4

Reaction—mildly alkaline or moderately alkaline

Skullwak Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Fine textured lacustrine sediment derived from various kinds of rock

Positions on landscape: Lake plains

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts

Typical Pedon

A—0 to 2 inches; light gray (10YR 7/2) silt loam, pale brown (10YR 6/3) moist; moderate medium platy structure; hard, friable, sticky and plastic; few very fine roots; common very fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.

C—2 to 10 inches; light gray (10YR 7/2) silty clay loam, yellowish brown (10YR 5/4) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine tubular and interstitial pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

2Cqk—10 to 17 inches; light gray (10YR 7/2) silty clay loam, yellowish brown (10YR 5/4) moist; many medium distinct mottles that are light brownish gray (2.5Y 6/2) and light gray (2.5Y 7/2) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine interstitial pores; 15 percent strongly cemented durinodes 15 to 25 millimeters in diameter; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

3Cqkg1—17 to 30 inches; white (5Y 8/2) silty clay, light olive gray (5Y 6/2) moist; many medium distinct mottles that are light gray (5Y 7/2) and yellowish brown (10YR 5/4) moist; massive; very hard, very firm, very sticky and very plastic; common very fine

and fine roots; few very fine tubular pores; 75 percent strongly cemented durinodes and discontinuous masses; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3Cqkg2—30 to 37 inches; light gray (5Y 7/2) silty clay loam, olive gray (5Y 5/2) moist; common fine distinct mottles that are light gray (5Y 7/2) and yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; 75 percent strongly cemented durinodes and discontinuous masses; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3C1—37 to 46 inches; light gray (5Y 7/2) silty clay, light olive gray (5Y 6/2) moist; common fine distinct mottles that are olive (5Y 5/6) moist; moderate fine angular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

3C2—46 to 60 inches; light gray (5Y 7/2) silty clay loam, light olive gray (5Y 6/2) moist; few fine distinct mottles that are olive (5Y 5/6) moist; massive; hard, firm, very sticky and very plastic; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Skullwak silt loam in Skullwak-Umberland-Wendane association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 41 miles northeast of Austin, in the Carico Lake Valley; in an unsectionalized area about 1,600 feet south and 1,600 feet west of the southwest corner of the assumed sec. 28, T. 24 N., R. 47 E.

Range in Characteristics

Soil moisture content: Saturated year-round at a depth of 18 to 36 inches

Average annual soil temperature: 47 to 52 degrees F

Depth to the Cqk horizon: 8 to 14 inches

Reaction: Moderately alkaline to very strongly alkaline, commonly decreasing in alkalinity with increasing depth

Exchangeable sodium percentage: 25 to 40 above the Cqk horizon, 15 to 30 in and below the Cqk horizon

Other characteristics: Strongly affected by salt above the Cqk horizon, moderately affected in and below the Cqk horizon

Control section:
Texture—stratified silty clay loam or silty clay
Content of clay—35 to 45 percent when mixed

A horizon:
Value—7 or 8 dry, 4 to 6 moist
Chroma—2 or 3

C and Cqk horizons:
Hue—10YR in the upper part, 5Y or 2.5Y in the lower part
Chroma—3 or 4 in the upper part, 1 or 2 in the lower part

Sodhouse Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Fan piedmont remnants

Slope: 2 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Typic Durorthids

Typical Pedon

A—0 to 3 inches; pale brown (10YR 6/3) stony very fine sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 2 percent stones; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—3 to 10 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 2 percent stones; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk—10 to 17 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; 10 percent durinodes 3 to 5 millimeters in diameter; common fine round lime concretions; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

2Bqkm—17 to 29 inches; white (10YR 8/2), indurated duripan, pale brown (10YR 6/3) moist; massive; abrupt smooth boundary.

2Cqk1—29 to 47 inches; very pale brown (10YR 7/3) very gravelly sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 25 percent pebbles and 10 percent cobbles; 15 percent durinodes 15 to

30 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.
3Cqk2—47 to 60 inches; white (10YR 8/2) very gravelly loamy sand, pale brown (10YR 6/3) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots; about 30 percent pebbles, 5 percent cobbles, and 10 percent stones; continuously weakly silica-cemented; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Sodhouse stony very fine sandy loam in Orovada-Sodhouse association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles north of Battle Mountain; about 1,600 feet north and 1,700 feet west of the southeast corner of sec. 8, T. 35 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and spring, dry in June through November
Average annual soil temperature: 47 to 53 degrees F
Depth to the indurated duripan: 14 to 20 inches
Thickness of the duripan: 10 to 24 inches
Depth to the Ck horizon: 25 to 44 inches
Content of clay in the control section: 8 to 15 percent
Reaction: Moderately alkaline or strongly alkaline, usually increasing in alkalinity with increasing depth
Other characteristics: Durinodes and lime accumulations common in strata immediately above the duripan in some pedons

A horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Other characteristics—commonly noneffervescent, but slightly effervescent in some pedons as a result of lime recharge from dust

Bw horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4
Texture—very fine sandy loam, fine sandy loam, loam, or gravelly loam
Content of rock fragments—5 to 35 percent, mainly pebbles

Bqkm horizon:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Structure—platy or massive

2Ck horizon:
Texture—extremely gravelly sandy loam or very gravelly loamy sand

Softscrabble Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from volcanic rock and some chert, quartzite, and shale
Positions on landscape: Side slopes of mountains
Slope: 4 to 50 percent
Mean annual precipitation: About 16 inches
Mean annual temperature: About 44 degrees F
Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Argixerolls

Typical Pedon

About 30 percent of the surface is covered with pebbles and 25 percent with cobbles and stones.
A1—0 to 3 inches; dark brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; slightly hard, friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine vesicular pores; 25 percent pebbles and 30 percent cobbles and stones; neutral (pH 7.0); abrupt smooth boundary.
A2—3 to 9 inches; dark brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine interstitial pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.
Bt1—9 to 16 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 slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.
Bt2—16 to 22 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate coarse angular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common fine tubular pores; common thin and few moderately thick clay films on faces of peds; 10 percent pebbles, 35

percent cobbles, and 10 percent stones; neutral (pH 6.8); clear wavy boundary.

Bt3—22 to 30 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; common very fine and few fine roots; common fine tubular pores; many thin and few moderately thick clay films in pores and on faces of peds; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 6.8); gradual wavy boundary.

2Bt4—30 to 37 inches; brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 3/4) moist; strong medium angular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; common moderately thick clay films on faces of peds; 35 percent pebbles; neutral (pH 6.8); clear wavy boundary.

2Bt5—37 to 60 inches; light brown (7.5YR 6/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; weak angular blocky structure; hard, friable, sticky and plastic; very few very fine roots; few very fine tubular pores; common moderately thick clay films on peds; 55 percent pebbles; neutral (pH 7.0).

Typical Pedon Location

Soil name and map unit in which located: Softscrabble very cobbly loam, 15 to 50 percent slopes, in Zoesta-Robson-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles east of Austin; about 1,000 feet west and 500 feet north of the southeast corner of sec. 1, T. 19 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to early in October

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 20 to 38 inches

Depth to the base of the Bt horizon: 60 to 80 inches

Reaction: Slightly acid or neutral

Control section:

Content of clay—27 to 35 percent

Content of rock fragments (when mixed)—35 to 70 percent pebbles and cobbles and a few stones

A horizon:

Hue—10YR or 7.5YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—platy, granular, or subangular blocky

Bt horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 (chroma of 4 in the lower part only)

Texture—loam or clay loam that averages 35 to 70 percent rock fragments, but individual strata are as little as 5 percent rock fragments

Sonoma Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Silty alluvium derived from various kinds of rock with a component of volcanic ash

Positions on landscape: Flood plains

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 50 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Fluvaquents

Typical Pedon

A1—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin and medium platy structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots and few medium roots; few very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

A2—3 to 12 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, sticky and plastic; few very fine roots and common fine and medium roots; common fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C1—12 to 19 inches; light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist; many fine distinct mottles that are dark brown (7.5YR 4/4) moist and few medium distinct mottles that are very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, very sticky and plastic; common fine and medium roots and few very fine and coarse roots; common fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2—19 to 29 inches; light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct mottles that are dark brown (7.5YR 4/4) moist and few medium faint mottles that are brown (7.5YR 5/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, very sticky and plastic; common fine and medium roots; common fine interstitial pores;

strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C3—29 to 38 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct mottles that are dark brown (7.5YR 4/4) moist and few fine distinct mottles that are very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; common very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C4—38 to 53 inches; light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist; many fine distinct mottles that are dark yellowish brown (10YR 4/6) moist; moderate thin and medium platy structure; hard, firm, very sticky and very plastic; few fine roots; common very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C5—53 to 60 inches; light gray (10YR 7/2) silty clay loam, grayish brown (10YR 5/2) moist; many fine distinct mottles that are dark yellowish brown (10YR 4/4) moist; massive; hard, friable, very sticky and very plastic; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Sonoma silt loam, frequently flooded, in Sonoma-Paranat association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles north of Austin; about 1,600 feet south and 100 feet east of the northeast corner of sec. 1, T. 21 N., R. 42 E.

Range in Characteristics

Soil moisture content (undrained areas): Saturated in spring and early in summer; water table at a depth of more than 40 inches the rest of the year

Average annual soil temperature: 49 to 53 degrees F

Depth to the buried A horizon (when present): 30 to 55 inches

Calcium carbonate equivalent: 3 to 12 percent throughout the profile

Effervescence: Strongly effervescent or violently effervescent

Control section:
- Texture—dominantly stratified silt loam to silty clay loam, but strata of clay or silty clay in some pedons
- Content of clay—25 to 35 percent

A horizon:
- Hue—2.5Y or 10YR
- Value—3 to 5 moist
- Reaction—moderately alkaline to very strongly alkaline (buried A horizon, when present, is moderately alkaline or strongly alkaline)

C horizon:
- Hue—10YR to 5Y
- Value—6 to 8 dry, 3 to 5 moist
- Chroma—dominantly 1 or 2, but 3 in some strata in some pedons
- Structure—platy, subangular blocky, or massive
- Reaction—moderately alkaline to very strongly alkaline
- Other characteristics—freshwater crustacean shells and lime concretions 0.25 to 0.5 inch in diameter in most pedons

Spasprey Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Haploxerollic Durargids

Typical Pedon

About 15 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 15 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt1—5 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; few very fine tubular pores; common thin clay bridges between mineral grains; mildly alkaline (pH 7.4); clear smooth boundary.

Bt2—9 to 17 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular pores; common thin and few moderately thick clay films on

faces of peds; mildly alkaline (pH 7.6); clear smooth boundary.

Bqk—17 to 26 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few fine and medium roots; few very fine tubular pores; 30 percent discontinuous weak silica cementation and 30 percent strongly cemented durinodes; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bqkm—26 to 33 inches; very pale brown (10YR 7/4) strongly cemented duripan, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm; few very fine roots; very few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cqk—33 to 60 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; hard, friable, nonsticky and nonplastic; few fine and medium roots; common very fine tubular pores; 30 percent discontinuous weak silica cementation and 20 percent discontinuous strongly silica-cemented masses; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Spasprey gravelly fine sandy loam, 2 to 4 percent slopes, in Spasprey-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 43 miles southwest of Austin; about 2,100 feet north and 2,700 feet east of the northwest corner of sec. 28, T. 15 N., R. 38 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part in mid-October to mid-June

Average annual soil temperature: 47 to 53 degrees F

Depth to the base of the Bt horizon: 10 to 20 inches

Depth to the strongly cemented duripan: 20 to 30 inches

Control section:
- Texture—clay loam, loam, or sandy clay loam in the upper part; sandy loam or loam in the lower part
- Content of clay—20 to 35 percent when mixed
- Content of sand—more than 35 percent
- Content of rock fragments—less than 10 percent

A horizon:
- Hue—2.5Y or 10YR
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 to 4
- Consistence—nonsticky or slightly sticky and nonplastic or slightly plastic (wet)

Bt horizon:
- Hue—7.5YR, 10YR, or 2.5Y
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—sandy clay loam, loam, or clay loam
- Content of rock fragments—less than 10 percent
- Structure—subangular blocky, angular blocky, or prismatic
- Consistence—slightly hard or hard (dry), sticky or very sticky and plastic or very plastic (wet)
- Reaction—neutral or mildly alkaline

Bqkm horizon:
- Hue—2.5Y, 10YR, or 7.5YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4

Spike Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Gravelly alluvium derived from various kinds of rock

Positions on landscape: Side slopes of fan piedmont remnants and partial ballenas

Slope: 30 to 50 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Haplargids

Typical Pedon

About 70 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 1 inch; very pale brown (10YR 7/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many fine vesicular pores; 35 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2—1 to 2 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; weak thin platy structure; slightly hard, friable, slightly sticky and plastic; few very fine roots; many fine vesicular and tubular pores; 25 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Btn—2 to 6 inches; yellowish brown (10YR 5/6) very gravelly clay, dark yellowish brown (10YR 4/6) moist; strong fine angular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine and fine

tubular pores; many moderately thick clay films on faces of peds and lining pores; 45 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

Btnk1—6 to 14 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; very hard, friable, very sticky and plastic; few fine roots; common very fine and fine tubular and interstitial pores; common thin clay films on faces of peds and lining pores; 45 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of rock fragments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Btnk2—14 to 18 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/6) moist; massive; very hard, firm, sticky and plastic; few very fine roots; common very fine and fine tubular pores; common thin clay films bridging mineral grains; 60 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Btnk3—18 to 30 inches; very pale brown (10YR 7/4) extremely gravelly sandy clay loam, brownish yellow (10YR 6/6) moist; massive; hard, friable, sticky and plastic; very few fine roots; common very fine and fine interstitial pores; common thin clay films bridging mineral grains; 55 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Btky1—30 to 44 inches; very pale brown (10YR 7/4) extremely gravelly clay loam, brownish yellow (10YR 6/6) moist; massive; hard, friable, sticky and plastic; very few fine roots; common very fine and fine interstitial pores; common thin clay films bridging mineral grains; 55 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of rock fragments; common medium filaments of gypsum; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Btky2—44 to 60 inches; very pale brown (10YR 7/3) extremely gravelly sandy clay loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, sticky and plastic; few fine tubular pores; common thin clay films bridging mineral grains; 50 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of coarse fragments; common medium filaments of gypsum; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Spike very gravelly sandy loam, 30 to 50 percent slopes, in Pula-Spike association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles north of Austin; about 600 feet south and 2,300 feet east of the northwest corner of sec. 24, T. 23 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter to early in spring, dry in mid-May through October

Average annual soil temperature: 47 to 53 degrees F

Depth to lime: 5 to 12 inches

Depth to secondary gypsum: 12 to 35 inches

Depth to the base of the Bt horizon: 40 to more than 60 inches

Reaction: Moderately alkaline or strongly alkaline

Control section:
- Content of clay—27 to 35 percent
- Content of rock fragments—35 to 60 percent

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4

B horizon:
- Value—5 to 7 dry, 4 to 6 moist
- Chroma—3, 4, or 6
- Structure—commonly angular blocky or subangular blocky, but massive in the lower part in some pedons
- Exchangeable sodium percentage—15 to 35

Btn horizon:
- Texture—very gravelly clay, very gravelly clay loam, or very gravelly sandy clay
- Content of clay—35 to 45 percent
- Content of rock fragments—35 to 60 percent, mainly pebbles

Btnk and Btky horizons:
- Texture—dominantly extremely gravelly clay loam, extremely gravelly sandy clay loam, extremely gravelly loam, or very gravelly loam, but strata of extremely gravelly sandy loam or extremely gravelly loam at a depth of more than 40 inches in some pedons
- Content of clay—20 to 30 percent when mixed
- Content of rock fragments—50 to 75 percent, mainly pebbles

Stampede Series

Depth class: Moderately deep to duripan
Drainage class: Well drained
Parent material: Alluvium derived from tuff and various other kinds of rock
Positions on landscape: Valley fans of mountains
Slope: 4 to 8 percent
Mean annual precipitation: About 12 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Aridic Durixerolls

Typical Pedon

About 40 percent of the surface is covered with pebbles.

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; common fine roots; many fine vesicular pores; 20 percent pebbles; neutral (pH 6.6); abrupt smooth boundary.

A2—4 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine roots; many fine interstitial pores; neutral (pH 6.8); clear wavy boundary.

A3—10 to 18 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, firm, sticky and plastic; common fine roots; common very fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bt—18 to 31 inches; yellowish brown (10YR 5/4) clay, yellowish brown (10YR 5/6) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; few fine roots; few very fine tubular pores; continuous thin clay films; neutral (pH 7.2); abrupt smooth boundary.

Bqkm—31 to 60 inches; indurated duripan.

Typical Pedon Location

Soil name and map unit in which located: Stampede gravelly loam, 4 to 8 percent slopes, in Stampede-Handy-Caniwe association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles northwest of Austin; about 1,400 feet north and 2,700 feet east of the southwest corner of sec. 1, T. 20 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 13 inches

Depth to the duripan: 20 to 36 inches

Control section:
- Content of clay—40 to 55 percent
- Content of rock fragments—0 to 10 percent pebbles

A horizon:
- Value—dominantly 4 or 5 dry and 2 or 3 moist, but 6 dry and 4 moist common in the lower part
- Chroma—2 or 3
- Structure—weak or moderate, thin to thick, and platy, or massive in the upper 3 to 5 inches; moderate or strong, fine or medium, and granular or subangular blocky below this depth
- Reaction—slightly acid or neutral

Bt horizon:
- Hue—10YR or 7.5YR
- Value—5 or 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, and prismatic, or fine to coarse and subangular blocky or angular blocky
- Reaction—neutral or mildly alkaline

Bqkm horizon:
- Reaction—mildly alkaline or moderately alkaline
- Other characteristics—noneffervescent to strongly effervescent in the matrix, few to many lime coatings at top or in fractures

Stingdorn Series

Depth class: Very shallow or shallow to duripan
Drainage class: Well drained
Parent material: Residuum derived from rhyolite, andesite, and tuff
Positions on landscape: Crests and side slopes of foothills and hills
Slope: 2 to 50 percent
Mean annual temperature: About 49 degrees
Mean annual precipitation: About 6 inches

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Durargids

Typical Pedon

About 5 percent of the surface is covered with pebbles and 40 percent with cobbles.

A—0 to 7 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 4/3) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine vesicular pores; 5

percent pebbles and 40 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bt1—7 to 11 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few coarse roots; common very fine and fine tubular pores; few thin clay films lining pores and on faces of peds; 5 percent pebbles and 30 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bt2—11 to 15 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few coarse roots; common very fine and fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 5 percent indurated pan fragments; 10 percent pebbles and 30 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt irregular boundary.

Bqkm—15 to 20 inches; very pale brown (10YR 7/3), indurated duripan, pale brown (10YR 6/3) moist; several thin indurated horizontal lamellae throughout strongly silica-cemented matrix; indurated laminar cap 2 to 5 millimeters thick over bedrock; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

R—20 inches; unweathered tuff.

Typical Pedon Location

Map unit in which located: Stingdorn very cobbly loam, 4 to 30 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 42 miles southwest of Battle Mountain; about 1,500 feet east and 1,400 feet north of the southwest corner of sec. 31, T. 26 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and spring, dry in May through October

Average annual soil temperature: 47 to 54 degrees F

Combined thickness of the A and Bt horizons: 7 to 16 inches

Depth to the indurated duripan: 8 to 20 inches

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Consistence—soft or slightly hard (dry)
- Reaction—mildly alkaline to strongly alkaline

Bt horizon:
- Hue—10YR or 2.5Y
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3 or 4
- Content of clay—averages 27 to 35 percent, but is slightly less in some strata in some pedons
- Content of rock fragments—35 to 50 percent, mainly pebbles
- Consistence—slightly hard or hard (dry), very friable or friable (moist)
- Reaction—mildly alkaline to strongly alkaline
- Effervescence—slightly effervescent or strongly effervescent in some pedons, noneffervescent in the upper part in some pedons

Bqk horizon (when present):
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 6 or 7 moist
- Chroma—2 or 3
- Reaction—moderately alkaline or strongly alkaline

Sumine Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from dominantly quartzite, breccia, and sandstone

Positions on landscape: South-facing side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles and 15 percent with cobbles.

A1—0 to 5 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate fine granular; soft, friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores and common very fine tubular pores; 10 percent pebbles and 10 percent cobbles; slightly effervescent; neutral (pH 7.2); gradual smooth boundary.

A2—5 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; many very fine interstitial pores and common very fine

tubular pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.3); clear smooth boundary.
Bt1—10 to 13 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots and few medium roots; common very fine interstitial and tubular pores; few thin clay films on faces of peds; 30 percent pebbles; neutral (pH 7.3); clear wavy boundary.
Bt2—13 to 19 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 35 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.
Bt3—19 to 24 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; common moderately thick clay films on faces of peds; 25 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.8); abrupt wavy boundary.
Bt4—24 to 30 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; 25 percent pebbles and 40 percent cobbles; mildly alkaline (pH 7.8); abrupt wavy boundary.
2R—30 inches; quartzite.

Typical Pedon Location

Soil name and map unit in which located: Sumine cobbly loam, 30 to 50 percent slopes, in Walti-Sumine-Softscrabble association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 28 miles south of Battle Mountain; about 50 feet west and 1,000 feet south of the northeast corner of sec. 32, T. 26 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in July to mid-October
Average annual 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:
Content of clay—25 to 35 percent when mixed
Texture—dominantly clay loam, but some pedons have thin strata of loam or clay
Content of rock fragments—averages 35 to 60 percent
A horizon:
Chroma—2 or 3
Structure—weak or moderate, very thin to medium, and platy; or weak or moderate, very fine to medium, and granular or subangular blocky
Consistence—soft or slightly hard (dry), very friable or friable (moist)
Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Structure—dominantly weak or moderate, very fine, fine, or medium, and angular blocky or subangular blocky, but the lower part is massive in some pedons

Sundown Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Mixed alluvium and eolian deposits
Positions on landscape: Sand sheets
Slope: 2 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 53 degrees F
Taxonomic class: Mixed, mesic Typic Torripsamments

Typical Pedon

A—0 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate medium subangular blocky; soft, very friable, nonsticky and nonplastic; common fine and medium roots and few very fine roots; common fine and medium vesicular pores; strongly effervescent or violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
C1—7 to 12 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many fine and medium roots and common very fine roots; many fine and medium tubular pores; 10 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C2—12 to 60 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, sticky and nonplastic; common fine roots; common fine and medium tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Sundown fine sand, 2 to 4 percent slopes, in Wardenot-Sundown association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles south of Austin; about 2,600 feet north and 2,400 feet west of the southeast corner of sec. 11, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 55 to 59 degrees F

Reaction: Moderately alkaline to very strongly alkaline

Other characteristics: Calcareous throughout

A horizon:

Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist

C horizon:

Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—dominantly loamy fine sand, but thin strata of sand, fine sand, or loamy sand in some pedons
Content of rock fragments—as much as 15 percent, dominantly pebbles
Structure—subangular blocky, massive, or single grain
Other characteristics—unconformable material, when present, is at a depth of 40 to 60 inches and is dominantly sandy clay loam

Teguro Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from rhyolitic tuff, rhyolite, and basalt

Positions on landscape: Side slopes of foothills and mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid Lithic Argixerolls

Typical Pedon

About 55 percent of the surface is covered with pebbles.

A—0 to 4 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine vesicular pores; 35 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt1—4 to 9 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 roots and few very fine and medium roots; common very fine and fine tubular and interstitial pores; common thin clay films on faces of peds and lining pores; 30 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt2—9 to 16 inches; pale yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; few very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 30 percent pebbles; neutral (pH 7.2); abrupt irregular boundary.

R—16 inches; rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Teguro very gravelly loam, 30 to 50 percent slopes, in Punchbowl-Teguro-Sumine association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 14 miles southwest of Battle Mountain; about 2,600 feet east and 1,500 feet south of the northwest corner of sec. 2, T. 31 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to early in October

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 7 to 12 inches (includes the upper part of the Bt horizon)

Combined thickness of the A and Bt horizons and depth to bedrock: 14 to 20 inches

Control section:

Content of clay—25 to 35 percent
Content of rock fragments—15 to 35 percent, mainly pebbles
Reaction—slightly acid or neutral

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly loam or gravelly clay loam

Tenabo Series

Depth class: Very shallow or shallow to duripan
Drainage class: Well drained
Parent material: Thin mantle of loess that is high in content of volcanic ash over alluvium derived from various kinds of rock
Positions on landscape: Fan piedmont remnants
Slope: 0 to 8 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Typic Nadurargids

Typical Pedon

A1—0 to 7 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and plastic; common very fine random roots and few fine oblique roots; many very fine vesicular pores; 5 percent small pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

A2—7 to 13 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; massive; hard, very friable, sticky and plastic; common very fine and fine random roots and very few medium and coarse oblique roots; common very fine vesicular and tubular pores and few fine tubular pores; 5 percent small pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Btn1—13 to 17 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderately very fine and fine angular blocky; slightly hard, very friable, sticky and plastic; common very fine random roots; common very fine interstitial and tubular pores; common thin clay films on faces of peds and lining pores; 10 percent small pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Btn2—17 to 20 inches; very pale brown (10YR 7/3) gravelly silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate fine angular blocky; slightly hard, very friable, sticky and plastic; few very fine random roots and very few fine horizontal roots; common very fine interstitial and tubular pores; many thin clay films on faces of peds and lining pores; 20 percent small pebbles; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2Bqkm1—20 to 24 inches; light yellowish brown (10YR 6/4), indurated duripan, dark yellowish brown (10YR 4/4) moist; common fine distinct iron mottles that are reddish yellow (7.5YR 7/6) and strong brown (7.5YR 5/6) moist; massive; very hard, very firm; very few very fine roots in fractures; few very fine tubular pores; continuous, very pale brown (10YR 8/3 and 7/3, moist), silica laminae 1/16 to 1/8 inch thick; about 30 percent small rounded pebbles; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2Bqkm2—24 to 39 inches; very pale brown (10YR 7/3), strongly silica-cemented duripan, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm; few very fine roots in fractures; many very fine interstitial pores; silica laminae 1 to 3 inches thick throughout the horizon; 70 percent rounded pebbles as much as 0.5 inch in diameter; strongly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

2C—39 to 60 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, dark yellowish brown (10YR 4/1) moist; single grain; loose, nonsticky and nonplastic; few very fine random roots; many very fine interstitial pores; few discontinuous silica- and lime-cemented lenses; 75 percent rounded pebbles as much as 1.5 inches in diameter; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Tenabo silt loam, 0 to 2 percent slopes, in Beoska-Tenabo silt loams, nearly level

Location in Nevada: Lander County, Nevada, North Part, survey area; about 50 miles southwest of Battle Mountain; about 1,320 feet west and 25 feet north of the southeast corner of sec. 27, T. 25 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 51 degrees F

Depth to the duripan: 9 to 20 inches

Reaction: Moderately alkaline or strongly alkaline in the A and Bt horizons, moderately alkaline to very strongly alkaline below these horizons
Effervescence: Ranges from noneffervescent in the upper layer to violently effervescent in the layer above the duripan in areas subject to lime recharge
Control section:
Content of clay—27 to 35 percent
Content of rock fragments—less than 20 percent when mixed
A horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—weak or moderate, very thin to thick, and platy, or massive
Bt and Btn horizons:
Value—5 to 7 dry, 4 or 5 moist
Chroma—3, 4, or 6
Texture of the fine-earth fraction—dominantly clay loam, silty clay loam, or sandy clay loam, but thin strata of silt loam in some pedons
Content of rock fragments—less than 20 percent, mainly pebbles, but some duripan fragments included in some pedons
Structure—moderate, fine or medium, and prismatic, angular blocky, or subangular blocky
Reaction—moderately alkaline or strongly alkaline, commonly increasing in alkalinity with increasing depth
Exchangeable sodium percentage—15 to 30
Other characteristics—the lower part violently effervescent in some pedons and contains segregated lime
Bqkm horizon:
Value—6 to 8 dry, 4 to 7 moist
Chroma—2 to 4
Other characteristics—very hard or extremely hard, continuous laminae stratified with strongly cemented material
C horizon:
Texture—gravelly to extremely gravelly sand, loamy sand, or sandy loam
Content of rock fragments—15 to 85 percent, mainly pebbles

Tessfive Series

Depth class: Shallow
Drainage class: Well drained
Parent material: Residuum that is derived from tuffaceous sediment and includes some loess
Positions on landscape: Rolling crests and side slopes of hills
Slope: 2 to 30 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 48 degrees F
Taxonomic class: Loamy, mixed (calcareous), mesic Lithic Xeric Torriorthents

Typical Pedon

About 35 percent of the surface is covered with pebbles.
A1—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable, sticky and plastic; few very fine roots; common very fine vesicular pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
A2—3 to 6 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, slightly sticky and plastic; common very fine roots; common very fine interstitial pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Bk1—6 to 10 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine, fine, and medium roots; few very fine tubular pores; few fine lime filaments or threads and lime coatings on the underside of rock fragments; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.
Bk2—10 to 16 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; few very fine tubular pores; few fine and medium lime filaments or threads and lime coatings on the underside of rock fragments; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
R—16 to 20 inches; hard, fractured, consolidated, tuffaceous sediment; lime coatings on rock fragments.

Typical Pedon Location

Soil name and map unit in which located: Tessfive gravelly loam, 8 to 30 percent slopes, in Tessfive-Puett-Grina association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 23 miles north of Austin; in an unsectionalized area about 10,000 feet south and

4,250 feet west of the southwest corner of the assumed sec. 27, T. 24 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to bedrock: 10 to 20 inches
Reaction: Moderately alkaline or strongly alkaline
Calcium carbonate equivalent: Dominantly 5 to 15 percent, but the A1 horizon leached of carbonates in some pedons
Other characteristics: In some pedons the upper few inches of bedrock are highly weathered paralithic material

Control section:
Content of clay—14 to 24 percent
Texture—loam or sandy loam
Content of rock fragments—20 to 35 percent, mainly pebbles

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 6
Structure—subangular blocky or massive
Other characteristics—as much as 15 percent weakly cemented durinodes in the lower part in some pedons

Tomel Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Alluvium derived from shale, siltstone, limestone, and chert
Positions on landscape: Fan piedmont remnants
Slope: 2 to 8 percent
Mean annual precipitation: About 6 inches
Mean annual temperature: About 51 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Durargids

Typical Pedon

About 55 percent of the surface is covered with pebbles.

A—0 to 4 inches; light gray (10YR 7/2) gravelly fine sandy loam, grayish brown (10YR 5/2) moist; weak medium and thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse vesicular pores and few very fine and fine tubular pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bt1—4 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; weak fine angular blocky structure; soft, very friable, very sticky and plastic; common very fine and fine roots; few very fine tubular pores; few thin lime and silica coatings on the underside of pebbles; few moderately thick clay films on faces of peds, in root channels, and lining tubular pores; 25 percent pebbles; few fine soft lime masses; slightly effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bt2—8 to 11 inches; dark grayish brown (10YR 4/2) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, very friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; 45 percent pebbles; few thin lime and silica coatings on the underside of pebbles; few moderately thick clay films on faces of peds, in root channels, and lining tubular pores; common medium soft lime masses; slightly effervescent; very strongly alkaline (pH 9.0); gradual wavy boundary.

Bk—11 to 15 inches; light gray (10YR 7/2) very gravelly sandy clay loam, pale brown (10YR 6/3) moist; weak very fine subangular blocky structure; slightiy hard, firm, sticky and plastic; few very fine and fine roots; few very fine tubular pores; thick lime and silica coatings on the underside of pebbles; 50 percent pebbles; many coarse soft lime masses; strongly effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary.

Bqk—15 to 18 inches; white (10YR 8/2) gravelly sandy loam, very pale brown (10YR 7/3) moist; massive; hard, firm, slightly sticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 30 percent discontinuously weakly cemented pebbles; thick lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bqkm1—18 to 26 inches; white (2.5Y 8/2), indurated duripan that has a continuous laminar cap 0.5 millimeter thick, light brownish gray (2.5Y 6/2) moist; massive; extremely hard, extremely firm; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bqkm2—26 to 33 inches; light brownish gray (2.5Y 6/2), continuous, strongly cemented duripan, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, extremely firm; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Cqk—33 to 60 inches; stratified light gray (10YR 7/1)

extremely gravelly sand and discontinuous, strongly cemented duripan, gray (10YR 6/1) moist; massive; extremely hard, extremely firm, nonsticky and nonplastic; 70 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Tomel gravelly fine sandy loam, 2 to 4 percent slopes, in Laxal-Tomel association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles south of Austin, in the Big Smoky Valley; about 300 feet north and 3,000 feet east of the southwest corner of sec. 5, T. 15 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the duripan: 10 to 20 inches

Other characteristics: Thin Bqk horizon immediately above the duripan in some pedons

Control section (when mixed):
Content of clay—20 to 30 percent
Content of rock fragments—35 to 50 percent, mainly pebbles
Texture—clay loam or sandy clay loam

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—massive or platy

BA horizon (when present):
Value—7 or 8 dry, 4 or 5 moist
Chroma—2 or 3

Bt1 horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4
Structure—prismatic or angular blocky
Content of rock fragments—10 to 35 percent

Bt2 horizon:
Structure—massive or subangular blocky
Content of rock fragments—40 to 65 percent

Bqk horizon:
Value—6 or 7 dry, 4 to 6 moist
Chroma—1 to 3
Content of rock fragments—50 to 75 percent

Bqkm horizon:
Value—6 to 8 dry; 4, 5, or 7 moist
Chroma—2 to 4

Torripsammentic Haploxerolls

Depth class: Very shallow to moderately deep
Drainage class: Well drained
Parent material: Residuum derived from granite
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 15 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Torripsammentic Haploxerolls

Representative Pedon

About 10 percent of the surface is covered with pebbles and 10 percent with cobbles.

O—1 inch to 0; undecomposed pine needles and litter.

A1—0 to 2 inches; brown (10YR 5/3) cobbly loamy coarse sand, very dark brown (10YR 2/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial pores; 5 percent pebbles and 10 percent cobbles; neutral (pH 6.8); abrupt smooth boundary.

A2—2 to 4 inches; brown (10YR 5/3) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

C—4 to 7 inches; pale brown (10YR 6/3) loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine and medium roots; common very fine and fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Cr—7 to 21 inches; soft, weathered granite.

Typical Pedon Location

Soil name and map unit in which located: Torripsammentic Haploxerolls cobbly loamy coarse sand in Typic Argixerolls-Torripsammentic Haploxerolls-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 0.5 mile southwest of Austin; about 400 feet east and 500 feet north of the southwest corner of sec. 19, T. 19 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in October through June, dry in summer and early in fall

Average annual soil temperature: 43 to 46 degrees F

Depth to paralithic contact: 5 to 30 inches

Reaction: Neutral or mildly alkaline, commonly increasing in alkalinity with increasing depth

Control section:
Texture—loamy sand or loamy coarse sand
Content of clay—5 to 12 percent
Content of rock fragments—0 to 10 percent pebbles and cobbles

A horizon:
Value—4 or 5 dry

C horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4

Torro Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Residuum and colluvium that is derived from chert and shale and includes some loess and volcanic ash
Positions on landscape: Side slopes of mountains
Slope: 15 to 75 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 42 degrees F
Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical Pedon

About 65 percent of the surface is covered with pebbles and 15 percent with cobbles.

A1—0 to 2 inches; brown (10YR 5/3) extremely gravelly 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 pores; 45 percent pebbles and 15 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.

A2—2 to 6 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; 30 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.

A3—6 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, medium, and coarse roots; common very fine tubular pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt1—10 to 18 inches; light yellowish brown (10YR 6/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, very friable, very sticky and plastic; common very fine and few medium roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 60 percent pebbles and 15 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—18 to 34 inches; pale brown (10YR 6/3) extremely gravelly clay loam, dark brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; hard, friable, very sticky and plastic; few fine and medium roots; few fine tubular pores; common moderately thick clay films on faces of peds; 60 percent pebbles and 5 percent cobbles; neutral (pH 7.3); clear wavy boundary.

C1—34 to 45 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few medium roots; common fine interstitial pores; 55 percent pebbles and 5 percent cobbles; neutral (pH 7.3); gradual wavy boundary.

C2—45 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few medium roots; common fine interstitial pores; 55 percent pebbles and 5 percent cobbles; neutral (pH 7.3).

Typical Pedon Location

Soil name and map unit in which located: Torro extremely gravelly loam, 30 to 50 percent slopes, in Torro-Itca-Softscrabble association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 38 miles southwest of Austin; in an unsectionalized area about 2,000 feet west and 1,000 feet south of the northeast corner of the assumed sec. 10, T. 16 N., R. 38 E.

Range in Characteristics

Soil moisture content: Dry in July to mid-October, moist in some part in mid-October through June
Average annual soil temperature: 43 to 46 degrees F
Thickness of the mollic epipedon: 10 to 14 inches
Combined thickness of the A and Bt horizons: 24 to 40 inches

Control section:
Texture—extremely gravelly loam, clay loam, or sandy clay loam
Content of clay—20 to 30 percent
Content of rock fragments—60 to 75 percent, mainly angular, pebble-sized chert and shale fragments

A horizon:
Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3
Structure—weak or moderate, very fine to coarse, and subangular blocky; weak or moderate, very thin to thick, and platy; or weak or moderate, very fine or fine, and angular blocky

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Structure—weak or moderate, fine or medium, and angular or subangular blocky
Consistence—slightly hard or hard (dry), very friable or friable (moist), sticky or very sticky and slightly plastic or plastic (wet)
Other characteristics—few or common, thin or moderately thick clay films lining pores, bridging and coating sand grains, or coating faces of peds

C horizon:
Value—5 or 6 moist
Chroma—3 or 4
Texture—extremely gravelly sandy loam or loamy sand

Trunk Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum and colluvium derived from quartzite, chert, andesite, and rhyolite
Positions on landscape: Crests and side slopes of mountains and foothills
Slope: 30 to 50 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Xerollic Haplargids

Typical Pedon

About 15 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 5 inches; pale brown (10YR 6/3) cobbly loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; 10 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt—5 to 11 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong very fine subangular blocky structure; hard, firm, sticky and plastic; common very fine, fine, and medium roots; common very fine and fine interstitial pores; few thin clay films on faces of peds; 15 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

Btk1—11 to 17 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine and fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 15 percent pebbles and 10 percent cobbles; common fine lime filaments and seams; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk2—17 to 28 inches; brownish yellow (10YR 6/6) gravelly clay, dark yellowish brown (10YR 4/6) moist; strong medium prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine, fine, and coarse roots; common very fine and fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 15 percent pebbles and 10 percent cobbles; common fine lime filaments and seams; violently effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

2R—28 inches; fractured andesite; lime coatings on fracture planes.

Typical Pedon Location

Soil name and map unit in which located: Trunk cobbly loam, 30 to 50 percent slopes, in Trunk-Burrita-Rock outcrop association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 31 miles southwest of Battle Mountain; about 2,500 feet west and 1,250 feet south of the northeast corner of sec. 21, T. 26 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist late in fall, in winter, and early in spring, dry late in May through October
Average annual soil temperature: 48 to 53 degrees F
Depth to bedrock: 20 to 40 inches
Depth to lime accumulation: 10 to 20 inches

A horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 or 3
Reaction—neutral or mildly alkaline

Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4
Texture—gravelly clay loam or gravelly clay that is more than 30 percent sand

Content of clay—35 to 50 percent
Content of rock fragments—15 to 35 percent, mainly pebbles
Reaction—neutral or mildly alkaline in the upper part, moderately alkaline or strongly alkaline in the lower part
Other characteristics—noncalcareous in the upper part, calcareous in the lower part

Tulase Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Silty alluvium that is derived from various kinds of rock and includes some loess and volcanic ash
Positions on landscape: Lagoons, inset fans, fan skirts
Slope: 0 to 8 percent
Mean annual precipitation: About 10 inches
Mean annual temperature: About 48 degrees F

Taxonomic class: Coarse-silty, mixed (calcareous), mesic Durorthidic Xeric Torriorthents

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
A2—2 to 6 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
C—6 to 11 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
Cq—11 to 21 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; 30 percent strong durinodes 10 to 25 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
Cqk1—21 to 36 inches; very pale brown (10YR 7/3) very fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine tubular pores; 45 percent strong durinodes 10 to 25 millimeters in diameter; 20 percent discontinuous weak silica cementation; common fine lime filaments; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.
Cqk2—36 to 60 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 and fine roots; few very fine and fine tubular pores; 30 percent strong durinodes 10 to 25 millimeters in diameter; 10 percent discontinuous weak silica cementation; common fine lime and gypsum filaments; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Tulase silt loam, 2 to 8 percent slopes, in Tulase-Bubus-McConnel association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 28 miles southeast of Battle Mountain; about 2,500 feet east and 100 feet north of the southwest corner of sec. 18, T. 26 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to the Cq horizon: 11 to 20 inches

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3

C horizon:
Value—4 or 5 moist

Cq and Cqk horizons:
Texture—silt loam or very fine sandy loam
Other characteristics—20 to 50 percent durinodes; as much as 30 percent discontinuous silica and lime cementation common in the Cqk horizon in most pedons

Typic Argixerolls

Depth class: Shallow and moderately deep
Drainage class: Well drained

Parent material: Residuum derived from granite
Positions on landscape: Side slopes of mountains
Slope: 15 to 50 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Typic Argixerolls

Representative Pedon

About 30 percent of the surface is covered with pebbles.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine vesicular and interstitial pores; 15 percent pebbles; neutral (pH 7.0); clear smooth boundary.

A2—2 to 4 inches; dark grayish brown (10YR 4/2) coarse sandy loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt1—4 to 10 inches; grayish brown (10YR 5/2) sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; few thin clay films bridging mineral grains; 5 percent pebbles; neutral (pH 6.8); clear smooth boundary.

Bt2—10 to 15 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; common thin clay films on faces of peds; 5 percent pebbles; neutral (pH 6.8); clear irregular boundary.

Cr—15 to 25 inches; soft, weathered granite.

Typical Pedon Location

Soil name and map unit in which located: Typic Argixerolls gravelly coarse sandy loam in Typic Argixerolls-Torripsammentic Haploxerolls-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 0.5 mile north of Austin; about 800 feet south and 250 feet west of the northeast corner of sec. 19, T. 19 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in November to early in July, dry late in July through October

Average annual soil temperature: 42 to 46 degrees F
Thickness of the mollic epipedon: 10 to 20 inches
Depth to paralithic contact: 10 to 40 inches

Control section:
- Texture—sandy clay loam, sandy loam, or loam
- Content of clay—18 to 30 percent
- Content of rock fragments—0 to 15 percent, mainly pebbles
- Reaction—neutral or mildly alkaline

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3

Bt horizon:
- Value—4 or 5 dry, 3 or 4 moist
- Chroma—3 or 4

Umberland Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Silty lacustrine sediment derived from various kinds of rock
Positions on landscape: Lake plains, alluvial flats, lake-plain terrace remnants
Slope: 0 to 2 percent
Mean annual precipitation: About 6 inches
Mean annual temperature: About 49 degrees F

Taxonomic class: Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts

Typical Pedon

A—0 to 3 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; strong very fine granular structure; slightly hard, friable, sticky and plastic; few fine and medium roots; many very fine interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

C1—3 to 11 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; common coarse distinct light olive brown (2.5Y 5/4) and brown (10YR 4/3) mottles; moderate medium prismatic structure parting to strong fine granular; hard, firm, very sticky and very plastic; few fine and medium roots and common very fine and coarse roots; few fine and medium tubular pores; many fine salt masses; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

C2—11 to 24 inches; light olive gray (5Y 6/2) silty clay loam, olive gray (5Y 5/2) moist; common coarse distinct grayish brown (2.5Y 5/2) mottles; moderate medium angular blocky structure; hard, firm, very

sticky and very plastic; few fine roots; common very fine and fine tubular pores; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Ck1—24 to 41 inches; light olive gray (5Y 6/2) silty clay loam, olive gray (5Y 4/2) moist; common coarse distinct greenish gray (5GY 6/1) and light gray (N 7/0) mottles; moderate medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine, fine, and medium tubular pores; few medium lime nodules; violently effervescent; very strongly alkaline (pH 9.0); gradual wavy boundary.

Ck2—41 to 60 inches; light gray (5Y 7/2) silty clay loam, olive gray (5Y 5/2) moist; massive; hard, firm, very sticky and very plastic; common very fine and many fine tubular pores; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Umberland silt loam, 0 to 2 percent slopes, in Umberland-Wendane association

Location in Nevada: Lander County, Nevada, South Part, survey area; 20 miles southeast of Austin; about 2,200 feet south and 2,600 feet east of the northwest corner of sec. 25, T. 16 N., R. 44 E.

Range in Characteristics

Soil moisture content: Saturated in some part between depths of 20 and 40 inches for at least one month in most years, moist to within 6 inches of the surface as a result of the capillary fringe

Average annual soil temperature: 47 to 52 degrees F

Other characteristics: Concretions or nodules of lime present at a depth of 15 to 35 inches

Control section:

- Texture—dominantly silty clay loam or silty clay, but strata of clay present in some pedons
- Content of clay—35 to 50 percent
- Other characteristics—strongly affected by salt and sodium in the upper part; concentrations of salt and sodium generally decrease with increasing depth

A horizon:

- Hue—10YR, 2.5Y, or 5Y
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Structure—strong, very fine or fine, and granular (as a result of flocculation), or massive

C horizon:

- Hue—2.5Y or 5Y
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Reaction—strongly alkaline or very strongly alkaline, commonly decreasing in alkalinity with increasing depth

Unius Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Mixed alluvium that is derived from volcanic and sedimentary rock and includes some loess and volcanic ash

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Haploxerollic Durorthids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A1—0 to 2 inches; pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; very few very fine and fine roots; common very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, friable, sticky and plastic; few medium roots and common very fine and fine roots; common very fine and fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw1—4 to 8 inches; light yellowish brown (10YR 6/4) silt loam, yellowish brown (10YR 5/4) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine interstitial pores; few thin clay films on peds and in pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw2—8 to 12 inches; white (10YR 8/2) gravelly loam, light yellowish brown (10YR 6/4) moist; moderate medium angular blocky structure; hard, firm, sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 20 percent pebbles and duripan fragments; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqkm—12 to 22 inches; white (10YR 8/2), strongly cemented duripan, light gray (10YR 7/2) moist; massive; very hard, very firm; brittle; very few very fine roots; very few very fine interstitial pores; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk—22 to 44 inches; white (10YR 8/2) gravelly fine sandy loam, very pale brown (10YR 7/3) moist; massive; hard, firm, nonsticky and nonplastic; continuous weak silica cementation with strongly cemented strata; 25 percent pebbles and duripan fragments; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Ck—44 to 60 inches; very pale brown (10YR 7/3) gravelly loamy sand, pale brown (10YR 6/3) moist; single grain; loose, nonsticky and nonplastic; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Unius gravelly silt loam, 2 to 8 percent slopes, in Unius-Orovada association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles east of Austin, in the Monitor Valley; about 1,000 feet east and 1,200 feet south of the northwest corner of sec. 17, T. 18 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in some part from November through May, dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 10 to 20 inches

Reaction: Mildly alkaline to strongly alkaline

Calcium carbonate equivalent: 5 to 15 percent

Control section:
- Content of clay—18 to 25 percent
- Content of rock fragments—0 to 25 percent pebbles and duripan fragments

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Effervescence—slightly effervescent or strongly effervescent

Bw1 horizon:
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—2 to 4
- Texture—silt loam or loam
- Content of rock fragments—0 to 10 percent

Bw2 horizon (when present):
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Texture—gravelly loam, gravelly silt loam, or loam
- Content of rock fragments—10 to 30 percent pebbles and duripan fragments

Bqkm horizon:
- Value—6 to 8 dry, 5 or 6 moist
- Chroma—2 to 4
- Other characteristics—dominantly strongly cemented, but some weakly cemented strata

2Ck horizon:
- Content of rock fragments—15 to 30 percent pebbles

Unsel Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium

Positions on landscape: Fan piedmont remnants

Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: 51 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Haplargids

Typical Pedon

About 80 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light gray (10YR 7/2) gravelly fine sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine and common fine interstitial pores; 20 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.

A2—3 to 8 inches; light gray (10YR 7/2) gravelly fine sandy loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine interstitial pores and common very fine tubular pores; 15 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bt—8 to 13 inches; very pale brown (10YR 7/3) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Btk—13 to 18 inches; very pale brown (10YR 7/3) gravelly clay loam, yellowish brown (10YR 5/4)

moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; many very fine roots; common very fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles; thick lime coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bqk—18 to 31 inches; very pale brown (10YR 7/3) gravelly sandy clay loam, light yellowish brown (10YR 6/4) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; many very fine roots; common very fine tubular pores; 60 percent discontinuous strong cementation; 35 percent pebbles; thick lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2C—31 to 60 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many very fine roots; many fine interstitial pores; 65 percent pebbles; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Unsel gravelly fine sandy loam, 2 to 4 percent slopes, in Unsel-Wardenot-Belted association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles south of Austin; about 2,000 feet north and 40 feet east of the southwest corner of sec. 26, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the Bqk horizon: 10 to 22 inches

Depth to the 2C horizon: 20 to 36 inches

Control section:
- Texture—clay loam or sandy clay loam
- Content of clay—27 to 35 percent
- Content of rock fragments—15 to 30 percent

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4 dry or moist
- Structure—platy, subangular blocky, or massive
- Reaction—moderately alkaline to very strongly alkaline

Bt and Btk horizons:
- Value—5 to 7 dry, 3 to 6 moist
- Chroma—2 to 4
- Content of clay—27 to 35 percent
- Texture—clay loam or sandy clay loam
- Content of rock fragments—15 to 30 percent
- Structure—weak or moderate, fine or medium, and subangular blocky; weak, medium or coarse, and prismatic; or massive
- Reaction—mildly alkaline to strongly alkaline

Bqk horizon:
- Value—7 or 8 dry, 4 to 6 moist
- Chroma—2 to 4

2C horizon:
- Value—7 or 8 dry, 3 to 5 moist
- Chroma—2 to 4
- Content of rock fragments—50 to 70 percent

Unsel Variant

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from tuffaceous sediment

Positions on landscape: Side slopes of fan piedmonts

Slope: 15 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 15 percent with cobbles.

A—0 to 2 inches; light gray (10YR 7/2) very gravelly loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; few fine roots; common very fine and few fine vesicular pores; 40 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

BA—2 to 4 inches; light gray (10YR 7/2) very gravelly clay loam, brown (10YR 5/3) moist; strong thin platy structure; slightly hard, friable, sticky and plastic; few fine and very fine roots; common fine vesicular pores and few very fine tubular pores; 30 percent pebbles and 10 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bt—4 to 11 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; common white (10YR 8/2) bleached faces of peds concentrated in the lower part; strong medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine

and fine tubular pores; common thin and moderately thick clay films on peds; 20 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—11 to 15 inches; very pale brown (10YR 7/3) gravelly clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; common very fine and fine tubular pores; many thin and common moderately thick clay films on peds; 25 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Bqk—15 to 22 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 30 percent medium durinodes; few thin silica pendants on the underside of rock fragments; 25 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Cr—22 to 46 inches; soft tuff.

Typical Pedon Location

Soil name and map unit in which located: Unsel Variant very gravelly loam, 30 to 50 percent slopes, in Grassval-Grina-Unsel Variant association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 36 miles south of Battle Mountain; about 300 feet south and 1,400 feet west of the northeast corner of sec. 22, T. 26 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in May to early in November

Average annual soil temperature: 47 to 52 degrees F

Depth to soft bedrock: 20 to 40 inches

Reaction: Moderately alkaline to very strongly alkaline, increasing in alkalinity with increasing depth

Control section:
- Content of clay—27 to 35 percent
- Content of rock fragments—20 to 30 percent when mixed, mainly pebbles

A horizon:
- Hue—10YR or 2.5Y
- Chroma—2 to 4

Bt horizon:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Exchangeable sodium percentage—less than 5 in the upper part, 5 to 15 in the lower part

Bqk horizon:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 5 or 6 moist
- Chroma—2 to 4
- Texture—loam or sandy loam
- Content of rock fragments—20 to 30 percent when mixed, mainly pebbles
- Other characteristics—20 to 50 percent durinodes or discontinuous weak silica cementation

Valmy Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Thin loess cap that is high in content of volcanic ash over loamy alluvium

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine vesicular pores; 5 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 5 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C—6 to 18 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few very fine tubular pores; 10 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); gradual wavy boundary.

Cqk—18 to 29 inches; pale brown (10YR 6/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few very fine tubular pores; 40 percent hard, firm durinodes 3 to 30 millimeters in diameter; 5 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary.

Ck—29 to 46 inches; light yellowish brown (2.5Y 6/4) fine sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; 5 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

2C'qk—46 to 60 inches; light brownish gray (2.5Y 6/2) silty clay loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; few very fine tubular pores; 90 percent discontinuous weak cementation; strongly effervescent; strongly alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Valmy very fine sandy loam, silty substratum, 0 to 2 percent slopes, in Batan-Wendane-Valmy association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 33 miles southeast of Battle Mountain; about 2,300 feet north and 300 feet west of the southeast corner of sec. 7, T. 27 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and spring, dry in May through November

Average annual soil temperature: 47 to 53 degrees F

Depth to the Cq horizon: 8 to 20 inches

Content of durinodes: Ranges from 5 to 85 percent in individual layers, including more than 25 percent in one or more layers that are more than 6 inches thick

Depth to unconformable material: Dominantly 30 to 50 inches, but more than 50 inches to sandy material in some pedons

Control section:
- Texture—dominantly fine sandy loam or sandy loam, but strata of very fine sandy loam or coarse sandy loam in some pedons
- Content of clay—5 to 15 percent
- Content of rock fragments—0 to 30 percent, mainly pebbles

A horizon:
- Hue—10YR or 2.5Y
- Value—5 or 6 dry, 3 or 4 moist
- Reaction—moderately alkaline or strongly alkaline

C horizon:
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Reaction—strongly alkaline or very strongly alkaline
- Effervescence—slightly effervescent to violently effervescent
- Other characteristics—contains durinodes that are hard to extremely hard, firm or very firm, or brittle

2C horizon:
- Texture—dominantly gravelly sand or very gravelly sand, but strata of silty clay loam below a depth of 40 inches in some pedons
- Content of clay—1 to 5 percent
- Content of rock fragments—20 to 55 percent
- Reaction—strongly alkaline or very strongly alkaline

Walti Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from rhyolite, andesite, dacite, tuff, and quartzite

Positions on landscape: Crests and side slopes of mountains

Slope: 8 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Aridic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 40 percent with cobbles and stones.

A—0 to 4 inches; grayish brown (10YR 5/2) extremely cobbly 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; common fine vesicular pores; 35 percent pebbles and 25 percent cobbles; neutral (pH 6.8); clear smooth boundary.

Bt1—4 to 10 inches; brown (7.5YR 5/2) gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate fine angular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; common thin clay films on peds; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

2Bt2—10 to 24 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 3/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; very hard, firm, very sticky and very plastic; few very fine and fine roots along faces of peds; common very fine and fine tubular pores; common moderately thick clay films on peds; 10 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

2Bt3—24 to 30 inches; pinkish gray (7.5YR 6/2) clay, dark brown (7.5YR 4/2) moist; weak medium prismatic structure; very hard, firm, very sticky and very plastic; few fine roots; few very fine and fine tubular pores; common thin clay films on faces of peds; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.
3R—30 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Walti extremely cobbly loam, 30 to 50 percent slopes, in Walti-Softscrabble-Bucan association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles west of Austin; about 1,300 feet east and 2,275 feet south of the northeast corner of sec. 14, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to mid-October
Average annual soil temperature: 44 to 46 degrees F
Thickness of the mollic epipedon: 7 to 12 inches (commonly includes the upper part of the argillic horizon)
Depth to bedrock: 20 to 30 inches
Control section:
Content of clay—40 to 50 percent
Content of rock fragments—5 to 25 percent, mainly pebbles
Reaction—neutral or mildly alkaline
A horizon:
Value—4 or 5 dry
Chroma—2 or 3
Bt horizon:
Hue—10YR or 7.5YR
Value—dominantly 4 or 5 dry, but 6 dry in the lower part; 3 or 4 moist
Chroma—3 or 4
Texture—clay loam or gravelly clay loam that is 27 to 35 percent clay in the upper part, clay or gravelly clay that is 50 to 60 percent clay in the lower part
Content of rock fragments—5 to 25 percent, mostly pebbles and cobbles
Structure—prismatic or angular blocky

Wardenot Series

Depth class: Very deep
Drainage class: Excessively drained
Parent material: Alluvium derived from various kinds of rock
Positions on landscape: Fan skirts, inset fans
Slope: 2 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 51 degrees F

Taxonomic class: Sandy-skeletal, mixed, mesic Typic Torriorthents

Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many very fine vesicular pores; 20 percent pebbles; strongly alkaline (pH 8.8); clear smooth boundary.
Bk—5 to 9 inches; very pale brown (10YR 7/3) gravelly very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common very fine and few fine roots; many very fine tubular pores; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
Bqk1—9 to 20 inches; very pale brown (10YR 7/4) very gravelly loamy fine sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; thick lime coatings and pendants and thin silica coatings and pendants on the underside of pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.
Bqk2—20 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores; 50 percent pebbles; thick lime coatings and pendants and thin silica coatings and pendants on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Wardenot gravelly fine sandy loam, 2 to 4 percent slopes, in Wardenot-Laxal association
Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles south of Austin; about 1,200 feet south and 1,300 feet west of the northeast corner of sec. 14, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms
Average annual soil temperature: 53 to 59 degrees F

Reaction: Mildly alkaline or strongly alkaline, commonly increasing in alkalinity with increasing depth

Control section:
- Texture (of the fraction less than 2 millimeters)—averages loamy sand
- Content of rock fragments—40 to 75 percent, including cobbles and stones

A horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Effervescence—dominantly noneffervescent to strongly effervescent, but violently effervescent in some pedons that are influenced by eolian deposits
- Structure—dominantly massive, platy, or subangular blocky, but single grain at top in some pedons

Bqk and Bk horizons:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—stratified extremely gravelly fine sandy loam to cobbly loamy sand, strata of very gravelly or cobbly sandy loam or fine sandy loam in the upper part
- Content of rock fragments—averages 40 to 75 percent; individual strata as little as 25 percent
- Effervescence—strongly effervescent or violently effervescent
- Structure—single grain or massive
- Other characteristics—common lime and silica pendants

Welch Series

Depth class: Very deep
Drainage class: Poorly drained
Parent material: Alluvium derived from volcanic rock
Positions on landscape: Flood plains and inset fans in narrow mountain valleys
Slope: 2 to 8 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 42 degrees F

Taxonomic class: Fine-loamy, mixed, frigid Cumulic Haplaquolls

Typical Pedon

A1—0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; many very fine interstitial pores; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 4 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

A3—4 to 26 inches; dark gray (10YR 4/1) clay loam, very dark gray (10YR 3/1) moist; few fine distinct reddish yellow (7.5YR 6/6) mottles; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and fine roots and common medium roots; common very fine, fine, and coarse tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

AC—26 to 30 inches; light brownish gray (10YR 6/2) clay loam, very dark grayish brown (10YR 3/2) moist; common coarse distinct reddish yellow (7.5YR 6/6) mottles; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots; many very fine and common coarse tubular pores; slightly effervescent; mildly alkaline (pH 8.0); clear smooth boundary.

C—30 to 40 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; common coarse distinct reddish yellow (7.5YR 6/6) mottles; weak medium and coarse subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine roots; many very fine and few coarse tubular pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

Ab—40 to 60 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; common coarse distinct reddish yellow (7.5YR 6/6) mottles; moderate medium and coarse prismatic structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; many very fine and few medium and coarse tubular pores; mildly alkaline (pH 7.6).

Typical Pedon Location

Map unit in which located: Welch loam, drained, 2 to 8 percent slopes
Location in Nevada: Lander County, Nevada, North Part, survey area; about 22 miles southeast of Battle Mountain; about 500 feet south and 1,200 feet west of the northeast corner of sec. 34, T. 29 N., R. 46 E.

Range in Characteristics

Soil moisture content (undrained areas): Saturated at or near the surface for at least 1 month, commonly

late in winter and early in spring, in most years; then drops to a depth of 18 to 36 inches from early in spring through September

Average annual soil temperature: 42 to 46 degrees F

Thickness of the mollic epipedon: 26 to more than 60 inches

Other characteristics: Organic matter content of the mollic epipedon decreases irregularly with increasing depth; a buried A horizon commonly present; gravelly strata or strata of silty clay loam, silt loam, clay, loam, very fine sandy loam, or sandy loam present in some pedons

Control section:

Texture—dominantly stratified sandy clay loam or clay loam

Content of clay—27 to 35 percent when mixed

Other characteristics—mineralogy is mixed, but the parent material has a high content of vitric pyroclastic material

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, 0 to 2 in the lower part

Structure—weak to strong, thin or medium, and platy; weak or moderate, very fine to medium, and prismatic, granular, or subangular blocky; or massive (only in pedons that have a thicker A horizon)

Consistence—soft to hard (dry), very friable or friable (moist), nonsticky to sticky and slightly plastic to plastic (wet)

Reaction—slightly acid or neutral

Other characteristics—high-chroma, yellowish iron mottles in some pedons

C horizon:

Hue—10YR, 5Y to 5B, or neutral

Value—5 to 8 dry, 3 to 5 moist

Chroma—0 or 1

Reaction—slightly acid to mildly alkaline

Other characteristics—high-chroma iron mottles common in many pedons

Wendane Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash

Positions on landscape: Alluvial flats

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical Pedon

A1—0 to 1 inch; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; strong thin platy structure; slightly hard, very friable, slightly sticky and plastic; few medium roots; many very fine and fine interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

A2—1 to 7 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; few medium distinct white (10YR 8/1) mottles; moderate thin platy structure; slightly hard, friable, sticky and plastic; few medium roots and common very fine and fine roots; common very fine and fine interstitial and tubular pores; common fine lime filaments or threads; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C—7 to 18 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; few medium distinct white (10YR 8/1) mottles; moderate medium subangular blocky structure; soft, very friable, sticky and plastic; few medium and fine roots and common very fine and coarse roots; common fine and medium tubular pores; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

Cqk1—18 to 24 inches; pale brown (10YR 6/3) silty clay loam, dark yellowish brown (10YR 4/4) moist; common medium distinct mottles that are brown (7.5YR 5/4) and gray (5Y 5/1) moist; massive; slightly hard, friable, sticky and plastic; many very fine and fine roots and few medium roots; many very fine and fine and common medium tubular pores; 25 percent strongly cemented durinodes; few moderately thick reoriented silt linings in pores; violently effervescent; strongly alkaline (pH 8.9); clear smooth boundary.

Cqk2—24 to 37 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 4/3) moist; common medium distinct mottles that are brown (7.5YR 5/4) and gray (5Y 5/1) moist; massive; slightly hard, friable, sticky and plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular pores; 25 percent strongly cemented durinodes; 10 percent discontinuous weak cementation; few moderately thick reoriented silt linings in pores; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Ab—37 to 48 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; many coarse distinct mottles that are dark

grayish brown (10YR 4/2) and gray (5Y 5/1) moist; massive; slightly hard, friable, very sticky and plastic; few fine roots; common fine and medium tubular pores; 10 percent discontinuous weak cementation; few moderately thick reoriented silt linings in pores; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C'—48 to 62 inches; light gray (10YR 7/2) silty clay loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, friable, very sticky and very plastic; few fine roots; common fine and medium tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Wendane silt loam, 0 to 2 percent slopes, in Wendane-Umberland association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles east of Austin; about 50 feet north and 50 feet east of the southwest corner of sec. 18, T. 16 N., R. 50 E.

Range in Characteristics

Soil moisture content: Saturated to a depth of 28 to 40 inches in spring in most years; dry in mid-summer to mid-winter; moist in mid-winter, in spring, and early in summer

Depth to apparent seasonal high water table: 30 to 48 inches in February to July, except in areas that have been drained

Average annual soil temperature: 47 to 52 degrees F

Depth to the Cqk horizon: 11 to 20 inches

Depth to high-chroma mottles: 13 to 27 inches

Content of salt: Commonly strongly affected by salt in the upper part, nonsaline or slightly affected by salt in the lower part

Exchangeable sodium percentage: 15 to 70 in at least half of the upper 20 inches, decreasing in alkalinity with increasing depth

Reaction: Moderately alkaline to very strongly alkaline

Other characteristics: Mineralogy is mixed, but is strongly influenced by volcanic ash and other pyroclastic material; unconformable stratified gravelly sand or very gravelly sand common below a depth of 40 inches in some pedons

Control section:
- Content of clay—20 to 30 percent when mixed
- Texture—averages silt loam or silty clay loam that is less than 15 percent fine sand or coarser particles

A horizon:
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—1 to 4
- Structure—thin to thick and platy, fine and granular, or massive
- Consistence—very friable to firm (moist), slightly sticky to very sticky and slightly plastic to very plastic (wet)

C and Cqk horizons:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 4 to 7 moist
- Chroma—1 to 4
- Texture—stratified very fine sandy loam, silt loam, silty clay loam, and clay loam
- Other characteristics—strata of volcanic ash 4 to 10 inches thick common between depths of 13 and 36 inches

Cqk horizon:
- Thickness—13 to more than 30 inches
- Other characteristics—20 to 35 percent weakly or strongly cemented durinodes in a friable matrix; as much as 30 percent discontinuous weak silica cementation in individual strata

Whirlo Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium that includes some loess

Positions on landscape: Fan aprons, inset fans, fan skirts

Slope: 0 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Camborthids

Typical Pedon

A1—0 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine random roots; many very fine and few fine vesicular pores; 5 percent pebbles; very slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and plastic; common very fine random roots and very few fine oblique roots; common very fine vesicular and tubular pores; 5 percent pebbles; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bw—7 to 12 inches; pale brown (10YR 6/3) silt loam,

brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and plastic; many very fine random roots and very few fine oblique roots; common very fine and few fine tubular pores; 5 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

2Bk1—12 to 24 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine random roots and very few fine oblique roots; common very fine tubular pores; 35 percent pebbles; 10 percent weak durinodes 10 to 30 millimeters in diameter; few fine lime filaments and thin lime coatings on pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Bk2—24 to 60 inches; variegated extremely gravelly coarse sandy loam; single grain; loose, nonsticky and slightly plastic; common very fine random roots; 5 percent cobbles and 70 percent pebbles; lime coatings on 50 percent of pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Whirlo silt loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 11 miles southeast of Battle Mountain; about 1,900 feet west and 1,450 feet north of the southeast corner of sec. 29, T. 31 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-May through November

Average annual soil temperature: 47 to 53 degrees F

Depth to the 2Bk horizon: 10 to 20 inches

Control section:
- Content of clay—5 to 15 percent
- Content of rock fragments—35 to 70 percent, mainly pebbles

A horizon:
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate, thin to thick, and platy, or massive
- Reaction—neutral to moderately alkaline

Bw horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Texture—gravelly sandy loam, fine sandy loam, very fine sandy loam, silt loam, or gravelly loam
- Content of rock fragments—0 to 30 percent pebbles
- Structure—weak or moderate, fine or medium, and subangular blocky; weak, coarse, and prismatic; or massive
- Reaction—neutral to moderately alkaline

2Bk horizon:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 3 to 6 moist
- Chroma—2 or 3
- Texture—stratified very gravelly loam to extremely gravelly coarse sandy loam
- Content of rock fragments—35 to 75 percent, mainly pebbles and some cobbles and stones
- Reaction—moderately alkaline or strongly alkaline
- Effervescence—slightly effervescent to violently effervescent
- Other characteristics—as much as 10 percent weak durinodes common in the lower part in some pedons

Wholan Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mantle of loess over silty alluvium derived from various kinds of rock

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-silty, mixed, mesic Typic Camborthids

Typical Pedon

A—0 to 5 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bw—5 to 13 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; mildly alkaline (pH 7.8); clear smooth boundary.

Bk—13 to 21 inches; white (10YR 8/2) very fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; few fine lime filaments or threads; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

C—21 to 25 inches; white (10YR 8/1) very fine sandy loam, light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; slightly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

Cq—25 to 60 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 5 percent weakly cemented durinodes; strongly effervescent; very strongly alkaline (pH 9.2).

Typical Pedon Location

Soil name and map unit in which located: Wholan silt loam, 0 to 2 percent slopes, in McConnel-Rasille-Wholan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 21 miles west of Austin; about 1,200 feet south and 400 feet west of the northeast corner of sec. 1, T. 18 N., R. 39 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through October

Average annual soil temperature: 47 to 53 degrees F

Depth to the Bk horizon: 11 to 24 inches

Reaction: Mildly alkaline to very strongly alkaline, increasing in alkalinity with increasing depth

Content of salt and sodium: Nonsaline and nonsodic or slightly affected by salt and sodium to a depth of 30 inches, moderately or strongly affected below this depth

Other characteristics: Thin strata that have as much as 5 percent very hard, firm, brittle durinodes 0.5 to 0.75 inch in diameter present in the C horizon in some pedons

Control section:
- Content of clay—5 to 15 percent
- Texture—dominantly silt loam or very fine sandy loam, but thin strata of loam or fine sandy loam in some pedons

A horizon:
- Value—5 to 7 dry, 3 to 5 moist (5 dry and 3 moist in the A1 horizon only)
- Chroma—2 to 4
- Structure—weak or moderate, very thin to medium and platy or coarse and subangular blocky; or massive
- Consistence—soft or slightly hard
- Effervescence—noneffervescent or slightly effervescent

Bw horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Structure—weak, fine to coarse and subangular blocky or medium or coarse and prismatic; or massive

Bk and C horizons:
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Content of durinodes—as much as 5 percent in some strata in some pedons
- Other characteristics—few to many, fine or medium veins and soft masses of lime in the Bk horizon, no segregated lime in the C horizon

Wieland Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium that is derived from volcanic and sedimentary rock and includes some loess and volcanic ash

Positions on landscape: Summits and side slopes of fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Durixerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 5 inches; pale brown (10YR 6/3) gravelly 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; common very fine vesicular pores; 15 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

A2—5 to 8 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt1—8 to 14 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; few very fine and fine roots; few

very fine tubular pores; few thin clay films on faces of peds; 15 percent pebbles; mildly alkaline (pH 7.6); gradual wavy boundary.

Bt2—14 to 20 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; many moderately thick and few thick clay films on faces of peds; common silica and lime pendants on the underside of rock fragments; 30 percent pebbles; few fine irregular seams of lime; slightly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

Bqk1—20 to 25 inches; very pale brown (10YR 7/4) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; massive; very hard, firm, slightly sticky and slightly plastic; few fine roots; few very fine and fine tubular pores; 40 percent discontinuous weak silica cementation; many silica and lime pendants on the underside of rock fragments; 50 percent pebbles and 5 percent cobbles; common fine irregular seams of lime; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bqk2—25 to 44 inches; very pale brown (10YR 8/4), continuous, weakly silica-cemented gravelly loam, light yellowish brown (10YR 6/4) moist; massive; very hard, very firm, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; 20 percent strong durinodes 5 to 25 millimeters in diameter, mostly in few thin strata of noncemented material; 25 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Cqk—44 to 60 inches; light gray (10YR 7/2), continuous, weakly silica-cemented gravelly loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine tubular pores; 15 percent pebbles; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Wieland gravelly loam, 4 to 15 percent slopes, in Allor-Wieland association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 8 miles northwest of Austin; about 800 feet east and 750 feet north of the southwest corner of sec. 21, T. 20 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist late in October to early in June

Average annual soil temperature: 47 to 52 degrees F

Depth to continuous weak silica cementation: 19 to 30 inches

Depth to the base of the Bt horizon: 19 to 30 inches

Other characteristics: 2C horizon that is variegated very gravelly loam present at a depth of 40 inches or more in some pedons; 2Cq horizon that is 50 to 65 percent pebbles present in some pedons

Control section (when mixed):
- Content of clay—40 to 55 percent
- Content of rock fragments—15 to 35 percent pebbles

A horizon:
- Value—5 or 6 dry
- Chroma—2 or 3
- Structure—weak or moderate, very thin to very thick, and platy; or weak or moderate, fine to coarse, and subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bt1 horizon (when present):
- Value—5 or 6 dry
- Chroma—2 or 3
- Structure—weak or moderate, very fine, fine, or medium, and subangular blocky or prismatic
- Consistence—very friable or friable (moist), sticky or very sticky and plastic or very plastic (wet)
- Reaction—mildly alkaline or moderately alkaline

Bt2 horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4 dry, 3 or 4 moist
- Content of clay—dominantly 40 to 55 percent when mixed, but as much as 60 percent clay in some pedons
- Content of rock fragments—15 to 35 percent pebbles when mixed
- Structure—weak or moderate, fine to coarse, and prismatic, or weak or moderate, very fine, fine, or medium, and angular blocky
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—slightly effervescent or strongly effervescent and lime filaments common in the lower part in some pedons

Bqk and Cqk horizons:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—1 to 4
- Effervescence—noneffervescent to violently effervescent
- Other characteristics—thin, discontinuous, weakly cemented Bqk horizon above the continuously cemented layer in some pedons; relict mottles

present at a depth of more than 30 inches in many pedons

Xine Series

Depth class: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from limestone and calcareous shale
Positions on landscape: Side slopes of mountains
Slope: 30 to 75 percent
Mean annual precipitation: About 12 inches
Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Calcixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles.

A1—0 to 5 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; 15 percent pebbles; slightly effervescent; mildly alkaline (pH 7.6); clear smooth boundary.

A2—5 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; 25 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—10 to 18 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; many fine, medium, and coarse roots; many very fine, fine, and medium tubular pores; 20 percent pebbles, 20 percent cobbles, and 5 percent stones; few fine lime filaments and coatings on rock fragments; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk2—18 to 33 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; common very fine and fine tubular pores; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; common fine lime filaments, soft masses, and coatings on rock fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Cr—33 inches; weathered, fractured, calcareous shale.

Typical Pedon Location

Soil name and map unit in which located: Xine gravelly loam, 30 to 50 percent slopes, in Attella-Xine-Kram association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 60 miles southwest of Battle Mountain; in an unsectionalized area about 1,600 feet north and 1.1 mile east of the southeast corner of the assumed sec. 24, T. 25 N., R. 39 E.

Range in Characteristics

Soil moisture content: Moist late in fall to early in summer, dry in July through October
Average annual soil temperature: 44 to 46 degrees F
Thickness of the mollic epipedon: 7 to 14 inches
Depth to paralithic contact: 20 to 40 inches
Depth to the calcic horizon: 10 to 25 inches
Other characteristics: Content of secondary lime increases with increasing depth

Control section:
- Texture—very cobbly loam or very cobbly sandy loam
- Content of clay—10 to 18 percent
- Content of rock fragments—35 to 60 percent, mainly cobbles
- Calcium carbonate equivalent—25 to 40 percent

A horizon:
- Value—dominantly 4 or 5 dry and 2 or 3 moist, but in some pedons a thin A1 horizon has value of 6 dry
- Chroma—2 or 3
- Reaction—mildly alkaline or moderately alkaline

Bk horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—3 or 4
- Reaction—moderately alkaline or strongly alkaline

Yobe Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Silty lacustrine sediment derived from various kinds of rock
Positions on landscape: Alluvial flats
Slope: 0 to 2 percent
Mean annual precipitation: About 6 inches
Mean annual temperature: About 51 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical Pedon

A—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak medium platy

structure; soft, very friable, slightly sticky and slightly plastic; few very fine and coarse roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

C1—2 to 9 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C2—9 to 16 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; few very fine tubular pores; common firm lime nodules less than 1 millimeter in diameter; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

C3—16 to 24 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; few very fine tubular pores; common firm lime nodules less than 1 millimeter in diameter; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

C4—24 to 36 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; few fine distinct brownish yellow (10YR 6/6) mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; common firm lime nodules less than 1 millimeter in diameter; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

C5—36 to 60 inches; white (2.5Y 8/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; common medium distinct and prominent brown (7.5YR 4/4), reddish yellow (7.5YR 6/6), and brownish yellow (10YR 6/6) mottles; massive; hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; thin shiny pressure plates on faces of peds; common firm lime nodules 5 to 10 millimeters in diameter; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Yobe silt loam, 0 to 2 percent slopes, in Yobe-Kawich-Playas association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 27 miles southeast of Austin; about 1,200 feet north and 500 feet east of the southwest corner of sec. 8, T. 15 N., R. 45 E.

Range in Characteristics

Depth to the seasonal high water table: 36 to 48 inches for 1 month or more in most years

Soil moisture content: Moist to within at least 30 inches of the surface because of the capillary fringe

Average annual soil temperature: 47 to 52 degrees F

Texture of the control section: Stratified very fine sandy loam to silty clay loam that is less than 15 percent sand that is coarser textured than very fine sand and 18 to 25 percent clay when mixed

Exchangeable sodium percentage: More than 13 (decreases with increasing depth below 20 inches)

Hue: 10YR, 2.5Y, or 5Y

Value: 6 to 8 dry, 4 to 6 moist

Chroma: 2 or 3

Effervescence: Strongly effervescent or violently effervescent

Reaction: Strongly alkaline or very strongly alkaline in the A horizon, moderately alkaline or strongly alkaline in the C horizon

Other characteristics: Very few to common lime nodules in most of the lower part

Zaidy Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Alluvium derived from volcanic rock

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Haploxerollic Durargids

Typical Pedon

About 50 percent of the surface is covered with pebbles and 5 percent with cobbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few very fine roots; common very fine and fine tubular pores; 35 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bt—5 to 8 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; common very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and

slightly plastic; common very fine and fine roots; common fine and medium tubular pores; few thin clay films on faces of peds; 5 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Btk—8 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine and medium tubular pores; common thin and few moderately thick clay films on faces of peds and lining pores; 20 percent pebbles; few fine soft lime masses; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—14 to 25 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few fine tubular pores; 10 percent pebbles; 20 percent weak discontinuous silica cementation; common medium soft lime masses and filaments; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqkm1—25 to 32 inches; very pale brown (10YR 7/4), continuous, strongly cemented duripan, yellowish brown (10YR 5/4) moist; strong thick platy structure; extremely hard, extremely firm; few fine and very fine roots along horizontal fracture planes; 5 percent pebbles; 20 percent horizontal seams of weakly cemented material; disseminated soft powdery lime; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqkm2—32 to 60 inches; very pale brown (10YR 7/4), strongly cemented duripan that has a discontinuous thin indurated cap; yellowish brown (10YR 5/4) moist; massive; extremely hard, extremely firm; 10 percent pebbles and 5 percent cobbles; disseminated soft powdery lime; violently effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Zaidy very gravelly fine sandy loam, 8 to 15 percent slopes, in Zaidy-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; in the southern part of the Grass Valley; about 1,050 feet south and 1,000 feet west of the northeast corner of sec. 11, T. 20 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part in mid-October through May

Average annual soil temperature: 47 to 50 degrees F
Depth to the base of the Btk horizon: 12 to 25 inches
Depth to carbonates: 8 to 15 inches
Depth to the duripan: 20 to 30 inches
Reaction: Mildly alkaline or moderately alkaline

Control section:
Content of clay—25 to 35 percent when mixed
Content of rock fragments—10 to 35 percent, mainly pebbles

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—4 to 6
Sodium adsorption ratio—6 to 13

Zineb Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy alluvium that is derived from various kinds of rock and includes some volcanic ash
Positions on landscape: Inset fans, fan aprons, fan skirts
Slope: 2 to 8 percent
Mean annual precipitation: About 8 inches
Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Durixerollic Camborthids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 3 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw—5 to 11 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common

fine and medium roots; common very fine tubular pores; 15 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bq—11 to 16 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots; common very fine tubular pores; 30 percent discontinuous weak silica cementation and 5 percent strongly cemented durinodes 5 to 10 millimeters in diameter; 30 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—16 to 20 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; 20 percent discontinuous weak silica cementation; 35 percent pebbles and 5 percent cobbles; common medium lime coatings on the underside of rock fragments; noneffervescent in matrix; moderately alkaline (pH 8.4); clear wavy boundary.

2Bqk2—20 to 45 inches; pale brown (10YR 6/3) extremely cobbly loamy coarse sand, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common medium roots; common very fine tubular pores; 70 percent discontinuous weak silica cementation; 40 percent pebbles and 25 percent cobbles; many medium lime coatings on the underside of rock fragments; slightly effervescent in matrix; strongly alkaline (pH 8.6); clear wavy boundary.

3Btbk—45 to 60 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and plastic; common fine and medium roots; common very fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles; common fine lime filaments and seams; slightly effervescent in matrix; strongly alkaline (pH 9.0).

Typical Pedon Location

Map unit in which located: Zineb gravelly loam, 2 to 8 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 33 miles southeast of Battle Mountain; in an unsectionalized area about 600 feet west and 2,400 feet north of the southeast corner of the assumed sec. 33, T. 27 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to carbonates and to the 2Bk horizon: 16 to 26 inches

Depth to the Bq horizon: 10 to 18 inches

Content of rock fragments in the control section: Averages 50 to 75 percent, dominantly pebbles in the upper part and cobbles in the lower part

Other characteristics: Strata of unconformable loam below a depth of 40 inches in some pedons

A horizon:
- Value—5 or 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed)
- Chroma—2 or 3

Bw horizon:
- Value—3 or 4 moist
- Chroma—3 or 4
- Structure—subangular blocky or massive
- Content of rock fragments—15 to 35 percent, dominantly pebbles
- Texture—gravelly loam or gravelly very fine sandy loam

Bq horizon:
- Texture—very gravelly loam or very gravelly sandy loam
- Content of rock fragments—35 to 60 percent, dominantly pebbles
- Other characteristics—discontinuous weak silica cementation or durinodes in a friable matrix

2Bk or 2Bqk horizon:
- Texture—extremely cobbly sandy loam in the upper part and extremely cobbly loamy coarse sand or extremely cobbly coarse sand in the lower part
- Content of rock fragments—60 to 80 percent, dominantly cobbles

Zoesta Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium and colluvium derived from various kinds of rock

Positions on landscape: Summits and side slopes of mountain valley fan remnants, partial ballenas, side slopes of mountains

Slope: 8 to 30 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Paleargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 15 percent with cobbles.

A1—0 to 2 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots; many very fine and fine vesicular pores; 15 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 7 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; 10 percent pebbles, 15 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—7 to 12 inches; pale brown (10YR 6/3) cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and medium roots; common very fine and fine tubular pores; few thin clay films coating sand grains; 10 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt2—12 to 18 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong fine and medium prismatic structure; very hard, very firm, very sticky and very plastic; few very fine roots; few fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bt3—18 to 23 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine roots; few fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Btk—23 to 31 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/6) moist; strong fine prismatic structure parting to strong fine subangular blocky; very hard, very firm, sticky and plastic; common moderately thick clay films on faces of peds and lining pores; 30 percent pebbles; common fine soft lime masses; slightly effervescent in matrix; moderately alkaline (pH 8.2); gradual wavy boundary.

Bqk—31 to 60 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm, sticky and slightly plastic; 40 percent pebbles; 15 percent strongly cemented durinodes; many coarse soft lime masses; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Zoesta cobbly loam, 15 to 30 percent slopes, in Zoesta-Robson-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles north of Austin; about 1,900 feet south and 800 feet west of the northeast corner of sec. 1, T. 22 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in winter and spring

Average annual soil temperature: 44 to 46 degrees F

Combined thickness of the A and Bt horizons: 30 to 40 inches

Depth to carbonates: 10 to 20 inches

Other characteristics: Effervescence increases with increasing depth, secondary lime occurs in the lower part of the solum

Control section:
- Texture—clay loam or clay
- Content of clay—35 to 50 percent
- Content of rock fragments—less than 15 percent in the upper part and 15 to 35 percent in the lower part, mainly pebbles

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Reaction—neutral or mildly alkaline

Bt horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—3 to 6
- Structure—strong, fine to coarse, and prismatic
- Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—4 to 6
- Texture—clay loam or loam
- Content of clay—20 to 35 percent
- Content of rock fragments—35 to 60 percent, mainly pebbles
- Reaction—moderately alkaline or strongly alkaline
- Other characteristics—durinodes absent in some pedons

Zoesta Variant

Depth class: Very deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from chert, quartzite, and extrusive volcanic rock
Positions on landscape: Side slopes of foothills
Slope: 15 to 30 percent
Mean annual precipitation: About 9 inches
Mean annual temperature: About 47 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Xerollic Paleargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine vesicular pores; 25 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 8 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 15 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—8 to 13 inches; light brown (7.5YR 6/4) gravelly clay loam, dark brown (7.5YR 3/4) moist; strong fine subangular blocky structure; hard, firm, sticky and very plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

2Bt2—13 to 20 inches; light brown (7.5YR 6/4) clay, dark brown (7.5YR 4/4) moist; strong medium prismatic structure parting to strong coarse angular blocky; very hard, very firm, very sticky and very plastic; continuous moderately thick clay films on faces of peds; 5 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

2Bt3—20 to 27 inches; light brown (7.5YR 6/4) clay, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate coarse subangular blocky; very hard, very firm, very sticky and very plastic; few fine roots; few very fine tubular pores; many moderately thick clay films on faces of peds; moderately alkaline (pH 8.0); clear wavy boundary.

2Bt4—27 to 36 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; common fine black (10YR 2/1) manganese stains; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few fine tubular pores; common thin clay films on faces of peds; 10 percent pebbles; moderately alkaline (pH 8.0); gradual wavy boundary.

3Bqk—36 to 60 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; common coarse black (10YR 2/1) manganese stains; massive; very hard, firm, slightly sticky and slightly plastic; few very fine tubular pores; 40 percent discontinuous weak silica cementation; 25 percent pebbles; noneffervescent in matrix, common fine strongly effervescent lime seams; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Zoesta Variant gravelly loam, 15 to 30 percent slopes, in Zoesta Variant-Jung-McVegas association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 37 miles south of Battle Mountain; about 2,300 feet south and 100 feet east of the northwest corner of sec. 2, T. 25 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October
Average annual soil temperature: 47 to 52 degrees F
Combined thickness of the A and Bt horizons: 35 to 45 inches
Depth to the Bqk horizon: 35 to 45 inches
Control section (when mixed):
Content of clay—45 to 60 percent
Content of rock fragments—5 to 10 percent
A horizon:
Hue—7.5YR or 10YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 to 6
Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6 dry, 3 to 6 moist
Chroma—3 to 6
Content of clay—55 to 65 percent in the upper part, 35 to 50 percent in the lower part
Bqk horizon:
Value—6 to 8 dry, 5 or 6 moist
Chroma—3 to 6
Texture—loam or sandy loam
Content of rock fragments—15 to 35 percent, mainly pebbles
Other characteristics—20 to 50 percent discontinuous weak silica cementation, thin strata of weak continuous cementation in some pedons

Formation of the Soils

Soil is a natural body on the earth's surface in which plants grow. It is a mixture of rocks, minerals, organic matter, water, and air in varying proportions. The rocks and minerals are fragmented and are partly or wholly weathered. Soils have distinctive layers, or horizons, that are parallel to the soil surface. Soil horizons 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. The differences are the result of the interaction of five soil-forming factors that are known to affect soil formation. These factors are (1) biological forces, mainly the plant cover and the organisms living in and on the soil; (2) climate, mainly the temperature and kind and amount of precipitation that have existed since accumulation of the parent material; (3) relief, mainly as it affects the internal and external soil properties, such as drainage, aeration, susceptibility to erosion, and exposure to sun and wind; (4) parent material, including texture and structure of the material as well as its mineralogic and chemical composition; and (5) the length of time that the soil-forming factors have been operating. These factors form the ecosystem of soil genesis *(13)*.

The soil-forming factors interrelate to develop soil horizons that have specific properties. The age and strength of expression of the horizons is determined by the amount of weathering of the parent material. Weathering is the result of the interaction of moisture, temperature, and biological activity as influenced by time. The kinds and combinations of horizons and other diagnostic properties and their strength of expression provide clues as to the age of the soils in the area *(26, 27)*. Diagnostic horizons present in the soils include mollic epipedons; cambic, argillic, and natric horizons; and silica-cemented horizons.

Mollic epipedons are thick, dark surface horizons that have high base saturation. They form in areas where organic matter accumulates faster than it is oxidized. The organic matter is added to the soil in the form of decomposed roots and organic residue from the surface. When conditions are favorable, mollic epipedons can form in 100 to 1,000 years. They are the only diagnostic horizons in younger soils, but they occur in combination with other diagnostic horizons in older soils.

Cambic horizons in this survey area are identified by a redistribution of soluble salts and carbonates to a lower position in the soil profile, oxidation of the B horizon, and alteration of the original parent material to platy or blocky structure. Cambic horizons in northern and central Nevada generally are thought to be about 5,000 to 10,000 years old. This age has been determined mostly from soil mapping in areas near Lake Lahontan and other Pleistocene lakes *(12, 14, 16, 17)*. Cambic horizons also are present in soils that have a thin layer of Mount Mazama ash in the profile.

Argillic horizons are subsurface horizons that consist of illuvial clay accumulations. Prominent argillic horizons in this area commonly are in soils that formed on surfaces of Wisconsin and pre-Wisconsin age *(5, 9, 10, 12, 15, 19, 27)*. Generally, as argillic horizons age they become finer in texture and somewhat thicker and tend to develop an abrupt upper boundary.

Natric horizons are argillic horizons that have specific physical and chemical properties as a result of a high content of exchangeable sodium. Prominent natric horizons may have developed from argillic horizons that were influenced by the content of sodium in eolian deposits. Transportation and deposition of sodium in eolian deposits have greatly affected the soils in the survey area.

Volcanic glass in deposits derived from pyroclastic material and in eolian deposits is a source of silica that results in the formation of durinodes and duripans in many of the soils in the survey area. Duripans are massive horizons that are cemented with silica and in some areas with accessory calcium carbonate. Soils of the Holocene that developed in deposits that have a high content of volcanic ash commonly have weakly to moderately cemented horizons that contain a large amount of amorphous siliceous material. This silica cementation can form in a relatively short period of time and is probably less than 7,000 years old. Platy, or laminated, duripans and thin, discontinuous, laminar duripans tend to develop in loamy material. Duripans

capped with silica-cemented laminar layers probably are the oldest ones in the area and are of early Wisconsin to pre-Wisconsin age, as evidenced by their association with prominent argillic horizons.

The overall landscape of the area, which is mainly mountains and valleys, is the result of geologic stratigraphic and structural control. The present topography and landforms, however, primarily are the result of events that occurred during the Quaternary. The kinds of soils that formed are indicative of the stability and age of the surfaces of the landforms on which they occur. The degree of development of diagnostic horizons in the soils indicates a range in age from Holocene to pre-Wisconsin. The many kinds of soils in the area are a direct result of this range in age.

Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in this survey area. Although mammals, such as badgers and ground squirrels, and insects, such as cicadas and ants, have had some effect on soil development, plants appear to have had a major influence.

The vegetation in the area has been particularly important in stabilizing the land surfaces so that soil formation can occur. Plants provide stability by protecting the surface from erosion, and their roots help to develop soil structure and aggregate stability.

Because of climatic differences, the plant community varies considerably as elevation increases. On the flood plains, where drainage is restricted, the dense meadow vegetation has supplied the organic matter necessary for the development of Fluvaquentic Haplaquolls (Paranat series), which have a dark A horizon.

On fan piedmonts, fan skirts, alluvial flats, and lake plains at the lower elevations, the dominant plants are drought- and salt-tolerant shrubs *(22)*. Because of the scarcity of available moisture, the plant cover in these areas is sparse. As a result, little organic matter is added to the soils and little protection from the wind and sun is provided. Salts have been moved from the lower layers to the upper layer by the salt-tolerant shrubs. Examples of soils that formed in these areas are Duric Natrargids (Beoska series) on fan piedmonts and Aeric Halaquepts (Ocala series) on alluvial flats.

Fan piedmonts, fan skirts, and foothills at the higher elevations support a plant cover of shrubs and grasses. The density of these plants is somewhat greater; therefore, moderate amounts of organic matter have accumulated in the A horizon. Soluble salts are present at a greater depth in the profile. Examples of soils that formed in these areas are Durixerollic Haplargids (Pineval series) on fan piedmonts and Xerollic Haplargids (Trunk series) on foothills.

The mountainous areas support denser stands that include shrubs, grasses, and some trees. Because the vegetation is abundant, the A horizon in these soils is thick, dark, and high in organic matter content. An example of soils in these areas is Aridic Argixerolls (Reluctan series).

Climate

The major climatic forces that influence soil formation are precipitation and temperature. Recent soils developed under the present climate, but soils that developed before the Holocene were subject to different climatic conditions. Morrison and Frye *(16, 17, 18, 19)* suggest that accelerated soil formation occurs during unique climatic periods, but the climatic conditions between these periods is not conducive to soil formation.

The present desert climate began at the start of the Pleistocene *(4)*, but both precipitation and temperature have fluctuated greatly. The present climate is characterized by warm, dry summers and cool, moist winters. Precipitation is strongly influenced by the north-south trending mountain ranges, and it generally increases as elevation increases. The average annual precipitation ranges from about 6 inches at the lowest elevations in the Antelope, Big Smoky, and Crescent Valleys to about 16 inches or more at the highest elevations in the Toiyabe Range. Most of the precipitation falls in winter and spring.

The average annual air temperature ranges from about 50 degrees F at the lower elevations in the eastern valleys to about 41 degrees or less in some of the higher mountain ranges. In winter freezing and thawing generally occur throughout the survey area, except in those areas that are insulated by snow cover. This frost action causes heaving of plants, development of miniature rings and rock stripes, and erosion as a result of solifluction. At some of the higher elevations, bedrock has been fractured and displaced as a result of freezing and thawing.

Major climatic variations are a result of the effects of topography and relief. Temperature decreases and precipitation increases as elevation increases. The soils in the survey area generally are divided into climatic zones according to elevation and longitudinal location. As the precipitation increases, the removal of soluble salts and the production of native vegetation increase, which results in a cycling of bases and an increase in organic matter. Fluctuations in temperature and moisture affect the rates of organic matter accumulation and decomposition and the rate of weathering of minerals *(6, 13)*.

At elevations of 5,000 to 5,300 feet, the average annual precipitation is about 6 to 8 inches and the average annual air temperature is about 48 to 50 degrees. In these warm, arid areas, no surplus soil moisture is available to percolate. Chemical weathering of parent material is slow, soluble salts remain in the upper part of the soil profile, and eluviation and illuviation occur very slowly. The plant cover is sparse and consists mainly of drought- and salt-tolerant shrubs. Typically, the soils are low in organic matter content and have a thin, light-colored A horizon. Soluble salts, calcium carbonate, and silica accumulate in the soil profile at a relatively shallow depth. Duric Camborthids (Broyles series) and Duric Natrargids (Beoska series) are examples of soils that formed in this climatic zone.

At elevations of 5,300 to 6,500 feet, the average annual precipitation is about 10 inches and the average annual air temperature is about 47 degrees. In these warm, semiarid areas, the plant cover is thicker than at the lower elevations and consists mainly of drought-tolerant shrubs and grasses. Chemical weathering of parent material occurs slowly. Typically, weathering products are moved down below the root zone, and calcium carbonate and silica accumulate in the lower part of the profile. Soluble salts are completely removed or are concentrated deep in the profile. Typically, the soils are moderately low in organic matter content. They have a thin, relatively dark A horizon or a thicker, light-colored A horizon and a thicker cambic or argillic horizon over accumulations of silica or carbonates. Durixerollic Camborthids (Orovada series) in valleys and Lithic Xerollic Haplargids (Punchbowl series) on foothills are examples of soils that formed in this climatic zone.

At elevations of 6,500 to 8,000 feet, the average annual precipitation is about 12 to 14 inches and the average annual air temperature is about 43 to 46 degrees. In these cool, semiarid areas, the increased precipitation and decreased evapotranspiration rate result in a dense plant cover consisting mainly of shrubs and perennial grasses and localized stands of singleleaf pinyon and Utah juniper. Because of the lower temperatures, organic matter decomposes at a slower rate and accumulates in the A horizon. Chemical weathering is moderate in this climatic zone, soluble salts and calcium carbonate are completely removed from the soil profile, and eluviation and illuviation commonly occur at a moderate rate. Typically, the soils have a thick, dark mollic epipedon and a weak B horizon. Aridic Haploxerolls (Loncan series) and Aridic Argixerolls (Sumine series) are examples of soils that formed in this climatic zone.

At elevations of as much as 10,200 feet, the average annual precipitation is about 14 to more than 16 inches and the average annual air temperature is about 41 to 43 degrees. These cold areas are mainly on windswept crests and side slopes of mountains, in sheltered areas where snow accumulates, and on back slopes of mountains, where drifted snow accumulates. All soluble salts and calcium carbonate and some exchangeable cations have been removed from the soil profile, resulting in a base saturation that generally is lower than in other climatic zones. Organic matter decomposes slowly, and a thick, dark A horizon forms. Areas where drifted snow accumulates support thick mountain shrubs and grasses. Windswept areas receive less effective precipitation, which is reflected in lower plant production. Soils on stable, north-facing, concave back slopes in areas where snow accumulates may be older than their degree of development indicates because they remain cold for most of the year, which inhibits development. During glacial periods these soils may have remained frozen or under snow cover throughout the year. Pachic Cryoborolls (Hapgood series) on back slopes of mountains and Argic Cryoborolls (Packer series) on windswept crests of mountains are examples of soils that formed in this climatic zone.

Time

Time is required for the weathering of rocks and minerals and the formation of soil horizons. The interaction of time and other soil-forming factors is not well understood by soil scientists and geologists working in this field. Some suggest that the weathering of parent material and the development of soil profiles essentially have been continuous and at a constant rate throughout the Quaternary *(20, 21, 24, 29)*. Recently, however, geologists concerned with differentiating Quaternary deposits have suggested that soil development has not proceeded continuously at the same rate but has taken place intermittently at rapid rates *(16, 17, 18, 23)*.

The present desert climate began at the start of the Pleistocene *(4)*, but precipitation and temperature have fluctuated greatly. During cooler and wetter glacial periods, or pluvials, the rate of runoff increased, resulting in increased erosion, mass wasting, and deposition. These conditions reduced the rate of evaporation in the basins, and permanent lakes developed on the bolson floors. A change to a cool, drier climate at the beginning of the interglacial periods commonly was marked by maximum eolian activity. Following this was a warm, dry period and then a warm, wet period, which was most conducive to soil development *(3, 5, 17)*. These periods of peak soil development occurred worldwide; therefore, the profiles

of soils that formed in different regions during these periods can be correlated and are similar in age.

The peak soil-forming periods generally followed periods of increased erosion and deposition. During these periods, the land surfaces stabilized and the climate was favorable for a greatly accelerated rate of chemical weathering. Geologists have developed a technique of mapping soils called soil stratigraphy that uses weathering profiles to differentiate and correlate Quaternary deposits. Researchers have found soils in other parts of Nevada that are similar in age to those that formed on stratigraphic surfaces identified by Morrison *(5, 12, 15)*. Comparing soils in this survey area with similar soils in other areas has helped to identify local soils that are similar in age. Although soils developed during each peak soil-forming period, representative profiles have eroded away or have been covered by subsequent depositions in some areas. Because of this, gaps occur in the time-soil profile sequence. In the following paragraphs, some of the time-stratigraphic ages as set forth by Birkeland are discussed *(6)*. These include the Holocene, Wisconsin, and pre-Wisconsin ages.

Holocene.—Volcanic ash and eolian material, presumed to be from Mount Mazama ashfalls, are the main sources of soluble silica that forms durinodes and duripans in the soils in the survey area. Thin strata of this material are in some of the soils on fan skirts, alluvial flats, and flood plains *(7)*.

Hawley and Wilson *(12)* proposed that a distinct Mount Mazama volcanic ash bed *(7)* along the Humboldt River overlies late Wisconsin deposits and is the boundary between the Pleistocene and Recent soils in the Winnemucca area. This widely spread volcanic ash bed extends into northern Lander County and is interbedded with flood plain deposits along the Humboldt River and with young alluvium on fan skirts in the lower part of the Antelope Valley. Mifflin and Wheat *(14)* proposed that the Pleistocene shorelines in Buffalo Valley near Battle Mountain and in the Grass Valley can be correlated with that of ancient Lake Lahontan (late Wisconsin). After the lakes receded, Durorthidic Torriorthents (Bubus series) and Aquic Durorthidic Torriorthents (Gund series) formed on these geomorphic surfaces. Many of these soils are still subject to aggradation. These soils and those exhibiting less soil development are considered to be of the Holocene.

The youngest soils in the area are those that formed in recently aggraded material or in material recently exposed by erosion. These soils have no diagnostic horizons, and they resemble the original parent material. Among these are Aquic Torriorthents (Needle Peak series) and Typic Torriorthents (Fenster series) that formed in recent alluvium, Typic Torripsamments (Isolde series) that are subject to eolian activity and are on semistabilized sand dunes and dunes superimposed over beach plains, and Lithic Xeric Torriorthents (Tessfive series) and shallow Xeric Torriorthents (Puett series) that formed in material weathered from Tertiary sediment on low, rolling hills where geologic erosion has been active.

Somewhat older are soils that formed in alluvium on axial-stream flood plains, slowly aggrading inset fans, and relatively recently eroded mountain slopes. These soils have been stable long enough to accumulate organic matter and form a mollic epipedon. They do not have a cambic, argillic, natric, or calcic horizon, a duripan, or durinodes. They are probably less than about 1,000 years old. Examples of these soils are Fluvaquentic Haplaquolls (Paranat series) on axial-stream flood plains, Cumulic Haplaquolls (Welch series) on inset fans in narrow mountain valleys, and Aridic Haploxerolls (Loncan series) and Lithic Haploxerolls (Gando series) on mountain slopes.

Soils that formed in alluvium and have subsurface horizons that contain durinodes or are weakly cemented with silica are also older than the youngest soils in the area and possibly are slightly older than the soils that have a dark A horizon as their only diagnostic feature. These soils formed in salt- and sodium-affected parent material that contains appreciable amounts of volcanic ash. They are on lake plains, alluvial flats, and alluvial-flat remnants. The content of soluble silica in the volcanic ash and the alkalinity and fluctuating water table probably contributed to the relatively rapid formation of durinodes and incipient silica cementation. Examples of these soils are Aquic Durorthidic Torriorthents (Gund series) on lake plains, Aeric Halaquepts (Ocala series) on alluvial flats, and Durorthidic Torriorthents (Bubus series) on alluvial-flat remnants.

Stable Holocene land surfaces that are 2,000 to 8,000 years old are extensive in the survey area *(8, 9)*. The soils that formed on these surfaces have a cambic horizon and are cemented with silica in some areas. These soils are on fan skirts, offshore bars, lagoons, and foothills. Examples are Xerollic Camborthids (McConnel series) on offshore bars, Duric Camborthids (Creemon series) in lagoons, and Xerollic Camborthids (Minat series) on foothills.

The landscape in some areas is less stable and was stripped by erosion during the late Wisconsin period, exposing a relict duripan. Following redeposition during the mid to early Holocene, thin layers of loess and loamy alluvium from surrounding areas covered these relict subsurface horizons. Soil development in this material is minimal. Xerollic Durorthids (Chiara series)

on fan piedmonts and Typic Durorthids (Osoll series) on foothills are examples of soils that developed in this material.

Wisconsin.—Deposits of Wisconsin age are widely distributed in the survey area. Early Wisconsin deposits on fan and stream terraces generally are more extensive and coarser than those of the late Wisconsin and early Holocene. A widespread veneer of loess covered these coarse deposits during the mid-Wisconsin. Typically, these deposits are on the higher geomorphic surfaces and are dissected. Morrison *(18)* proposed that a weathering profile, the Churchill soil in the Lake Lahontan area, be used to differentiate early Wisconsin from late Wisconsin deposits. Hawley and Wilson *(12)* tentatively correlated a soil of similar age in the Winnemucca area. Soils in this survey area that consist of loess-influenced alluvium over coarse alluvium have characteristics similar to those of the soils correlated in the Winnemucca area. An example of these soils is Duric Natrargids (Beoska series). They are considered to be mid-Wisconsin age.

About half of the soil series in the survey area are late Wisconsin to pre-Wisconsin age. These soils are mainly on mountains, plateaus, foothills, and fan piedmonts. Because extensive areas of these soils are present, it is evident that excessive erosion and deposition have not taken place since the late Pleistocene, when the climate stabilized.

Stable late Wisconsin or early Holocene land surfaces are not believed to be extensive in this survey area. Soils that formed on these surfaces have a thin or weak argillic horizon. An example is Xerollic Haplargids (Genaw series), which are on low, rolling hills. These soils have a thin, medium textured argillic horizon underlain by soft bedrock at a depth of less than 20 inches.

Stable mid-Wisconsin land surfaces are extensive in this survey area. The soils on these surfaces have a dominantly fine-loamy or loamy-skeletal argillic or natric horizon. Durixerollic Haplargids (Allor series) on fan piedmonts are examples of soils that have an argillic horizon, Duric Natrargids (Ricert series) on fan piedmonts are examples of soils that have a natric horizon, Lithic Xerollic Haplargids (Old Camp series) on foothills are examples of soils that have an argillic horizon, and Aridic Argixerolls (Reluctan series) and Typic Argixerolls (Clanalpine series) are examples of soils on mountain slopes.

Stable early Wisconsin land surfaces are extensive in this area. These soils have a well developed argillic horizon. They are on the older land surfaces where the original subsurface horizons have not been eroded or deeply buried by sediment. Haploxerollic Nadurargids (Filiran series), which have a thick natric horizon and a thick duripan, are examples of these soils on fan piedmonts. Xerollic Haplargids (Roca series), which have a clayey-skeletal argillic horizon and formed in residuum, are examples of these soils on foothills. Aridic Argixerolls (Chad and Walti series), which have a clayey argillic horizon and formed in residuum, are examples of these soils on mountain slopes.

Pre-Wisconsin.—These alluvial deposits are limited in the survey area. Two pre-Wisconsin deposits are recognized by Morrison *(18)*—one that is similar to soils of the Kansan Glaciation (pre-Cocoon soils) and a younger one that is somewhat less dissected, is at somewhat lower elevations, and is similar to soils of the Illinois Glaciation (Cocoon soils). Examples of soils in this survey area that are similar to these soils in age are those of the Kingingham and Wieland series, respectively.

Stable pre-Wisconsin land surfaces are moderately extensive in this area. These surfaces have been deeply dissected and are on fan piedmont remnants and partial ballenas bordering mountain slopes. Because these surfaces have been relatively stable since they were dissected, the soils that developed on them are considered to be the oldest in the survey area. Xerollic Durargids (Buffaran series) and Aridic Durixerolls (Stampede series) are examples of soils on fan piedmont remnants. These soils generally have a thick, clayey argillic horizon and a thick duripan. Xerollic Paleargids (Zoesta series), which have a thick argillic horizon that is 45 to 60 percent clay, are examples of soils that formed on partial ballenas.

Relief

Relief is the shape of the landscape. It is determined by the position of the water table, percent of slope, length of slope, shape of slope (convex or concave), and exposure to wind and sun. Any activity on a slope that affects the soil, including erosion and deposition, affects soil formation *(13)*.

The landscapes in this survey area are dominated by subparallel mountain ranges rising abruptly from broad alluvium-filled valleys. Fan piedmonts and fan skirts slope downward from the mountains until they merge with alluvial flats and into central playas or axial-stream flood plains *(22)*.

The mountain ranges mainly are characterized by excessive relief. The soils in these positions are well drained. Runoff is rapid or very rapid, and the hazard of erosion is severe. Mountain slopes that are only partially stabilized are subject to a high rate of geologic erosion, and soil development on these slopes primarily is limited to an accumulation of organic matter that forms a mollic epipedon. Lithic Haploxerolls (Gando

series) and Lithic Xeric Torriorthents (Attella series) are examples of soils on these slopes. Soil formation has been unable to act on parent material long enough for a cambic or argillic horizon to form in these soils. Mountain slopes that are more stable are subject to a slower rate of geologic erosion, and an argillic horizon has formed in the soils on these slopes. Xerollic Haplargids (Trunk series) and Aridic Argixerolls (Sumine series) are examples.

Most of the foothills and mountains exhibit pronounced aspect-related differences in microclimate. Some soils on steep, north-facing slopes at the lower elevations are similar to soils on all aspects at the higher elevations, and some soils on steep, south-facing slopes at the higher elevations are similar to soils at the lower elevations *(6, 13)*.

Fan piedmonts flank the mountain ranges. The soils in these positions are well drained. Runoff is slow or medium, and the hazard of erosion is slight or moderate. The fan piedmonts typically are dissected because the stream channel has been altered as a result of changes in climate or local faulting. This dissection has resulted in the formation of smooth areas on the summits of fan piedmont remnants, younger side slopes of fan piedmont remnants, and very young inset fans along drainageways. Duric Natrargids (Oxcorel series) and Haploxerollic Durargids (Novacan series) are examples of soils on the summits of fan piedmont remnants. Durixerollic Camborthids (Orovada series) are examples of soils on the side slopes of fan piedmont remnants, and Typic Torriorthents (Fenster series) are examples of soils on inset fans.

Fan skirts are extensive in this area. They border the fan piedmonts and extend to the alluvial flats. The soils in these positions are well drained. Runoff is slow or medium, and the hazard of erosion is slight or moderate. These surfaces are relatively smooth and are not dissected. Durixerollic Camborthids (Rasille series), Typic Camborthids (Whirlo series), and Duric Camborthids (Broyles series) are examples of soils on fan skirts.

Remnants of flood plains, alluvial flats, and lake plains originally had a high water table and were flooded. The fluctuating water table combined with the high content of volcanic ash and the alkalinity of the parent material produced horizons that have firm durinodes or are cemented with silica. As the streams slowly downcut the flood plains and the lakes receded in the bolsons, subtle dissection took place. This dissection left stable flood-plain, alluvial-flat, and lake-plain remnants that had water tables at a lower depth and were subject to little or no flooding. The soils in these positions are moderately well drained or well drained. Runoff is slow, and the hazard of erosion is slight. These soils contain soluble salts. Durorthidic Torriorthents (Bubus series) are examples of soils on alluvial-flat and lake-plain remnants.

The soils on alluvial flats and lake plains are somewhat poorly drained. Runoff is slow, and the hazard of erosion is slight. These soils have horizons that are cemented with silica to various degrees. The soils are light colored, and they contain soluble salts. Aeric Halaquepts (Umberland and Ocala series) are examples of soils in these areas.

The soils on the nearly level axial-stream flood plains along the Reese River are poorly drained or very poorly drained. Runoff is very slow. Most areas of these soils are subject to flooding, and some areas are subject to deposition. The soils in these areas support dense stands of meadow vegetation that contributes large amounts of organic matter; thus, these soils have a thin to thick, dark A horizon. Some of these soils have excess soluble salts in the upper horizons. Fluvaquentic Haplaquolls (Paranat series) and Aeric Fluvaquents (Sonoma series) are examples of soils in these positions.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soils form. The hardness, grain size, and porosity of the parent material and its mineralogic and chemical composition greatly influence soil formation. The parent material in this survey area is mainly material derived from sedimentary rock and associated metamorphic rock, material derived from intrusive and extrusive volcanic rock, and colluvium, alluvium, lacustrine sediment, and eolian material.

The sedimentary rock in the area includes shale, chert, conglomerate, and breccia and localized areas of limestone and dolostone. The soils in the New Pass and Toiyabe Ranges and the Desatoya, Shoshone, and Simpson Park Mountains formed in material derived from sedimentary rock. Most of the material contains minerals that weather to clay. The soils that formed on stable landscapes have an argillic horizon. Lithic Argixerolls (Itca series) and Aridic Argixerolls (Walti series) are examples of these soils. In some areas the soils have not been stable long enough for an argillic horizon to form. Aridic Haploxerolls (Loncan series) and Lithic Xeric Torriorthents (Attella series) are examples of these soils.

Late Tertiary sedimentary rock occurs primarily along the ancient alluvial divides between the Reese River, Carico Lake, and Grass Valleys. This material consists of older alluvium and lakebed deposits derived from interbedded tuffaceous shale, diatomaceous shale,

siltstone, sandstone, and conglomerate. The older alluvium has remained stable for long periods and contains rock fragments and minerals that weather to clay. Typic Haplargids (Spike series) are examples of soils on older, stable surfaces that have an argillic horizon. The lakebed deposits are severely dissected and resemble low, rolling hills. The summits have been stable for short periods of time, and the side slopes are actively eroding and are too unstable for an argillic horizon to form. Xerollic Haplargids (Genaw series) are examples of soils on the stable summits. Xeric Torriorthents (Puett series) and Typic Torriorthents (Perlor series) are examples of shallow, weakly developed soils on the unstable side slopes.

The volcanic rock in the area includes andesite, rhyolite, ashflow tuff, basalt, and small, localized areas of granite. The soils in parts of the New Pass Range, the Shoshone and Simpson Park Mountains, and the Toiyabe Range derived from volcanic rock. This rock contains large amounts of minerals that weather to clay; therefore, most of the soils that formed in this material on stable landforms have an argillic horizon. Lithic Argixerolls (Ninemile series) and Xerollic Haplargids (Bucan series) are examples.

The colluvium, alluvium, and basin fill material in adjacent valleys are derived mainly from sedimentary and volcanic rock. The soils in the valleys throughout the area are strongly influenced by pyroclastic material from this rock. Those derived from the more siliceous rock, particularly chert and tuff, have layers of silica cementation.

Colluvium has accumulated on steep mountain slopes as a result of gravitational forces and mass wasting. The colluvium generally is poorly sorted, contains many rock fragments, and includes minerals that weather to clay. Many of these areas have not been stable long enough for an argillic horizon to form. Xerollic Camborthids (Minat series) are examples of soils that formed in colluvium on steep mountain slopes.

Alluvium derived from various kinds of rock and deposited as fan piedmonts is mostly loamy and contains pebbles, cobbles, and stones. It is porous, contains minerals that weather to clay, and contains soluble silica that results in the cementation of horizons. Haploxerollic Nadurargids (Filiran series) and Xerollic Durargids (Buffaran series) are examples of soils that formed on stable fan piedmonts. These soils have an argillic horizon and a duripan.

Alluvium deposited as fan skirts below the fan piedmonts consists of loamy and silty material mixed with loess that is high in content of volcanic ash. Some localized areas along drainageways contain pebbles, cobbles, and stones. The soils in these areas typically have horizons that are cemented with silica. Examples of soils that formed on fan skirts are Durorthidic Torriorthents (Misad series) and Duric Camborthids (Relley series).

Alluvium deposited as alluvial flats and flood plains below the fan skirts consists of silty and clayey material. Soluble salts are common in some of the soils in these areas. Although this material contains minerals that can be weathered, the soils are young and exhibit limited soil development. Aeric Halaquepts (Ocala series) and Fluvaquentic Haplaquolls (Paranat series) are examples.

Sandy eolian material is of limited extent in this survey area. It occurs mainly in the Grass Valley. Typic Torripsamments (Isolde series), which formed in wind-active areas on semistabilized dunes and on dunes superimposed over beach plains, are examples of soils that formed in this material.

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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 percentage of exchangeable sodium (15 percent or more of the total exchangeable bases) that plant growth is restricted. The degrees of alkalinity (sodicity) are expressed as an exchangeable sodium percentage. They are:

Nonalkali	less than 15
Slightly alkali	15 to 40
Strongly alkali	more than 40

Alkaline soil. A soil having so a high degree of alkalinity (pH 8.5 or higher) that plant growth is restricted.

Alluvial fan. A semiconical, or fan-shaped, constructional, major landform that is mainly stratified alluvium with debris flow deposits in some areas. It is on the upper margin of a piedmont slope, and its apex is a source of alluvium debouching from a mountain valley into an intermontane basin. Also, a generic term for similar landforms in various other landscape positions.

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.

Area reclaim (as a restrictive feature). An area difficult to reclaim after the removal of soil for construction and other uses.

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.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Ballena. A major landform comprised of distinctively round-topped ridgeline remnants of fan alluvium. The broadly rounded shoulder slopes 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.

Bar (offshore and barrier). A component landform comprised of elongated, commonly curving, low ridges of well sorted sand and gravel that stand above the general level of a bolson floor. It is the result of the wave action of a Pleistocene lake.

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 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, 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 depressional area.

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.

Beach plain. A major landform of bolson floors comprised of numerous, closely spaced offshore bars and intervening lagoons. It is the result of a receding Pleistocene lake.

Beach terrace. A component landform that is on the lower piedmont slope. It consists of a wavecut scarp and wavebuilt terrace of well sorted sand and gravel marking a still-stand of a Pleistocene lake.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bolson. An internally drained intermontane basin.

Bolson floor. The specific identification of the floor of a bolson, as compared with the floor of a semibolson; both are basin floors.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to reduce or eliminate competition of woody vegetation to allow understory grasses and forbs to recover or to make conditions favorable for reseeding. It increases production of forage, which reduces the hazard of erosion. Brush management may 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.)

Cemented pan (as a restrictive feature). A cemented pan is too close to the surface for the specified use.

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. Channels, except flood-plain playas, 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.

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 is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is 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.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

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 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, the soil-improving crops and practices more than offset the 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.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, 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.

Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

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.

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.

Cropping system. Growing crops using a planned system of rotation and management practices.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (as a restrictive feature). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep to water (as a restrictive feature). The soil is deep to a permanent water table during dry periods.

Deferred grazing. Postponing or arresting grazing for a prescribed period.

Depth (soil depth). Depth to a restricting layer is measured from the soil surface. The restricting layer is either a duripan (strongly cemented or indurated) or consolidated bedrock (soft or hard). The depth classes used in this survey are—

Very shallow	less than 10 inches
Shallow	10 to 20 inches
Moderately deep	20 to 40 inches
Deep	40 to 60 inches
Very deep	more than 60 inches

Depth to rock (as a restrictive feature). Bedrock is too near the surface for the specified use.

Desert pavement. A layer of gravel or coarser fragments on a desert soil surface that was emplaced by the upward movement of fragments from underlying sediment or that remains after finer particles have been removed by running water or wind.

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 low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have 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. They are wet enough to prevent the growth of important crops (except rice) unless artificially drained.

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Droughty (as a restrictive feature). The soil holds too little water for plants during dry periods.

Duff. A term used to identify 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. A soil quality 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.

Erodes easily (as a restrictive feature). Water erodes the soil easily.

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 the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and produced by erosion or faulting. Synonym: scarp.

Excess fines (as a restrictive feature). Excess silt and clay are in the soil. The soil does not provide a source of gravel or sand for use in construction.

Excess salt (as a restrictive feature). The soil has excess water-soluble salts that restrict the growth of most plants.

Excess sodium (as a restrictive feature). The soil has excess exchangeable sodium that restricts the growth of plants.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fan apron. A component landform consisting of a sheetlike mantle of relatively young alluvium that partially covers the surface of an older fan piedmont or, in some places, an alluvial fan. A fan apron buries a pedogenic soil.

Fanlette. A very small, normally undissected alluvial fan, something less than a few tenths of a square mile in area, that may occur below a gully, inset fan, or ravine in a variety of positions on the piedmont slope or within mountain valleys.

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 remnants may also be specifically identified, for example, fan-piedmont remnants, fan-skirt remnants, or inset-fan remnants.

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 shoulder slopes, 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 that extend from inset fans 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, and clay.

Flooding (as a restrictive feature). The soil is flooded by moving water from stream overflow, runoff, or high tides.

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 by the stream overflowing its channel during periods of flooding.

Flood-plain playa. A component landform consisting of very low gradient, barren, axial stream segments in an intermontane basin. It is subject to broad and shallow floods and is veneered with barren, fine textured sediment that crusts. A flood-plain playa commonly is segmented by transverse, narrow bands of vegetation, and it may alternate with ordinary, narrow or braided channel segments.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

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.

Frost action (as a restrictive feature). The moisture in the soil freezes and thaws. Frost action can damage roads, buildings, and other structures.

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.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter. Very gravelly soil material is 35 to 60 percent of these rock fragments, and extremely gravelly soil material is 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.

Hard to pack (as a restrictive feature). The soil is difficult to compact.

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. The major horizons 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.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon 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) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some 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 horizon. 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, the number 2 precedes the letter C.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but 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 in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff rate. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

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.

Lake plain. A major landform of some bolson floors that is nearly level and consists of fine textured, stratified bottom sediment of a Pleistocene lake.

Lake-plain terrace. A somewhat elevated area and component landform of a lake plain.

Landform element. The morphological part of a component landform. Side slope landform elements may be divided into slope components.

Large stones (as a restrictive feature). The soil has rock fragments that are 3 inches (7.6 centimeters) in diameter or more.

Leaching. The removal of soluble material from soil or other material by percolating water.

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 wind.

Low strength (as a restrictive feature). The soil is not strong enough to support a load.

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 (e.g., 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, and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and 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 considerable bare-rock surface. 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 intramontane basin by coalescent valley-side slope fans whose toe slopes 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.

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* or *claypan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Pebbles. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

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 20.0 inches
Very rapid	more than 20.0 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (as a restrictive feature). Water moving through the soil forms subsurface tunnels or pipelike cavities.

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.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above the adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. An ephemerally flooded, barren area on a basin floor that is veneered with fine textured sediment and acts as a temporary or final sink for drainage water.

Ponding. Standing water on soils in closed depressional areas. The water can be removed

only by percolation or evapotranspiration.

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. The application of fire to land under such conditions of weather, soil moisture, and time of day as presumably 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. Proper grazing use increases the vigor and reproduction 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.

Rooting depth (as a restrictive feature). The soil is shallow to a layer that greatly restricts roots; shallow root zone.

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 run-on 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 soil, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs in level to nearly level depressional areas, and 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 soil. Most of the water passes through the soil, 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 soil rapidly. Most of the water passes through the soil, is used by plants, or evaporates. The soils commonly are either nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.

Medium.—Surface water flows away fast enough that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils commonly are either 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 fast 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 soil. 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 fast 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 soil. The soils are mainly steep or very steep, and they absorb precipitation slowly.

Run-on. Soil moisture received as runoff from adjacent areas.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium. The conductivity of extract, in millimhos per centimeter, is expressed as—

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.

Sand sheet. A major landform comprised of an extensive layer, several feet thick, of eolian sand from pluvial lake beaches, sometimes partly redeposited by water. It is spread across alluvial flats, onto piedmont slopes, or over low mountains and has an undulating and commonly duned surface.

Sandstone. Sedimentary rock containing dominantly sand-sized 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.

Seepage (as a restrictive feature). The movement of water through the soil. Seepage adversely affects the specified use of the soil.

Semibolson. An externally drained intermontane basin.

Semibolson floor. A specific identification for the floor of a semibolson as compared with a bolson floor.

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 substratum. 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 slope. The convex slope component at the top of an erosional side slope.

Shrink-swell (as a restrictive feature). The soil shrinks when dry and swells when wet.

Side slope. The erosional slope around the sides of an erosional fan remnant, hill, ballena, mountain, or other landform. It is composed of shoulder slopes, 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.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

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 (as a restrictive feature). The slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specified use.

Slope component. A morphological element of an erosional slope and a morphological subdivision of the side slope landform element.

Small stones (as a restrictive feature). 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.

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 13:1
Slightly sodic	13-46:1
Strongly sodic	more than 46:1

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 blowing (as a restrictive feature). The soil is easily moved by wind.

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 substratum. 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 15 to 35 percent, by volume, rock fragments that are mainly 10 to 24 inches in diameter. Very stony soil material is 35 to 60 percent stone-sized rock fragments, and extremely stony soil material is 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).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from about 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

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. The water just downstream of a 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.

Terrace. Any part of a general slope that stands above a short, steep scarp and has a generally flat, nearly level or gently sloping summit. It may have another short scarp above the summit. Synonym: bench.

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.

Too arid (as a restrictive feature). The soil is dry most of the time, and vegetation is difficult to establish.

Too clayey (as a restrictive feature). The soil is slippery and sticky when wet and is slow to dry.

Too crusty (as a restrictive feature). Crusting of the soil surface interferes with water intake and seedling emergence.

Too sandy (as a restrictive feature). The soil is soft and loose; it is droughty and low in fertility.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Valley. An elongated depressional area cut by stream erosion and the associated water erosion of its side slopes (stream valley). Also used to describe intermontane basins.

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 run-on, and from a capillary fringe minus runoff.

Water table. The upper level of ground water or that level below which the soil is saturated.

Water table (perched). The water table of a saturated layer of soil that is separated from an underlying saturated layer by an unsaturated layer.

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.

Wetness (as a restrictive feature). The soil is wet during the period of use.

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.

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)	---	>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	<2.5	Wetness.
11. Flooding	None, rare	Common	---	Flooding.
12. Slope (percent)	<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."

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 in the upper 40 inches (great group or phase)	---	---	>12 (natric, halic, alkali phases)	Excess sodium.
10. Salinity (mmhos/cm)	<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* if 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.

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."

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."

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 in the upper 40 inches (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)	<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 in the upper 40 inches (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.

Sand

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. USDA texture	---	Ice	Permafrost.
2. Unified [1]	SW, SP, SW-SM, SP-SM	---	---
	GW, GP, GW-GM, GP-GM [2]	---	---
	---	GW, GP, GW-GM, GP-GM [3]	Small stones.
	---	PT	Excess humus.
	---	All other	Excess fines.
3. Layer thickness (inches)	>36	<36	Thin layer.
4. Fraction greater than 3 inches (percent by weight) [4]	<50	>50	Large stones.

[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, SP, SW-SM, SP-SM [2]	SW, SP, SW-SM, SP-SM [3]	Too sandy.
	---	PT	Excess humus.
	---	All other	Excess fines.
3. Layer thickness (inches)	>36	<36	Thin layer.
4. Fraction greater than 3 inches (percent by weight) [4]	<50	>50	Large stones.

[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.

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 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."

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

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 20-60%; 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.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

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
Recorded in the period 1951-78 at Austin											
January	41.0	19.0	30.0	61	-8	10	1.02	0.45	1.50	4	12.1
February	43.9	21.8	32.9	63	0	40	1.17	.47	1.75	5	12.6
March	47.8	23.8	35.8	69	3	67	1.33	.41	2.06	4	13.6
April	54.8	29.0	41.9	77	12	161	1.68	.42	2.67	5	17.5
May	65.6	37.5	51.6	87	19	379	1.36	.38	2.15	4	6.0
June	76.9	45.6	61.0	95	29	630	1.35	.36	2.15	3	.5
July	87.3	53.9	70.6	98	40	949	.62	.12	1.00	2	.0
August	84.9	52.2	68.6	96	36	887	.68	.06	1.14	2	.0
September	76.2	44.7	60.5	92	25	615	.70	.05	1.19	2	.2
October	64.8	36.0	50.4	84	15	348	.87	.08	1.43	2	3.6
November	50.3	26.7	38.6	70	5	76	.94	.39	1.40	3	5.9
December	41.7	20.4	31.1	59	-4	24	1.18	.28	1.89	5	12.6
Yearly:											
Average	61.2	34.2	47.8	---	---	---	---	---	---	---	---
Extreme	---	---	---	98	-9	---	---	---	---	---	---
Total	---	---	---	---	---	4,186	12.90	10.31	16.53	41	84.6
Recorded in the period 1951-78 at Battle Mountain											
January	41.3	16.2	28.7	62	-16	36	0.58	0.23	0.88	3	4.9
February	47.6	21.7	34.7	68	-2	54	.56	.17	.88	2	4.2
March	53.4	24.3	38.9	76	3	86	.61	.15	.98	3	3.6
April	61.8	29.4	45.6	83	12	198	.79	.21	1.25	3	3.1
May	72.3	38.0	55.2	94	19	477	.77	.12	1.27	3	.4
June	82.1	45.6	63.8	99	29	714	1.04	.22	1.68	3	.0
July	93.0	51.7	72.4	104	39	1,004	.26	.04	.43	1	.0
August	90.4	48.2	69.3	103	31	908	.34	---	.62	1	.0
September	81.0	39.1	60.1	97	21	603	.47	---	.80	1	.0
October	68.5	29.7	49.2	87	12	295	.57	---	.99	2	.2
November	52.2	22.0	37.2	73	0	62	.57	.20	.87	2	1.9
December	41.8	15.9	28.9	61	-14	22	.77	.26	1.19	3	6.5
Yearly:											
Average	65.5	31.8	48.7	---	---	---	---	---	---	---	---
Extreme	---	---	---	104	-19	---	---	---	---	---	---
Total	---	---	---	---	---	4,459	7.33	5.34	9.17	27	24.8

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

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
Recorded in the period 1965-78 at Central Field Laboratory											
January----	42.6	13.4	28.0	61	-17	0	0.49	0.18	0.74	1	5.9
February---	46.9	17.9	32.5	65	-10	17	.49	.18	.75	1	5.8
March------	52.5	21.2	36.9	74	-7	68	.49	.10	.78	1	3.8
April------	56.7	24.0	40.4	77	5	109	.71	.23	1.09	2	7.6
May--------	70.3	32.1	51.4	89	14	360	.61	.18	.95	2	2.2
June-------	78.7	40.3	59.4	94	22	582	1.13	.05	1.93	3	.1
July-------	88.5	45.9	67.2	97	32	843	.53	.11	.85	1	.0
August-----	86.4	43.2	64.8	96	28	769	.84	.18	1.34	2	.0
September--	77.6	34.7	56.2	91	15	486	.56	.01	.93	2	.0
October----	65.5	24.9	45.2	81	5	179	.57	---	1.00	1	.8
November---	52.5	20.1	36.3	72	-1	22	.47	.24	.67	2	2.9
December---	40.2	11.1	26.0	59	-19	12	.47	.20	.69	2	6.3
Yearly:											
Average--	63.2	27.4	45.4	---	---	---	---	---	---	---	---
Extreme--	---	---	---	97	-23	---	---	---	---	---	---
Total----	---	---	---	---	---	3,447	7.36	6.26	8.61	20	35.4

* 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

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Recorded in the period 1951-78 at Austin			
Last freezing temperature in spring:			
1 year in 10 later than--	May 21	June 8	June 19
2 years in 10 later than--	May 14	June 2	June 13
5 years in 10 later than--	May 3	May 21	June 3
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 27	Sept. 27	Sept. 5
2 years in 10 earlier than--	Oct. 4	Sept. 23	Sept. 11
5 years in 10 earlier than--	Oct. 18	Oct. 4	Sept. 23
Recorded in the period 1951-78 at Battle Mountain			
Last freezing temperature in spring:			
1 year in 10 later than--	May 18	June 4	June 21
2 years in 10 later than--	May 13	May 28	June 14
5 years in 10 later than--	May 3	May 15	May 31
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 16	Sept. 3	Aug. 26
2 years in 10 earlier than--	Sept. 21	Sept. 9	Aug. 31
5 years in 10 earlier than--	Oct. 1	Sept. 20	Sept. 11

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Recorded in the period 1965-78 at Central Field Laboratory			
Last freezing temperature in spring:			
1 year in 10 later than--	June 19	June 29	June 3
2 years in 10 later than--	June 11	June 22	June 27
5 years in 10 later than--	May 27	June 10	June 17
First freezing temperature in fall:			
1 year in 10 earlier than--	Aug. 31	Aug. 22	July 16
2 years in 10 earlier than--	Sept. 8	Aug. 29	July 28
5 years in 10 earlier than--	Sept. 23	Sept. 11	Aug. 20

TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
Recorded in the period 1951-78 at Austin			
9 years in 10	138	112	88
8 years in 10	148	120	96
5 years in 10	168	136	111
2 years in 10	188	151	127
1 year in 10	198	159	135
Recorded in the period 1951-78 at Battle Mountain			
9 years in 10	129	99	73
8 years in 10	137	109	83
5 years in 10	151	127	103
2 years in 10	165	146	122
1 year in 10	173	155	133
Recorded in the period 1965-78 at Central Field Laboratory			
9 years in 10	83	60	17
8 years in 10	95	71	33
5 years in 10	118	92	64
2 years in 10	141	113	95
1 year in 10	153	124	111

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
120	Akerue-Simpark-Robson association	12,660	0.8
121	Akerue-Simpark-Punchbowl association	7,920	0.5
141	Unsel-Wardenot-Belted association	8,275	0.5
142	Unsel-Caphor-Chedehap association	3,225	0.2
150	Chedehap-Enko-Ricert association	6,130	0.4
160	Batan association	1,800	0.1
161	Batan silt loam	1,470	0.1
162	Batan-Kelk association	4,485	0.3
168	Batan-Bubus-Ocala association	7,765	0.5
169	Batan-Ocala association	1,525	0.1
170	Beoska-Orovada association	3,270	0.2
171	Beoska silt loam, 2 to 8 percent slopes	4,255	0.3
172	Beoska-Tenabo complex	8,770	0.6
173	Beoska-Allor association	4,320	0.3
174	Beoska-Chiara association	1,165	0.1
175	Beoska-Whirlo-Misad association	965	0.1
177	Beoska-Dewar-Orovada association	4,560	0.3
180	Needle Peak-Batan-Yobe association	7,205	0.5
190	Wardenot-Sundown association	2,395	0.2
191	Wardenot-Laxal association	2,115	0.1
200	Izo-Misad association	11,765	0.8
201	Izo-Bubus association	1,545	0.1
210	Laxal association	20,480	1.3
211	Laxal gravelly fine sandy loam, occasionally flooded, 0 to 2 percent slopes	2,040	0.1
212	Laxal-Tomel association	3,040	0.2
220	Blackhawk very fine sandy loam, 2 to 8 percent slopes	1,335	0.1
221	Blackhawk-Tenabo-Desatoya Variant association	1,295	0.1
231	Broyles very fine sandy loam, 2 to 4 percent slopes	1,125	0.1
235	Broyles-Creemon association	1,765	0.1
236	Broyles association	2,860	0.2
237	Broyles-Beoska-Orovada association	7,935	0.5
239	Broyles-Tessfive-Perlor association	2,790	0.2
249	Bubus association	795	0.1
260	Umberland-Wendane association	5,530	0.4
261	Umberland-Wendane-Ocala association	3,790	0.2
262	Umberland silt loam, frequently flooded, 0 to 2 percent slopes	545	*
270	Tomel-Laxal association	380	*
280	Chiara-Filiran association	5,770	0.4
284	Chiara-Dewar association	1,565	0.1
290	Creemon silt loam, 0 to 2 percent slopes	3,005	0.2
291	Creemon-Wholan association	12,460	0.8
295	Creemon-Cren association	4,150	0.3
296	Creemon-Hessing association	19,210	1.2
297	Creemon-Rasille-Tulase association	2,840	0.2
298	Creemon-Misad association	2,945	0.2
301	Cren-Ocala-Playas association	2,785	0.2
310	Yobe-Kawich-Playas association	1,810	0.1
320	Newpass-Jung association	16,380	1.1
321	Newpass-Old Camp association	16,625	1.1
360	Eastwell-Blackhawk-Pineval association	3,785	0.2
404	Glean-Gando association	890	0.1
441	Gund-Umberland association	4,265	0.3
442	Gund-Bubus-Wendane association	3,560	0.2
443	Gund-Batan association	2,165	0.1
444	Gund association	2,845	0.2
461	Hapgood-Packer-Layview association	15,200	1.0
463	Hapgood-Packer-Rubble land association	1,245	0.1
465	Hapgood-Halacan-Hatur association	3,840	0.2
491	Enko-Orovada association, gently sloping	19,035	1.2
492	Enko-Glyphs association	2,790	0.2
493	Enko-Orovada association, nearly level	1,100	0.1
512	Hessing-Relley association	520	*
560	Jesse Camp silt loam	945	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
621	Loncan-Gando-Glean association	1,485	0.1
632	McConnel-Orovada-Misad association	7,285	0.5
633	McConnel-Rasille-Wholan association	42,315	2.7
635	McConnel-Rasille association	3,620	0.2
636	McConnel-Defler-Rasille association	2,325	0.1
637	McConnel-Orovada association	2,045	0.1
638	McConnel-Wholan association	4,220	0.3
670	Filiran-Pineval-Kingingham association	4,070	0.3
674	Filiran-Buffaran association	4,505	0.3
675	Filiran-Buffaran-Orovada association	3,610	0.2
680	Skullwak-Umberland-Wendane association	1,785	0.1
683	Ocala-Sonoma-Paranat association	8,880	0.6
700	Orovada-Rasille-Wholan association	28,985	1.9
701	Orovada fine sandy loam, 2 to 4 percent slopes	1,975	0.1
702	Orovada-Creemon association	1,305	0.1
703	Orovada fine sandy loam, 0 to 2 percent slopes	885	0.1
704	Orovada-McConnel association	2,965	0.2
705	Orovada-Valmy association	2,110	0.1
740	Playas	14,655	0.9
751	Poorcal-Lopwash association	1,410	0.1
811	Ravenswood-Itca-Walti association	1,790	0.1
812	Ravenswood-Shagnasty-Walti association	4,245	0.3
850	Relley silt loam, 0 to 2 percent slopes	995	0.1
854	Relley silt loam, frequently flooded, 0 to 2 percent slopes	2,530	0.2
910	Rutab loam, 0 to 2 percent slopes	2,210	0.1
931	Shagnasty-Roca-Rock outcrop association	15,125	1.0
932	Shagnasty-Softscrabble association	9,045	0.6
942	Shipley silt loam, occasionally flooded, 0 to 2 percent slopes	800	0.1
950	Silverado sandy loam, 0 to 2 percent slopes	1,325	0.1
990	Sonoma-Wendane association	3,980	0.3
998	Sonoma-Paranat association	8,430	0.5
999	Sonoma-Wendane-Paranat association	4,420	0.3
1011	Stampede-Handy-Caniwe association	1,460	0.1
1041	Tenabo-Orovada-Buffaran association	4,775	0.3
1042	Tenabo-Ricert-Desatoya association	2,045	0.1
1092	Tulase-Bubus-McConnel association	2,900	0.2
1131	Fortank gravelly loam, 4 to 8 percent slopes	785	0.1
1140	Wendane silt loam, frequently flooded	10,726	0.7
1141	Wendane-Umberland association	4,070	0.3
1142	Wendane-Gund association	10,900	0.7
1143	Wendane silt loam, occasionally flooded	2,020	0.1
1145	Wendane-Playas association	1,810	0.1
1146	Wendane-Sonoma-Valmy association	9,115	0.6
1148	Wendane-Bubus association	6,090	0.4
1169	Whirlo-Broyles association	395	*
1173	Wholan silt loam, alkaline	1,420	0.1
1177	Wholan-Rasille association, alkaline	3,125	0.2
1178	Wholan-Rasille association, nonalkaline	17,740	1.1
1281	Ricert-Whirlo-Pineval association	2,110	0.1
1282	Ricert-Broyles association	7,595	0.5
1284	Ricert-Zineb-Pineval association	6,080	0.4
1285	Ricert-Bubus-Broyles association	1,480	0.1
1286	Ricert-Tenabo-Broyles association	3,480	0.2
1287	Ricert-Orovada-Broyles association	8,385	0.5
1288	Ricert-Orovada-Tenabo association	16,150	1.0
1289	Ricert-Blackhawk-Orovada association	6,140	0.4
1371	Chad-Gando-Softscrabble association	2,530	0.2
1450	Atlow-Stingdorn association	1,480	0.1
1600	Dumps and pits	640	*
1670	Wieland-Allor association	8,915	0.6
1680	Zineb gravelly loam, 2 to 8 percent slopes	2,040	0.1
1681	Zineb-Chiara-Wieland association	3,015	0.2
1682	Zineb-Orovada association	8,425	0.5

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
2003	Unius-Orovada association	5,640	0.4
2010	Glyphs-Silverado association	2,170	0.1
2011	Glyphs-Muni association	10,845	0.7
2012	Glyphs-Muni-Orovada association	12,410	0.8
2015	Glyphs-Enko association	5,090	0.3
2021	Rotinom-Wholan association	9,460	0.6
2022	Rotinom-Orovada association	5,260	0.3
2031	Muni-Orovada-Unius association	38,090	2.5
2060	Oxcorel-Beoska-Whirlo association	6,180	0.4
2061	Oxcorel-Zaidy-Grassval association	11,485	0.7
2063	Oxcorel-Pineval association	4,105	0.3
2069	Oxcorel-Wieland-Spasprey association	4,515	0.3
2081	Fenster-Jesse Camp association	275	*
2088	Punchbowl-Jung-Teguro association	2,570	0.2
2089	Punchbowl-Jung-Locane association	11,490	0.7
2090	Punchbowl gravelly loam, 4 to 15 percent slopes	2,050	0.1
2091	Punchbowl-Teguro-Sumine association	10,480	0.7
2092	Punchbowl-Belate-Reluctan association	2,125	0.1
2093	Punchbowl-Rock outcrop association	9,520	0.6
2094	Punchbowl-Simpark-Akerue association	13,220	0.9
2095	Punchbowl-Robson-Rock outcrop association	2,775	0.2
2096	Punchbowl-Locane-Nobuck association	9,525	0.6
2097	Punchbowl-Itca association	5,725	0.4
2099	Punchbowl-Roca-Rock outcrop association	890	0.1
2100	Grassval-Grina-Unsel Variant association	1,685	0.1
2101	Grassval-Oxcorel association	12,020	0.8
2102	Grassval-Wieland association	1,120	0.1
2104	Grassval-Punchbowl association	8,025	0.5
2105	Grassval-Glyphs-Muni association	8,940	0.6
2110	Isolde-Davey association	625	*
2540	Buffaran-Wieland association	5,075	0.3
2541	Buffaran-Zoesta association	2,030	0.1
2542	Buffaran-Chiara association	20,795	1.3
2543	Buffaran-Spasprey-Allor association	17,795	1.1
2545	Buffaran-Pineval association	1,250	0.1
2546	Buffaran-Spasprey-Locane association	3,055	0.2
2547	Buffaran-Desatoya association	4,710	0.3
2548	Buffaran-Tenabo-Pineval association	5,495	0.4
2554	Laped-Hooplite-Osoll association	5,730	0.4
2555	Laped-Colbar association	4,575	0.3
2570	Colbar-Atlow-Burrita association	3,565	0.2
2603	Grina-Genaw association	1,360	0.1
2640	Rasille-Kelk association	885	0.1
2672	Zoesta Variant-Jung-Trunk association	3,035	0.2
2681	Tessfive-Puett-Grina association	4,735	0.3
2683	Tessfive-Genaw-Orovada association	4,230	0.3
2684	Tessfive-Perlor-Orovada association	3,700	0.2
2690	Itca Variant-Reluctan-Handy association	2,390	0.2
2730	Pula-Spike-Buffaran association	3,840	0.2
2731	Pula-Spike association	2,505	0.2
2740	Spike-Desatoya Variant-Grassval association	5,745	0.4
2771	Kram-Hopeka-Rock outcrop association	1,215	0.1
2780	Desatoya-Tenabo-Pineval association	2,045	0.1
2781	Desatoya-Orovada association	9,325	0.6
2782	Desatoya-Pineval-Grassval association	7,460	0.5
2783	Desatoya-Spike association	3,290	0.2
2791	Old Camp-Colbar-Rock outcrop association	4,015	0.3
2792	Old Camp-Allor-Puett association	3,840	0.2
2793	Old Camp-Laped association	2,035	0.1
2797	Old Camp-Colbar association	15,855	1.0
2798	Old Camp-Atlow-Osoll association	1,670	0.1
3001	Barrier-Kobeh association	4,940	0.3
3011	Defler-Orovada association	2,250	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
3050	Novacan cobbly loam, 2 to 8 percent slopes	2,635	0.2
3071	Allor-Wieland association	14,650	0.9
3072	Allor-Orovada association, moderately sloping	11,585	0.7
3073	Allor-Kelk association	2,255	0.1
3074	Allor-Orovada association, nearly level	2,190	0.1
3080	Zaidy-Ricert association	3,450	0.2
3081	Zaidy-Allor association	5,435	0.3
3091	Packer-Newlands association	1,350	0.1
3092	Packer-Hapgood-Rock outcrop association	2,040	0.1
3093	Packer-Layview-Hapgood association	7,810	0.5
3094	Packer-Hapgood-Torro association	10,290	0.7
3101	Hackwood-Newlands-Hapgood association	1,025	0.1
3111	Ninemile-Zoesta-Itca association	3,515	0.2
3120	Walti-Softscrabble-Chad association	3,265	0.2
3121	Walti-Softscrabble-Bucan association	4,320	0.3
3122	Walti-Sumine-Softscrabble association	10,005	0.6
3123	Walti-Softscrabble-Itca association	5,325	0.3
3125	Walti-Softscrabble-Robson association	800	0.1
3130	Itca-Clanalpine-Reluctan association	9,435	0.6
3131	Itca-Ninemile-Rock outcrop association	3,380	0.2
3132	Itca-Softscrabble-Cleavage association	2,675	0.2
3134	Itca-Clanalpine-Torro association	18,670	1.2
3135	Itca-Clanalpine-Rock outcrop association	4,295	0.3
3136	Itca-Roca-Reluctan association	21,745	1.4
3137	Itca-Reluctan-Walti association	6,625	0.4
3140	Sodhouse-Tenabo-Desatoya Variant association	1,940	0.1
3151	Robson-Ninemile-Ravenswood association	4,755	0.3
3153	Robson-Locane-Softscrabble association	4,970	0.3
3154	Robson-Locane-Rock outcrop association	3,555	0.2
3155	Robson-Itca-Softscrabble association	3,530	0.2
3170	Teguro-Rubble land-Punchbowl association	2,275	0.1
3181	Newlands-Packer-Hapgood association, moderately steep	6,495	0.4
3182	Newlands-Packer-Hapgood association, strongly sloping	3,330	0.2
3190	Softscrabble-Clanalpine-Walti association	12,080	0.8
3192	Softscrabble-Walti-Cleavage association	2,315	0.1
3200	Dewar gravelly loam, 2 to 8 percent slopes	5,880	0.4
3210	Typic Argixerolls-Torripsammentic Haploxerolls-Glean association	1,200	0.1
3231	Stingdorn-Hooplite association	3,595	0.2
3251	Caphor-Tenabo-Spasprey association	2,130	0.1
3252	Caphor-Batan-Unsel association	9,280	0.6
3253	Caphor association	5,665	0.4
3270	Koyen fine sandy loam, 2 to 4 percent slopes	340	*
3310	Spasprey-Allor association	12,205	0.8
3312	Spasprey-Buffaran-Orovada association	3,665	0.2
3314	Spasprey-Allor-Orovada association	5,100	0.3
3341	Halacan-Hatur-Rock outcrop association	1,425	0.1
3342	Halacan-Hapgood-Granzan association	4,860	0.3
3411	Zoesta-Robson-Softscrabble association	12,560	0.8
3415	Zoesta-Handy association	2,710	0.2
3417	Zoesta-Roca-Softscrabble association	1,830	0.1
3421	Belate-Softscrabble-Torro association	14,860	1.0
3422	Belate-Robson-Torro association	2,450	0.2
3423	Belate-Cleavage-Softscrabble association	9,345	0.6
3450	Reluctan-Robson-Cleavage association	2,885	0.2
3453	Reluctan-Locane-Itca association	15,785	1.0
3455	Reluctan-Roca-Colbar association	1,820	0.1
3457	Reluctan-Clanalpine-Roca association	2,440	0.2
3461	Torro-Rubble land-Cleavage association	1,535	0.1
3462	Torro-Reluctan-Cleavage association	2,420	0.2
3463	Torro-Clanalpine-Itca association	1,605	0.1
3464	Torro-Itca-Softscrabble association	7,420	0.5
3465	Torro-Clanalpine-Softscrabble association	4,195	0.3
3562	Locane-Coztur-Punchbowl association	14,370	0.9

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
3563	Locane-Muni association	4,565	0.3
3625	Minat-Coztur-Belate association	1,585	0.1
3690	Izod-Koynik-Rock outcrop association	1,400	0.1
3740	Kelk silt loam, saline	1,480	0.1
3741	Kelk-Settlemeyer association	3,540	0.2
3742	Kelk-Ocala association	4,450	0.3
3840	Jung-Newpass association	14,670	0.9
3841	Jung-Itca-Roca association	14,260	0.9
3842	Jung-Hooplite association	7,460	0.5
3843	Jung-Newpass-Teguro association	4,115	0.3
3845	Jung-Stingdorn-Atlow association	3,605	0.2
3846	Jung-Atlow-McVegas association	5,935	0.4
3847	Jung-Old Camp-Clanalpine association	265	*
3848	Jung-McVegas-Enko association	2,945	0.2
3851	Decram-Hapgood association	4,710	0.3
3852	Decram-Hapgood-Chad association	3,605	0.2
3861	Duco-Itca-Roca association	4,930	0.3
3863	Duco-Clanalpine-Jung association	1,080	0.1
3881	Layview-Packer-Hapgood association	2,095	0.1
3891	Labshaft-Hapgood-Rock outcrop association	1,790	0.1
3950	Hooplite-Jung-Izod association	3,000	0.2
3951	Hooplite-Old Camp-Puett association	1,345	0.1
3952	Hooplite-Stingdorn association	5,650	0.4
3960	Pineval gravelly loam, 2 to 4 percent slopes	1,130	0.1
3961	Pineval-Orovada-Beoska association	4,420	0.3
3964	Pineval-Orovada association	17,190	1.1
3990	Settlemeyer fine sandy loam, drained, 0 to 2 percent slopes	975	0.1
3991	Settlemeyer-Pineval association	3,340	0.2
3992	Settlemeyer complex	1,185	0.1
4041	Hymas-Xine-Attella association	9,255	0.6
4070	Genaw-Wieland-Grina association	2,125	0.1
4072	Genaw-Orovada-Puett association	3,155	0.2
4073	Genaw-Broyles-Perlor association	3,060	0.2
4140	Welch loam, drained, 2 to 8 percent slopes	1,825	0.1
	Total	1,554,671	100.0

* Less than 0.1 percent.

TABLE 5.--ENGINEERING INDEX PROPERTIES

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	
120*:											
Akerue	0-3	Very stony loam	SM-SC	A-4	30-40	75-80	55-65	50-60	40-50	25-30	5-10
	3-15	Very cobbly clay loam, very cobbly clay.	GC, SC, CL	A-7	40-55	60-85	50-80	45-65	35-55	40-50	15-25
	15-21	Indurated	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simpark	0-13	Very stony loam	SM-SC	A-2, A-4	25-40	65-80	50-70	45-60	25-40	20-25	5-10
	13-18	Very cobbly loam, very gravelly loam.	GC, SC	A-2, A-6	10-40	60-75	30-65	25-55	20-45	25-35	10-15
	18-22	Indurated	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Robson	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
121*:											
Akerue	0-3	Very cobbly loam	SM-SC	A-4	30-40	75-80	55-65	50-60	40-50	25-30	5-10
	3-15	Very cobbly clay loam, very cobbly clay.	GC, SC, CL	A-7	40-55	60-85	50-80	45-65	35-55	40-50	15-25
	15-21	Indurated	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simpark	0-13	Very cobbly loam	SM-SC	A-2, A-4	40-55	65-80	50-70	45-60	25-40	20-25	5-10
	13-18	Very cobbly loam, very gravelly loam.	GC, SC	A-2, A-6	10-40	60-75	30-65	25-55	20-45	25-35	10-15
	18-22	Indurated	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Punchbowl	0-3	Gravelly loam	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	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	
141*:											
Unsel	0-8	Gravelly fine sandy loam.	SM-SC	A-2	0	75-85	55-75	40-60	25-35	25-30	5-10
	8-18	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0	75-85	55-75	45-60	35-45	35-40	15-20
	18-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC	A-2	0	60-75	50-70	35-50	20-35	20-30	5-10
	31-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand.	GP-GM, GP	A-1	0	40-50	20-35	10-25	0-10	---	NP
Wardenot	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
Belted	0-4	Gravelly fine sandy loam.	SM, GM	A-1, A-2	0-10	55-80	50-75	40-60	15-30	---	NP
	4-14	Sandy clay loam, loam, gravelly clay loam.	SC, CL	A-6, A-2	0	65-100	55-100	45-80	25-60	30-40	10-15
	14-25	Cemented	---	---	---	---	---	---	---	---	---
	25-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0-15	20-40	15-35	10-20	0-5	---	NP
142*:											
Unsel	0-8	Gravelly fine sandy loam.	SM-SC	A-2	0	75-85	55-75	40-60	25-35	25-30	5-10
	8-18	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0	75-85	55-75	45-60	35-45	35-40	15-20
	18-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC	A-2	0	60-75	50-70	35-50	20-35	20-30	5-10
	31-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand.	GP-GM, GP	A-1	0	40-50	20-35	10-25	0-10	---	NP
Caphor	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Sandy loam, fine sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	17-35	Sandy loam, fine sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
142*:											
Chedehap--------	0-5	Coarse sandy loam	SM	A-1, A-2	0-5	90-100	85-95	35-50	20-35	15-25	NP-5
	5-12	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	12-37	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	37-60	Coarse sand, loamy coarse sand.	SM	A-1	0-5	90-100	85-95	20-40	10-20	---	NP
150*:											
Chedehap--------	0-5	Coarse sandy loam	SM	A-1, A-2	0-5	90-100	85-95	35-50	20-35	15-25	NP-5
	5-12	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	12-37	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	37-60	Coarse sand, loamy coarse sand.	SM	A-1	0-5	90-100	85-95	20-40	10-20	---	NP
Enko----------	0-6	Gravelly fine sandy loam.	SM-SC	A-2	0	60-80	50-75	40-65	15-30	20-25	5-10
	6-12	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	12-18	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
	18-60	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
Ricert----------	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
160*:											
Batan----------	0-5	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Batan, slightly saline---------	0-5	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-35	NP-5
	5-68	Stratified silt loam to silty clay.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25

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	
161---------- Batan	0-5	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
162*:											
Batan----------	0-5	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Kelk, saline----	0-3	Silt loam--------	CL-ML, ML	A-4	0	100	100	95-100	85-95	25-35	5-10
	3-20	Silt loam--------	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	20-40	Silt loam--------	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	40-60	Silt loam--------	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
Kelk, occasionally flooded-------	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
168*:											
Batan----------	0-5	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Bubus----------	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
Ocala----------	0-4	Silt loam--------	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-36	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
169*:											
Batan----------	0-5	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Ocala, occasionally flooded-------	0-4	Silty clay loam	CL, ML	A-7	0	100	100	95-100	85-95	40-50	15-20
	4-36	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
Ocala, rarely flooded--------	0-6	Silty clay loam	CL, ML	A-7	0	100	100	95-100	85-95	40-50	15-20
	6-13	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	13-60	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
170*:											
Beoska	0-13	Gravelly sandy loam.	SM	A-1, A-2	0-10	70-80	55-75	35-60	20-35	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	60-80	55-70	30-50	20-35	---	NP
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	---	NP
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
171	0-13	Silt loam	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
Beoska	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
172*:											
Beoska	0-13	Silt loam	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	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	
172*:											
Tenabo	0-13	Silt loam	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	13-20	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	20-39	Indurated	---	---	---	---	---	---	---	---	---
	39-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
173*:											
Beoska	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
174*:											
Beoska	0-13	Silt loam	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
174*:											
Chiara	0-5	Fine sandy loam	SM	A-4	0	95-100	90-100	65-75	40-50	---	NP
	5-16	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	16-20	Indurated	---	---	---	---	---	---	---	---	---
175*:											
Beoska	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Whirlo	0-12	Silt loam	ML	A-4	0	80-95	75-90	70-85	55-70	20-25	NP-5
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
Misad	0-7	Gravelly sandy loam.	SM, SM-SC	A-1, A-2	0-5	65-80	55-70	45-60	20-35	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP

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	
177*:											
Beoska	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Dewar	0-4	Gravelly loam	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	4-14	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
	14-50	Indurated	---	---	---	---	---	---	---	---	---
Orovada	0-8	Gravelly very fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	45-70	30-50	15-25	NP-5
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
180*:											
Needle Peak	0-8	Silt loam	CL, ML	A-6, A-7	0	100	100	95-100	80-90	30-45	10-15
	8-60	Silt loam, silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
Batan	0-5	Silt loam	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Yobe	0-16	Silt loam	ML	A-4, A-6	0	100	95-100	95-100	75-90	30-40	5-15
	16-60	Silty clay loam, silt loam.	CL, ML	A-6, A-7	0	100	95-100	95-100	85-90	30-50	10-20
190*:											
Wardenot	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
Sundown	0-7	Fine sand	SM, SP-SM	A-2, A-3	0	95-100	85-100	80-90	5-20	---	NP
	7-60	Loamy fine sand	SM	A-2	0-5	95-100	85-100	70-85	15-30	---	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	
191*:											
Wardenot	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
Laxal	0-10	Very gravelly fine sandy loam.	GM-GC, GM	A-1, A-2	5-10	45-60	35-50	30-40	10-25	15-25	NP-10
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
Wardenot, strongly saline	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
200*:											
Izo	0-2	Very gravelly loamy sand.	GM, GP-GM, SM, SP-SM	A-1	0-15	35-60	30-50	15-35	5-15	---	NP
	2-60	Stratified gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-40	15-35	10-20	0-10	---	NP
Misad	0-7	Gravelly sandy loam.	SM, SM-SC	A-1, A-2	0-5	65-80	55-70	45-60	20-35	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP
201*:											
Izo	0-2	Gravelly loam	SM, GM	A-2, A-4	0-5	60-80	55-75	35-65	30-50	15-25	NP-5
	2-60	Stratified gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-40	15-35	10-20	0-10	---	NP

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	
201*:											
Bubus	0-4	Very gravelly very fine sandy loam.	GM	A-1, A-2	0	35-60	25-50	20-45	10-35	25-30	NP-5
	4-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
210*:											
Laxal	0-6	Gravelly fine sandy loam.	GM	A-2, A-4	0-5	60-70	50-60	40-50	25-40	20-30	NP-5
	6-60	Stratified very gravelly sandy loam to very gravelly loamy coarse sand.	GM	A-1	0-15	35-45	30-40	15-25	10-15	---	NP
Laxal, occasionally flooded	0-10	Very gravelly fine sandy loam.	GM-GC, GM	A-1, A-2	5-10	45-60	35-50	30-40	10-25	15-25	NP-10
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
211 Laxal	0-10	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0-5	60-80	50-75	45-65	25-40	20-25	NP-5
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
212*:											
Laxal	0-10	Gravelly fine sandy loam.	GM	A-2, A-4	0-5	60-70	50-60	40-50	25-40	20-30	NP-5
	10-60	Stratified very gravelly sandy loam to very gravelly loamy coarse sand.	GM	A-1	0-15	35-45	30-40	15-25	10-15	---	NP
Tomel	0-4	Gravelly fine sandy loam.	GM-GC, SM-SC	A-2, A-4	0	55-80	50-75	40-65	15-40	20-25	5-10
	4-18	Very gravelly silty clay loam, very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2, A-6	0	40-60	35-50	25-45	25-45	30-40	10-20
	18-33	Indurated	---	---	---	---	---	---	---	---	---
	33-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	20-40	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	
212*: Laxal, occasionally flooded	0-10	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0-5	60-80	50-75	45-65	25-40	20-25	NP-5
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
220--- Blackhawk	0-8	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	8-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-17	Cemented---	---	---	---	---	---	---	---	---	---
	17-38	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	38-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP
221*: Blackhawk---	0-8	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	8-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-17	Cemented---	---	---	---	---	---	---	---	---	---
	17-38	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	38-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP
Tenabo---	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	4-15	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	15-28	Indurated---	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
221*:											
Desatoya Variant	0-3	Very gravelly sandy loam.	GM-GC	A-2	0	45-60	35-50	25-40	10-25	20-30	5-10
	3-13	Gravelly clay loam, gravelly sandy clay loam.	SC, CL	A-6, A-7	0	70-85	55-70	45-60	40-55	35-45	15-20
	13-26	Very gravelly sandy loam.	GM	A-1	0	45-60	35-50	25-40	10-25	15-20	NP-5
	26-60	Very gravelly sand.	GP-GM, SP-SM	A-1	0	45-60	35-50	20-35	5-10	---	NP
231----------	0-11	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
Broyles	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
235*:											
Broyles---------	0-11	Silt loam--------	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
Creemon---------	0-7	Silt loam--------	ML	A-4	0	100	100	95-100	85-90	---	NP
	7-18	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	18-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
236*:											
Broyles---------	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
Broyles, moderately saline--------	0-5	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-100	50-70	20-25	NP-5
	5-11	Silt loam, very fine sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	75-90	40-55	20-25	NP-5
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
237*:											
Broyles---------	0-11	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP

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	
237*:											
Beoska	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
239*:											
Broyles	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
Tessfive	0-6	Gravelly loam----	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Perlor	0-7	Fine sandy loam	SM	A-2, A-4	0-5	85-100	80-100	70-90	25-40	15-25	NP-5
	7-14	Loam, sandy loam, gravelly sandy loam.	SM, ML	A-4	0-5	75-100	70-95	50-80	35-65	15-25	NP-5
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
249*:											
Bubus, slightly saline	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
Bubus	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
260*:											
Umberland	0-11	Silt loam	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	11-60	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
261*:											
Umberland	0-7	Silt loam	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Ocala	0-4	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-16	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	16-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
262	0-7	Silt loam	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
Umberland	7-60	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	90-100	85-95	40-55	20-30
270*:											
Tomel	0-3	Very gravelly sandy loam.	GM	A-1	0	35-60	25-50	20-35	10-25	20-25	NP-5
	3-12	Very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2	0	40-60	35-50	30-40	20-35	30-35	10-15
	12-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0-5	20-40	15-35	10-20	0-5	---	NP
Laxal	0-10	Gravelly loam	GM	A-2, A-4	0-5	60-70	50-60	40-50	25-40	20-30	NP-5
	10-60	Stratified very gravelly sandy loam to very gravelly loamy coarse sand.	GM	A-1	0-15	35-45	30-40	15-25	10-15	---	NP
280*:											
Chiara	0-5	Gravelly loam	SM	A-4	0-5	70-80	55-70	50-65	35-50	15-25	NP-5
	5-16	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	16-20	Indurated	---	---	---	---	---	---	---	---	---

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	
280*:											
Filiran	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-5	45-60	35-50	30-40	20-30	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented	---	---	---	---	---	---	---	---	---
284*:											
Chiara	0-5	Gravelly loam	SM	A-4	0-5	70-80	55-70	50-65	35-50	15-25	NP-5
	5-16	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	16-20	Indurated	---	---	---	---	---	---	---	---	---
Dewar	0-4	Gravelly loam	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	4-14	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
	14-50	Indurated	---	---	---	---	---	---	---	---	---
290	0-10	Silt loam	ML	A-4	0	100	100	95-100	85-90	---	NP
Creemon	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
291*:											
Creemon	0-10	Silt loam	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Wholan	0-13	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	13-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Wholan, alkaline	0-13	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	13-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
295*:											
Creemon	0-10	Silt loam	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Cren	0-7	Silt loam	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	7-26	Silt loam	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	26-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
296*:											
Creemon	0-10	Silt loam	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Hessing	0-4	Silt loam	CL-ML	A-4	0	100	100	95-100	85-95	25-30	5-10
	4-11	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
	11-18	Very fine sandy loam, silt loam.	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	18-30	Gravelly loam	GM	A-4	0	60-70	55-65	45-55	35-50	25-30	NP-5
	30-60	Stratified very gravelly loamy coarse sand to extremely gravelly sand.	GP-GM, GW-GM	A-1	0	35-45	20-35	10-20	5-10	---	NP
297*:											
Creemon	0-10	Silt loam	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Rasille	0-6	Very fine sandy loam.	ML	A-4	0	100	100	95-100	60-80	15-25	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
Tulase	0-6	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	60-70	15-25	NP-10
	6-60	Very fine sandy loam, silt loam.	CL-ML, ML	A-4	0	100	100	95-100	70-85	15-25	NP-10
298*:											
Creemon	0-10	Silt loam	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-45	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	45-60	Stratified gravelly very fine sandy loam to fine sandy loam.	SM	A-4	0	80-90	70-85	60-70	35-50	---	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	
298*:											
Misad	0-7	Gravelly sandy loam.	SM, SM-SC	A-1, A-2	0-5	65-80	55-70	45-60	20-35	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP
301*:											
Cren	0-7	Silt loam	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	7-26	Silt loam	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	26-60	Silt loam	ML	A-4	0	100	100	95-100	80-90	15-25	NP-5
Ocala	0-4	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-16	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	16-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
Playas.											
310*:											
Yobe	0-16	Silt loam	ML	A-4, A-6	0	100	95-100	95-100	75-90	30-40	5-15
	16-60	Silty clay loam, silt loam.	CL, ML	A-6, A-7	0	100	95-100	95-100	85-90	30-50	10-20
Kawich	0-4	Fine sand	SM	A-2	0	100	100	75-90	15-30	---	NP
	4-60	Fine sand	SM	A-2	0	100	100	75-90	15-30	---	NP
Playas.											
320*:											
Newpass	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	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	
321*:											
Newpass	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp, strongly sloping	0-2	Gravelly loam	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp, moderately steep	0-2	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-15	50-60	35-45	30-40	20-30	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
360*:											
Eastwell	0-5	Gravelly loam	SM, ML, GM	A-4	0-5	65-80	60-75	40-60	35-55	25-35	NP-10
	5-15	Very gravelly loam, very gravelly sandy loam.	GM, GM-GC, GC	A-1, A-2	0-10	40-60	35-50	20-40	10-30	20-35	NP-15
	15-17	Cemented	---	---	---	---	---	---	---	---	---
	17-60	Very gravelly loam, very cobbly loam.	GM, GM-GC	A-2, A-4	25-45	50-70	45-65	35-55	30-50	20-30	NP-10
Blackhawk	0-3	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	3-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-30	Cemented	---	---	---	---	---	---	---	---	---
	30-48	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	48-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP

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	
360*:											
Pineval	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
404*:											
Glean	0-6	Very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	6-39	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
	39-51	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
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando	0-4	Very cobbly loam	SM	A-2, A-4	30-40	65-75	60-70	40-50	30-40	20-25	NP-5
	4-10	Very gravelly loam, extremely gravelly loam.	GM	A-1, A-2	10-25	30-45	25-40	20-35	15-30	20-25	NP-5
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
441*:											
Gund	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Umberland	0-7	Silt loam	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay loam, silty clay, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
442*:											
Gund	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Bubus	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	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	
442*:											
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
443*:											
Gund	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Batan	0-5	Silt loam	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
444*:											
Gund	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Gund, drained	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
461*:											
Hapgood	0-17	Very gravelly loam.	GM-GC	A-2	5-10	50-60	35-50	30-45	25-35	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Packer	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Layview	0-3	Very gravelly sandy loam.	GM-GC	A-2	10-15	35-60	30-55	20-35	10-20	25-30	5-10
	3-12	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	10-15	35-60	30-55	25-45	20-40	30-40	15-20
	12	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	
463*:											
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Packer	0-10	Extremely cobbly sandy loam.	GM-GC	A-2	40-50	35-50	20-35	15-30	10-25	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	45-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam, very cobbly loam.	GM	A-1, A-2	40-50	40-55	30-50	20-45	10-35	20-25	NP-5
Rubble land.											
465*:											
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Halacan	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	45-55	35-50	30-45	25-40	30-40	NP-5
	5-17	Extremely channery loam, very channery loam.	GM	A-2, A-4, A-1	40-55	30-55	20-50	15-45	10-40	30-40	NP-5
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hatur	0-14	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	25-40	20-35	20-25	NP-5
	14-29	Extremely gravelly loam, extremely gravelly sandy loam.	GM, GP-GM	A-1	0-25	20-30	15-25	10-25	5-20	20-25	NP-5
	29-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
491*:											
Enko	0-6	Sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	6-12	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
	12-18	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
	18-60	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		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
491*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
492*:											
Enko	0-14	Sandy loam	SM, ML	A-4	0	90-100	85-100	50-80	35-55	15-25	NP-5
	14-53	Loam, fine sandy loam, sandy loam.	CL-ML, SM-SC, ML, SM	A-4	0	90-100	85-100	50-90	35-70	15-25	NP-10
	53-63	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand.	GP-GM, GP	A-1	0-20	30-55	25-45	15-25	0-10	---	NP
Glyphs	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
493*:											
Enko	0-6	Sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	6-12	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
	12-18	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
	18-60	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
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
512*:											
Hessing	0-4	Gravelly silt loam.	CL-ML	A-4	0	75-85	60-75	55-65	50-60	25-30	5-10
	4-11	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
	11-18	Very fine sandy loam, silt loam.	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	18-30	Gravelly loam	GM	A-4	0	60-70	55-65	45-55	35-50	25-30	NP-5
	30-60	Stratified very gravelly loamy coarse sand to extremely gravelly sand.	GP-GM, GW-GM	A-1	0	35-45	20-35	10-20	5-10	---	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	
512*:											
Relley	0-8	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	75-90	25-35	5-10
	8-16	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	16-28	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	28-60	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
560	0-4	Silt loam	ML	A-4	0	100	100	90-100	65-80	25-35	NP-10
Jesse Camp	4-12	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-85	25-35	NP-10
	12-60	Silt loam	ML	A-4, A-6	0	100	100	95-100	75-85	30-40	5-15
621*:											
Loncan	0-9	Gravelly loam	GC, CL	A-6	0-15	65-80	60-75	50-70	35-60	30-35	10-15
	9-22	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
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando	0-4	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	4-10	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
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Glean	0-6	Very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	6-39	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
	39-51	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
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
632*:											
McConnel	0-6	Gravelly loam	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
632*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Misad	0-7	Gravelly very fine sandy loam.	SM, SM-SC, GM, GM-GC	A-2, A-4	0-5	65-80	55-70	50-65	30-50	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP
633*:											
McConnel	0-6	Gravelly loam	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
Wholan	0-6	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
635*:											
McConnel	0-6	Gravelly loam	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	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	
635*:											
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	41-60	Stratified fine sandy loam to very gravelly coarse sand.	SM, GM	A-1	0	55-80	50-75	15-35	10-20	---	NP
636*:											
McConnel	0-6	Gravelly loam	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
Defler	0-5	Gravelly fine sandy loam.	GM, SM	A-2, A-4, A-1	0-5	55-80	50-75	40-60	20-40	15-25	NP-5
	5-35	Very gravelly fine sandy loam, very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-10	30-55	25-50	15-40	10-30	15-25	NP-5
	35-70	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	0-10	25-40	20-35	10-20	5-15	---	NP
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
637*:											
McConnel	0-6	Fine sandy loam	ML	A-4	0	95-100	85-95	70-80	50-60	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	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	
637*:											
Orovada	0-8	Very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
McConnel, gravelly	0-6	Gravelly fine sandy loam.	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
638*:											
McConnel	0-6	Fine sandy loam	ML	A-4	0	95-100	85-95	70-80	50-60	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
Wholan	0-6	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
670*:											
Filiran	0-7	Silt loam	ML, CL-ML	A-4	0	90-100	90-100	80-95	50-70	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented	---	---	---	---	---	---	---	---	---
Pineval	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	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	
670*:											
Kingingham------	0-7	Gravelly very fine sandy loam.	SM	A-2, A-4	0-5	70-85	55-70	50-65	30-50	15-25	NP-5
	7-22	Gravelly clay loam, gravelly clay, gravelly silty clay loam.	GC, CL, CH	A-7	0-5	70-85	55-70	50-65	45-60	40-55	20-30
	22-60	Indurated--------	---	---	---	---	---	---	---	---	---
674*:											
Filiran---------	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-5	45-60	35-50	30-40	20-30	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented---------	---	---	---	---	---	---	---	---	---
Buffaran--------	0-5	Extremely gravelly loam.	GC	A-2	0-5	30-45	15-25	10-20	10-15	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated--------	---	---	---	---	---	---	---	---	---
	27-60	Cemented---------	---	---	---	---	---	---	---	---	---
675*:											
Filiran---------	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-5	45-60	35-50	30-40	20-30	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented---------	---	---	---	---	---	---	---	---	---
Buffaran--------	0-5	Gravelly loam----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated--------	---	---	---	---	---	---	---	---	---
	27-60	Cemented---------	---	---	---	---	---	---	---	---	---
Orovada---------	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
680*:											
Skullwak--------	0-10	Silt loam--------	CL	A-6	0	100	100	90-100	85-100	30-40	10-20
	10-60	Stratified silty clay loam to silty clay.	CH, CL	A-7	0	100	100	95-100	90-100	40-60	20-40
Umberland-------	0-7	Silt loam--------	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	90-100	85-95	40-55	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	
680*:											
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
683*:											
Ocala	0-4	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-36	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
Sonoma	0-12	Silt loam	CL	A-6	0	100	100	95-100	75-90	30-35	10-15
	12-60	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	35-50	15-25
Paranat	0-11	Silt loam	ML	A-4	0	100	100	95-100	85-100	25-35	NP-10
	11-60	Silt loam, silty clay loam.	ML	A-4, A-6	0	100	100	95-100	90-100	30-40	5-15
700*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	26-61	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
Wholan	0-6	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
701---	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
Orovada	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
702*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
702*:											
Creemon	0-10	Fine sandy loam	SM	A-4	0	100	100	80-95	35-50	15-20	NP-5
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-45	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	45-60	Stratified gravelly very fine sandy loam to fine sandy loam.	SM	A-4	0	80-90	70-85	60-70	35-50	---	NP
703	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
Orovada	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
704*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
McConnel	0-6	Gravelly fine sandy loam.	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
705*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Valmy	0-3	Very fine sandy loam.	SM	A-4	0	90-100	85-100	60-75	35-50	15-25	NP-5
	3-43	Stratified very fine sandy loam to gravelly coarse sandy loam.	SM	A-4, A-2, A-1	0-5	80-95	75-90	40-70	20-45	15-25	NP-5
	43-66	Gravelly sand, very gravelly sand.	SP-SM, SM, GP-GM, GM	A-1	0-10	40-75	30-70	20-45	5-15	---	NP
740*. Playas											

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	
751*:											
Poorcal	0-9	Loam	CL-ML	A-4	0	95-100	90-100	85-95	60-70	20-25	5-10
	9-30	Gravelly sandy loam, loam, gravelly loam.	SM-SC	A-2, A-4	0	65-90	55-85	40-60	20-50	15-25	5-10
	30-62	Very gravelly loamy sand, very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0	45-60	40-50	15-40	10-35	---	NP
Lopwash	0-12	Loam	CL-ML, SM-SC	A-4	0	90-100	80-90	75-85	45-55	20-25	5-10
	12-60	Very gravelly coarse sandy loam, very gravelly sandy loam.	GM-GC	A-2	0	40-50	30-40	20-30	10-20	20-25	5-10
811*:											
Ravenswood	0-9	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-15	60-75	55-70	45-65	30-45	25-30	5-10
	9-13	Very gravelly clay loam.	GC	A-2	5-15	45-60	35-50	30-45	20-35	40-50	15-25
	13-36	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-15	45-60	35-50	30-45	25-40	40-55	20-30
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca	0-2	Stony loam	CL, CL-ML	A-4, A-6	25-60	70-90	65-85	60-70	50-60	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Walti	0-4	Cobbly loam	CL-ML	A-4	25-40	70-85	65-80	55-70	50-60	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
812*:											
Ravenswood	0-9	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-15	60-75	55-70	45-65	30-45	25-30	5-10
	9-13	Very gravelly clay loam.	GC	A-2	5-15	45-60	35-50	30-45	20-35	40-50	15-25
	13-36	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-15	45-60	35-50	30-45	25-40	40-55	20-30
	36	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	
812*:											
Shagnasty	0-15	Very cobbly loam	SC, SM-SC	A-6, A-4	40-60	70-85	55-70	50-65	35-50	25-35	5-15
	15-36	Clay, clay loam	CL, CH	A-7	5-10	90-100	85-95	75-90	60-75	40-60	20-35
	36-57	Cobbly clay loam, cobbly silty clay loam.	CL, CH, MH	A-7	15-25	70-90	65-85	55-80	50-70	40-55	15-25
	57-61	Weathered bedrock	---	---	---	---	---	---	---	---	---
Walti	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
850, 854 Relley	0-8	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	75-90	25-35	5-10
	8-16	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	16-28	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	28-60	Silt loam	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
910 Rutab	0-8	Loam	ML	A-4	0	90-100	85-95	75-85	50-60	20-25	NP-5
	8-21	Very gravelly sandy loam, very gravelly loam, gravelly loam.	SM-SC, SM	A-2, A-4, A-1	0	65-90	35-75	30-50	15-45	15-25	NP-10
	21-60	Extremely gravelly sandy loam, extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM	A-1	0	40-50	20-35	10-25	5-10	15-20	NP-5
931*:											
Shagnasty	0-15	Very cobbly loam	SC, SM-SC	A-6, A-4	40-60	70-85	55-70	50-65	35-50	25-35	5-15
	15-36	Clay, clay loam	CL, CH	A-7	5-10	90-100	85-95	75-90	60-75	40-60	20-35
	36-57	Cobbly clay loam, cobbly silty clay loam.	CL, CH, MH	A-7	15-25	70-90	65-85	55-80	50-70	40-55	15-25
	57-61	Weathered bedrock	---	---	---	---	---	---	---	---	---
Roca	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	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		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
932*:											
Shagnasty-------	0-15	Very cobbly loam	SC, SM-SC	A-6, A-4	40-60	70-85	55-70	50-65	35-50	25-35	5-15
	15-36	Clay, clay loam	CL, CH	A-7	5-10	90-100	85-95	75-90	60-75	40-60	20-35
	36-57	Cobbly clay loam, cobbly silty clay loam.	CL, CH, MH	A-7	15-25	70-90	65-85	55-80	50-70	40-55	15-25
	57-61	Weathered bedrock	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
942----------	0-5	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	65-80	20-30	NP-10
Shipley	5-41	Silt loam, very fine sandy loam.	CL-ML, ML	A-4	0	100	95-100	80-90	60-70	20-30	NP-10
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	5-10	40-50	25-40	15-30	0-5	---	NP
950----------	0-2	Sandy loam-------	SM	A-4	0	95-100	90-100	70-80	40-50	20-25	NP-5
Silverado	2-19	Sandy loam-------	SM	A-4	0	95-100	90-100	60-70	35-45	20-25	NP-5
	19-38	Gravelly sandy loam, sandy loam.	GM, SM	A-1	0	60-90	55-85	40-50	15-25	15-25	NP-5
	38-60	Very gravelly coarse sand.	GP	A-1	0	40-50	35-45	10-20	0-5	---	NP
990*:											
Sonoma----------	0-12	Silt loam--------	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Wendane---------	0-7	Silt loam--------	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
998*:											
Sonoma, frequently flooded-------	0-12	Silt loam--------	CL	A-6	0	100	100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Paranat---------	0-20	Silt loam--------	ML	A-4	0	100	100	95-100	85-100	25-35	NP-10
	20-48	Stratified silt loam to silty clay loam.	ML	A-4, A-6	0	100	100	95-100	90-100	30-40	5-15
	48-60	Stratified very fine sandy loam to silty clay.	ML	A-4, A-6	0	100	100	85-95	75-90	30-40	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	
998*:											
Sonoma, occasionally flooded	0-12	Silt loam	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
999*:											
Sonoma	0-12	Silt loam	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Paranat	0-20	Silt loam	ML	A-4	0	100	100	95-100	85-100	25-35	NP-10
	20-48	Stratified silt loam to silty clay loam.	ML	A-4, A-6	0	100	100	95-100	90-100	30-40	5-15
	48-60	Stratified very fine sandy loam to silty clay.	ML	A-4, A-6	0	100	100	85-95	75-90	30-40	5-15
1011*:											
Stampede	0-10	Gravelly loam	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	10-31	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	31-60	Indurated	---	---	---	---	---	---	---	---	---
Handy	0-4	Gravelly loam	SC	A-2, A-6	0-10	65-75	55-65	40-50	30-40	30-35	10-15
	4-30	Gravelly clay, clay.	CH, CL	A-7	0-10	70-100	60-100	60-75	50-70	45-55	30-35
	30-60	Stratified gravelly loam to very gravelly loamy sand.	GM	A-1, A-2	0-10	35-65	30-60	20-55	10-35	15-25	NP-5
Caniwe	0-17	Very fine sandy loam.	ML	A-4	0	100	100	95-100	65-80	15-25	NP-5
	17-60	Stratified silt loam to silty clay loam.	ML	A-4, A-7	0	100	100	95-100	85-95	30-50	5-15

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	
1041*:											
Tenabo	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	26-61	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Buffaran	0-5	Gravelly loam	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
1042*:											
Tenabo	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Ricert	0-6	Very gravelly very fine sandy loam.	GM-GC	A-2	0-10	50-60	40-50	35-50	25-35	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	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	
1042*:											
Desatoya	0-6	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
1092*:											
Tulase	0-6	Silt loam	CL-ML, ML	A-4	0	100	100	100	90-100	15-25	NP-10
	6-60	Very fine sandy loam, silt loam.	CL-ML, ML	A-4	0	100	100	95-100	70-85	15-25	NP-10
Bubus	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
McConnel	0-6	Loam	ML	A-4	0	95-100	85-95	70-80	50-60	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
1131 Fortank	0-6	Gravelly loam	GM-GC, SM-SC	A-2, A-4	25-30	65-75	60-70	50-60	30-50	20-30	5-10
	6-30	Gravelly clay, gravelly clay loam.	GC, CL	A-7	0-10	65-85	55-75	45-65	40-60	40-50	20-30
	30-34	Weathered bedrock	---	---	---	---	---	---	---	---	---
1140 Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
1141*:											
Wendane, strongly sodic	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20

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	
1141*:											
Wendane, frequently flooded	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Umberland	0-7	Silt loam	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
1142*:											
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Gund	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Gund, drained	0-4	Silt loam	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
1143	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
Wendane	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
1145*:											
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Playas.											
1146*:											
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Sonoma	0-10	Silt loam	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	10-60	Stratified silt loam to silty clay loam.	CL, ML	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	
1146*:											
Valmy	0-6	Very fine sandy loam.	SM	A-4	0	90-100	85-100	60-75	35-50	15-25	NP-5
	6-42	Stratified very fine sandy loam to gravelly coarse sandy loam.	SM	A-4, A-2, A-1	0-5	80-95	75-90	40-70	20-45	15-25	NP-5
	42-60	Gravelly sand, very gravelly sand.	SP-SM, SM, GP-GM, GM	A-1	0-10	40-75	30-70	20-45	5-15	---	NP
1148*:											
Wendane	0-7	Silt loam	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Bubus	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
1169*:											
Whirlo	0-12	Gravelly very fine sandy loam.	ML, GM	A-4	0	60-75	55-75	50-70	40-60	---	NP
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
Broyles	0-11	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1173	0-6	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
Wholan	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
1177*:											
Wholan	0-5	Very fine sandy loam.	ML	A-4	0	100	100	95-100	75-80	15-25	NP-5
	5-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	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	
1178*:											
Wholan	0-5	Silt loam	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	5-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	41-60	Stratified fine sandy loam to very gravelly coarse sand.	SM, GM	A-1	0	55-80	50-75	15-35	10-20	---	NP
1281*:											
Ricert	0-6	Gravelly silt loam.	SM-SC	A-4	0	75-85	55-75	40-55	35-50	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Whirlo	0-12	Fine sandy loam	ML, SM	A-4	0	80-95	75-85	65-80	45-60	20-25	NP-5
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
Pineval	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
1282*:											
Ricert	0-6	Very fine sandy loam.	ML, CL-ML	A-4	0-5	90-100	90-100	80-95	55-70	15-25	NP-10
	6-18	Clay loam, loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	15-20	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	
1282*:											
Broyles	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1284*:											
Ricert	0-6	Very gravelly very fine sandy loam.	GM-GC	A-2	0-10	50-60	40-50	35-50	25-35	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Zineb	0-6	Very gravelly sandy loam.	SM-SC, GM-GC	A-2	0-10	40-65	25-55	20-45	10-25	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP
Pineval	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
1285*:											
Ricert	0-6	Gravelly silt loam.	SM-SC	A-4	0	75-85	55-75	40-55	35-50	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	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	
1285*:											
Bubus	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
Broyles	0-13	Silt loam	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1286*:											
Ricert	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Tenabo	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Broyles	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1287*:											
Ricert	0-7	Very gravelly very fine sandy loam.	GM-GC	A-2	0-10	50-60	40-50	35-50	25-35	20-30	5-10
	7-20	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	20-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	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	
1287*:											
Orovada	0-8	Gravelly very fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	45-70	30-50	15-25	NP-5
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Broyles	0-13	Gravelly very fine sandy loam.	SM, GM	A-4	0	65-85	60-75	55-70	35-50	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2, A-4	0	70-100	60-95	30-50	25-45	---	NP
1288*:											
Ricert	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Tenabo	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	4-15	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	15-28	Indurated--------	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
1289*:											
Ricert	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	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	
1289*:											
Blackhawk-------	0-3	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	3-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-30	Cemented---------	---	---	---	---	---	---	---	---	---
	30-48	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	48-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP
Orovada---------	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
1371*:											
Chad------------	0-17	Cobbly loam------	SM-SC, CL-ML	A-4	15-25	70-80	65-75	40-60	35-55	20-30	5-10
	17-42	Gravelly clay, gravelly clay loam, clay.	CL, MH, SM, SC	A-7	0-5	75-95	55-85	45-75	40-65	40-55	15-25
	42-50	Weathered bedrock	---	---	---	---	---	---	---	---	---
Gando-----------	0-4	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	4-10	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
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-14	Fine sandy loam	SM-SC, CL-ML	A-4	5-15	85-100	80-100	60-80	35-65	20-30	5-10
	14-27	Extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	10-25	35-60	30-55	25-45	20-35	35-45	15-20
	27-60	Very gravelly loam, very gravelly clay loam, extremely gravelly loam.	GC, GM	A-2	10-25	35-60	30-55	25-45	20-35	30-40	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	
1450*:											
Atlow, steep----	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow, strongly sloping--------	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn--------	0-7	Cobbly loam------	SM-SC	A-4	25-40	85-95	75-90	55-80	40-50	20-30	5-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated--------	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1600*. Dumps and pits											
1670*:											
Wieland---------	0-8	Loam-------------	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	8-20	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	20-60	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
Allor----------	0-12	Very cobbly loam	SM-SC, GM-GC	A-2, A-4	30-50	60-75	45-70	40-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
1680---------- Zineb	0-6	Gravelly loam----	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
1681*:											
Zineb	0-6	Gravelly loam	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP
Chiara	0-4	Gravelly loam	SM	A-4	0-5	70-80	55-70	50-65	35-50	15-25	NP-5
	4-13	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	13-60	Indurated	---	---	---	---	---	---	---	---	---
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
1682*:											
Zineb	0-6	Very gravelly sandy loam.	SM-SC, GM-GC	A-2	0-10	40-65	25-55	20-45	10-25	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP
Orovada	0-8	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	50-70	25-40	---	NP
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	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	
2003*:											
Unius	0-4	Gravelly silt loam.	CL	A-6	0	85-100	65-75	60-70	55-65	25-35	10-15
	4-12	Silt loam, loam, gravelly loam.	CL, GC	A-6	0	65-100	60-100	55-80	45-70	25-35	10-15
	12-44	Cemented	---	---	---	---	---	---	---	---	---
	44-60	Gravelly loamy sand.	SM	A-1	0	60-80	55-75	20-30	10-20	---	NP
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	26-61	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2010*:											
Glyphs	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Silverado	0-2	Gravelly sandy loam.	SM	A-2	0	65-80	60-75	45-60	25-35	20-25	NP-5
	2-19	Sandy loam	SM	A-4	0	95-100	90-100	60-70	35-45	20-25	NP-5
	19-38	Gravelly sandy loam, sandy loam.	GM, SM	A-1	0	60-90	55-85	40-50	15-25	15-25	NP-5
	38-60	Very gravelly coarse sand.	GP	A-1	0	40-50	35-45	10-20	0-5	---	NP
2011*:											
Glyphs	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Muni	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	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	
2012*:											
Glyphs	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Muni	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP
Orovada	0-5	Fine sandy loam	SM-SC, SM	A-4	0	90-100	85-95	75-90	35-50	20-30	NP-10
	5-15	Fine sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-90	50-70	20-30	NP-10
	15-40	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	70-85	30-45	20-30	NP-10
	40-60	Stratified gravelly sandy loam to very gravelly sand.	SP-SM, SM	A-1	0-5	75-90	45-60	30-45	5-15	---	NP
2015*:											
Glyphs, gently sloping	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Glyphs, moderately steep	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Enko	0-4	Gravelly loamy sand.	SM	A-1, A-2	0	65-85	50-70	25-45	15-30	15-25	NP-5
	4-18	Sandy loam, loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-60	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	85-100	60-90	30-65	15-20	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	
2021*:											
Rotinom	0-9	Silt loam	ML	A-4	0	95-100	95-100	95-100	75-90	30-40	5-10
	9-60	Silt loam	ML	A-4, A-5	0	95-100	95-100	95-100	75-90	35-45	5-10
Wholan	0-6	Very fine sandy loam.	ML	A-4	0	100	100	95-100	75-80	15-25	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Wholan, alkaline	0-6	Very fine sandy loam.	ML	A-4	0	100	100	95-100	75-80	15-25	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
2022*:											
Rotinom	0-9	Silt loam	ML	A-4	0	95-100	95-100	95-100	75-90	30-40	5-10
	9-60	Silt loam	ML	A-4, A-5	0	95-100	95-100	95-100	75-90	35-45	5-10
Orovada	0-8	Very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2031*:											
Muni	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP
Orovada	0-5	Fine sandy loam	SM-SC, SM	A-4	0	90-100	85-95	75-90	35-50	20-30	NP-10
	5-15	Fine sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-90	50-70	20-30	NP-10
	15-40	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	70-85	30-45	20-30	NP-10
	40-60	Stratified gravelly sandy loam to very gravelly sand.	SP-SM, SM	A-1	0-5	75-90	45-60	30-45	5-15	---	NP
Unius	0-4	Gravelly silt loam.	CL	A-6	0	85-100	65-75	60-70	55-65	25-35	10-15
	4-12	Silt loam, loam, gravelly loam.	CL, GC	A-6	0	65-100	60-100	55-80	45-70	25-35	10-15
	12-44	Cemented	---	---	---	---	---	---	---	---	---
	44-60	Gravelly loamy sand.	SM	A-1	0	60-80	55-75	20-30	10-20	---	NP
2060*:											
Oxcorel	0-5	Gravelly very fine sandy loam.	SM, GM	A-4	0-10	60-85	55-75	45-70	35-50	15-25	NP-5
	5-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2060*:											
Beoska	0-9	Silt loam	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	9-18	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	18-60	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
Whirlo	0-12	Gravelly loam	ML, GM	A-4	0	60-75	55-75	50-70	40-60	---	NP
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
2061*:											
Oxcorel	0-8	Gravelly sandy loam.	SM-SC, GM-GC	A-2, A-4	0-10	60-85	55-75	40-60	25-40	25-30	5-10
	8-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
Zaidy	0-5	Very gravelly sandy loam.	GM-GC, GM	A-2, A-1	10-15	50-65	40-55	25-40	15-30	20-30	NP-10
	5-25	Loam, clay loam, gravelly clay loam.	SC, CL	A-6	0	75-90	60-85	55-70	45-60	30-40	10-15
	25-60	Cemented	---	---	---	---	---	---	---	---	---
Grassval	0-4	Very gravelly sandy loam.	GM-GC	A-2	5-10	45-60	35-50	25-45	15-30	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
2063*:											
Oxcorel	0-8	Gravelly very fine sandy loam.	SM, GM	A-4	0-10	60-85	55-75	45-70	35-50	15-25	NP-5
	8-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	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	
2063*:											
Pineval, moderately steep	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
Pineval, strongly sloping	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
2069*:											
Oxcorel	0-6	Gravelly very fine sandy loam.	SM, GM	A-4	0-10	60-85	55-75	45-70	35-50	15-25	NP-5
	6-37	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	37-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
Wieland	0-8	Gravelly loam	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-25	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
	25-60	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
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP

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	
2081*:											
Fenster	0-5	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	70-90	30-40	5-15
	5-10	Silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	0	100	100	95-100	80-100	30-45	5-20
	10-60	Silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	0	100	100	95-100	75-100	30-45	5-20
Jesse Camp	0-4	Silt loam	ML	A-4	0	100	100	90-100	65-80	25-35	NP-10
	4-12	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-85	25-35	NP-10
	12-60	Silt loam	ML	A-4, A-6	0	100	100	95-100	75-85	30-40	5-15
2088*:											
Punchbowl	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teguro	0-6	Very gravelly loam.	GM	A-1, A-2, A-4	10-35	30-55	25-50	20-45	15-40	15-25	NP-5
	6-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2089*:											
Punchbowl	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2089*:											
Locane	0-6	Very gravelly loam.	GM-GC	A-2	5-15	50-65	30-45	25-40	15-30	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2090	0-3	Gravelly loam	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
Punchbowl	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2091*:											
Punchbowl	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teguro	0-4	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	30-45	20-35	15-25	NP-5
	4-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine	0-10	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	10-30	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
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2092*:											
Punchbowl	0-3	Gravelly loam	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Belate	0-14	Very gravelly loam.	GM-GC	A-2	5-15	50-65	35-50	30-40	25-35	20-25	5-10
	14-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15

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	
2092*:											
Reluctan--------	0-8	Very gravelly loam.	GM-GC	A-2, A-4	10-25	35-65	30-55	25-55	20-40	25-30	5-10
	8-33	Gravelly clay loam, gravelly loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	33-37	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2093*:											
Punchbowl-------	0-3	Loam----------	SM, ML	A-4	0-5	85-100	80-90	60-75	45-60	15-25	NP-5
	3-7	Loam, gravelly loam.	CL, SC, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2094*:											
Punchbowl-------	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simpark---------	0-13	Very cobbly loam	SM-SC	A-2, A-4	40-55	65-80	50-70	45-60	25-40	20-25	5-10
	13-18	Very cobbly loam, very gravelly loam.	GC, SC	A-2, A-6	10-40	60-75	30-65	25-55	20-45	25-35	10-15
	18-22	Indurated--------	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Akerue----------	0-3	Very cobbly loam	SM-SC	A-4	30-40	75-80	55-65	50-60	40-50	25-30	5-10
	3-15	Very cobbly clay loam, very cobbly clay.	GC, SC, CL	A-7	40-55	60-85	50-80	45-65	35-55	40-50	15-25
	15-21	Indurated--------	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2095*:											
Punchbowl-------	0-3	Cobbly loam------	SM, ML	A-4	25-40	80-90	75-85	60-75	40-55	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	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	
2095*:											
Robson	0-7	Cobbly loam	SM-SC, SC, CL-ML, CL	A-4, A-6	15-45	90-95	65-95	55-65	45-60	25-35	5-15
	7-19	Very cobbly clay, extremely cobbly clay.	GC	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2096*:											
Punchbowl	0-3	Cobbly loam	SM, ML	A-4	25-40	80-90	75-85	60-75	40-55	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane	0-5	Cobbly loam	CL-ML, SM-SC	A-4	25-40	80-100	80-95	60-80	45-60	20-30	5-10
	5-19	Very gravelly clay loam.	GC	A-2	0-10	45-55	35-50	25-35	25-35	40-45	20-25
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nobuck	0-7	Very cobbly loam	SM-SC	A-2, A-4	30-45	65-75	50-65	40-55	25-40	20-30	5-10
	7-42	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	10-25	50-65	35-50	30-45	20-35	35-45	15-20
	42-60	Very gravelly loam, very gravelly sandy loam.	GC, GM-GC	A-2	10-25	50-65	35-50	25-40	15-30	25-35	5-15
2097*:											
Punchbowl	0-3	Gravelly loam	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca	0-9	Cobbly loam	CL-ML, CL	A-4, A-6	15-30	80-90	70-90	65-80	50-65	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	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	
2099*:											
Punchbowl	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca	0-5	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	5-27	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2100*:											
Grassval	0-4	Gravelly loam	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
Grina	0-3	Very gravelly loam.	GM-GC, GC	A-2	0-5	45-60	30-45	25-40	15-30	25-35	5-15
	3-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14-18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Unsel Variant	0-2	Very gravelly loam.	GM-GC	A-2	10-15	45-60	35-50	30-45	20-35	20-30	5-10
	2-15	Gravelly clay loam.	SC	A-6, A-7	0	70-80	55-70	45-60	35-50	35-45	15-20
	15-22	Gravelly loam	SM-SC, SC	A-4, A-6	0	70-85	55-70	45-60	35-50	25-35	5-15
	22	Weathered bedrock	---	---	---	---	---	---	---	---	---
2101*:											
Grassval	0-4	Fine sandy loam	SM-SC	A-2, A-4	0	85-95	80-90	65-80	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
Oxcorel, eroded	0-3	Very gravelly clay loam.	GC	A-2, A-6	5-10	45-55	40-50	35-45	30-40	30-40	15-20
	3-30	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	30-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
Oxcorel	0-8	Gravelly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	0-10	60-85	55-75	40-60	25-40	25-30	5-10
	8-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	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	
2102*:											
Grassval	0-4	Gravelly loam	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
Wieland	0-8	Gravelly loam	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-25	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
	25-60	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
2104*:											
Grassval	0-4	Gravelly loam	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
Punchbowl	0-3	Gravelly fine sandy loam.	SM	A-2, A-4	5-10	65-85	60-75	55-70	25-40	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2105*:											
Grassval	0-4	Gravelly loam	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
Glyphs	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Muni	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	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	
2110*:											
Isolde	0-6	Fine sand	SP, SP-SM	A-3	0	100	100	75-90	0-10	---	NP
	6-60	Fine sand, sand	SP, SP-SM	A-3	0	100	100	50-80	0-10	---	NP
Davey	0-5	Fine sandy loam	SM	A-2	0	100	100	80-95	25-35	---	NP
	5-14	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	100	100	80-90	30-40	20-25	NP-5
	14-67	Fine sand, loamy fine sand.	SM	A-2	0	85-100	85-100	70-80	10-20	---	NP
2540*:											
Buffaran	0-4	Cobbly loam	SC, CL	A-6	15-30	75-90	75-85	50-75	40-60	25-35	10-15
	4-15	Gravelly clay loam, gravelly clay, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	15-60	Indurated	---	---	---	---	---	---	---	---	---
Wieland	0-8	Gravelly loam	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-60	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
2541*:											
Buffaran	0-4	Gravelly loam	SC, CL	A-6	5-15	75-90	70-80	50-75	40-60	25-35	10-15
	4-15	Gravelly clay loam, gravelly clay, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	15-60	Indurated	---	---	---	---	---	---	---	---	---
Zoesta	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
2542*:											
Buffaran, gravelly	0-5	Gravelly loam	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
Buffaran, very gravelly	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	40-55	30-45	25-40	15-25	20-30	5-10
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---

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	
2542*:											
Chiara	0-4	Very gravelly loam.	GM	A-1, A-2	0-5	50-60	35-50	30-45	20-35	15-25	NP-5
	4-13	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	13-60	Indurated	---	---	---	---	---	---	---	---	---
2543*:											
Buffaran	0-5	Gravelly loam	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
2545*:											
Buffaran	0-5	Gravelly loam	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
Pineval	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	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	
2546*:											
Buffaran	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	40-55	30-45	25-40	15-25	20-30	5-10
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Locane	0-6	Gravelly loam	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2547*:											
Buffaran	0-2	Gravelly loam	SC, CL	A-6	5-15	75-90	70-80	50-75	40-60	25-35	10-15
	2-16	Gravelly clay loam, gravelly clay, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
Desatoya	0-6	Very gravelly loam.	GM-GC	A-2	0-10	50-60	40-50	35-45	25-35	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
2548*:											
Buffaran	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	40-55	30-45	25-40	15-25	20-30	5-10
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---

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	
2548*:											
Tenabo	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Pineval	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
2554*:											
Laped	0-6	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	45-60	35-50	25-40	15-30	20-30	5-10
	6-18	Gravelly clay loam.	GC, SC	A-6, A-7	0-10	60-80	55-75	45-60	35-50	35-45	15-20
	18-23	Indurated	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hooplite	0-4	Very gravelly fine sandy loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	10-20	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Osoll	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	10-15	40-60	35-55	35-55	15-35	20-25	5-10
	5-12	Very gravelly loam, very gravelly fine sandy loam.	GM-GC	A-2	10-25	30-55	25-50	20-50	10-35	20-25	5-10
	12-35	Indurated	---	---	---	---	---	---	---	---	---
	35	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	
2555*:											
Laped	0-6	Very cobbly loam	SM-SC, GM-GC	A-4	30-50	65-80	50-70	45-60	35-50	20-30	5-10
	6-18	Gravelly clay loam.	GC, SC	A-6, A-7	0-5	60-80	55-70	45-60	35-50	35-45	15-20
	18-23	Indurated	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Colbar	0-3	Very cobbly loam	CL-ML	A-4	50-60	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2570*:											
Colbar	0-6	Gravelly loam	SM-SC, SM, GM, GM-GC	A-4	0-5	65-85	60-75	50-65	35-50	20-30	NP-10
	6-16	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	75-90	70-85	60-80	50-65	30-40	10-20
	16-21	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow	0-3	Very cobbly loam	SM-SC	A-4	35-50	70-80	60-75	50-65	35-50	20-30	5-10
	3-14	Very gravelly clay loam.	GC	A-2, A-6	5-15	45-60	35-50	30-45	25-40	30-40	10-15
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Burrita	0-7	Very cobbly loam	GM-GC	A-4	25-40	60-70	55-65	50-60	35-45	15-25	5-10
	7-14	Very cobbly clay, very stony clay loam, very gravelly clay loam.	GC, SC	A-2, A-7	10-55	35-75	30-55	25-50	20-45	40-55	20-30
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2603*:											
Grina	0-5	Gravelly loam	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	5-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
Genaw	0-6	Gravelly loam	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	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	
2640*:											
Rasille	0-6	Silt loam	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	41-60	Stratified fine sandy loam to very gravelly coarse sand.	SM, GM	A-1	0	55-80	50-75	15-35	10-20	---	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
2672*:											
Zoesta Variant	0-8	Gravelly loam	GM, SM	A-4	0-5	65-80	55-70	50-65	35-50	20-30	NP-5
	8-27	Clay	CH	A-7	0	85-95	85-95	80-95	70-85	60-70	30-40
	27-36	Clay loam, clay	CL, CH	A-7	0	85-95	85-95	80-90	65-80	45-55	20-30
	36-60	Gravelly loam, gravelly sandy loam.	SM-SC	A-2, A-4	0-5	65-80	55-70	40-55	25-40	25-30	5-10
Jung	0-8	Very cobbly fine sandy loam.	SM-SC	A-2	35-50	65-80	50-65	40-60	20-35	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Trunk	0-3	Cobbly loam	CL-ML, ML	A-4	15-30	75-95	70-90	60-90	50-70	20-30	NP-10
	3-30	Gravelly clay, gravelly clay loam.	CL, CH, GC	A-7	0-10	55-85	50-80	45-75	40-65	40-55	20-30
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2681*:											
Tessfive	0-6	Gravelly loam	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Puett	0-4	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	4-15	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
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---
Grina	0-3	Gravelly loam	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	3-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14-18	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	
2683*:											
Tessfive	0-6	Gravelly loam	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Genaw	0-6	Gravelly loam	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2684*:											
Tessfive	0-6	Gravelly loam	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Perlor	0-7	Fine sandy loam	SM	A-2, A-4	0-5	85-100	80-100	70-90	25-40	15-25	NP-5
	7-14	Loam, sandy loam, gravelly sandy loam.	SM, ML	A-4	0-5	75-100	70-95	50-80	35-65	15-25	NP-5
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
Orovada	0-8	Gravelly very fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	45-70	30-50	15-25	NP-5
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2690*:											
Itca Variant	0-3	Very gravelly loam.	GC	A-2	0-10	45-60	30-45	25-35	15-25	25-35	10-15
	3-12	Gravelly clay loam.	SC	A-6	0	70-80	55-70	45-60	35-50	30-40	15-20
	12	Weathered 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	
2690*:											
Reluctan	0-9	Very gravelly loam.	GM-GC	A-2, A-4	10-25	35-65	30-55	25-55	20-40	25-30	5-10
	9-27	Gravelly clay loam, gravelly loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Handy	0-4	Gravelly loam	SC	A-2, A-6	0-10	65-75	55-65	40-50	30-40	30-35	10-15
	4-30	Gravelly clay, clay.	CH, CL	A-7	0-10	70-100	60-100	60-75	50-70	45-55	30-35
	30-60	Stratified gravelly loam to very gravelly loamy sand.	GM	A-1, A-2	0-10	35-65	30-60	20-55	10-35	15-25	NP-5
2730*:											
Pula	0-2	Very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	0-10	50-65	35-50	25-40	10-25	20-30	NP-10
	2-24	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly clay.	GC	A-2, A-7	10-30	30-60	20-55	20-50	15-45	50-60	30-40
	24-60	Extremely gravelly sandy loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GM, GP-GC	A-1, A-2	20-30	35-45	15-25	10-20	5-15	20-35	NP-15
Spike	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
Buffaran	0-5	Gravelly loam	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---

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	
2731*:											
Pula	0-2	Very cobbly loam	GC	A-2, A-6	25-50	50-75	45-70	40-60	30-50	30-35	10-15
	2-24	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly clay.	GC	A-2, A-7	10-30	30-60	20-55	20-50	15-45	50-60	30-40
	24-60	Extremely gravelly sandy loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GM, GP-GC	A-1, A-2	20-30	35-45	15-25	10-20	5-15	20-35	NP-15
Spike	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
2740*:											
Spike	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
Desatoya Variant	0-3	Very gravelly sandy loam.	GM-GC	A-2	0	45-60	35-50	25-40	10-25	20-30	5-10
	3-13	Gravelly clay loam, gravelly sandy clay loam.	SC, CL	A-6, A-7	0	70-85	55-70	45-60	40-55	35-45	15-20
	13-26	Very gravelly sandy loam.	GM	A-1	0	45-60	35-50	25-40	10-25	15-20	NP-5
	26-60	Very gravelly sand.	GP-GM, SP-SM	A-1	0	45-60	35-50	20-35	5-10	---	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	
2740*:											
Grassval	0-4	Gravelly loam	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
2771*:											
Kram	0-3	Very gravelly very fine sandy loam.	GM	A-1, A-2	10-15	50-60	35-50	30-50	20-30	15-25	NP-5
	3-10	Very gravelly loam, very gravelly very fine sandy loam, extremely gravelly loam.	GM	A-1, A-2	0-15	25-60	15-55	15-45	10-30	15-25	NP-5
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
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.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2780*:											
Desatoya	0-6	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Tenabo	0-5	Very gravelly fine sandy loam.	GM	A-1, A-2	5-10	40-55	35-50	25-45	20-30	15-25	NP-5
	5-17	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	17-31	Indurated	---	---	---	---	---	---	---	---	---
	31-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
2780*:											
Pineval	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
2781*:											
Desatoya	0-6	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Orovada	0-8	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	50-70	25-40	---	NP
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2782*:											
Desatoya	0-3	Very gravelly loam.	GM-GC	A-2	0-10	50-60	40-50	35-45	25-35	20-30	5-10
	3-14	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	14-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Pineval	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	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	
2782*:											
Grassval	0-4	Gravelly loam	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated	---	---	---	---	---	---	---	---	---
2783*:											
Desatoya, steep	0-3	Very gravelly sandy loam.	GM-GC, SM-SC	A-2	0-10	50-70	35-50	25-40	15-30	20-30	5-10
	3-14	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	14-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Spike	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
Desatoya, strongly sloping	0-3	Gravelly sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	3-14	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	14-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
2791*:											
Old Camp	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	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	
2791*:											
Colbar	0-3	Very cobbly loam	CL-ML	A-4	50-60	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2792*:											
Old Camp	0-2	Gravelly loam	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Puett	0-3	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	40-50	35-45	20-35	15-20	NP-5
	3-13	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
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---
2793*:											
Old Camp	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Laped	0-6	Very cobbly loam	SM-SC, GM-GC	A-4	30-50	65-80	50-70	45-60	35-50	20-30	5-10
	6-18	Gravelly clay loam.	GC, SC	A-6, A-7	0-5	60-80	55-70	45-60	35-50	35-45	15-20
	18-23	Indurated	---	---	---	---	---	---	---	---	---
	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	
2797*:											
Old Camp, steep	0-2	Gravelly loam	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Colbar	0-3	Cobbly loam	CL-ML	A-4	35-45	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp, strongly sloping	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2798*:											
Old Camp	0-2	Gravelly loam	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Osoll	0-5	Very gravelly loam.	GM-GC	A-4, A-2	0	30-60	25-50	20-50	15-40	20-25	5-10
	5-12	Very gravelly loam, very gravelly fine sandy loam.	GM-GC	A-2	10-25	30-55	25-50	20-50	10-35	20-25	5-10
	12-35	Indurated	---	---	---	---	---	---	---	---	---
	35	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	
3001*:											
Barrier	0-7	Cobbly loam	SM, ML	A-4	15-30	85-95	80-90	60-75	45-60	20-25	NP-5
	7-12	Gravelly loam, gravelly sandy loam, fine sandy loam.	SM, GM	A-2, A-4	0	60-90	50-80	40-70	25-50	20-25	NP-5
	12-27	Cemented	---	---	---	---	---	---	---	---	---
	27-60	Very cobbly loamy sand.	SM	A-1	50-60	70-90	65-85	40-50	10-25	---	NP
Kobeh	0-7	Gravelly fine sandy loam.	SM	A-1, A-2	0	70-80	55-70	45-60	20-35	---	NP
	7-20	Gravelly sandy loam, gravelly fine sandy loam.	SM	A-1, A-2	0	70-80	55-70	45-55	20-30	15-25	NP-5
	20-60	Stratified gravelly fine sandy loam to very gravelly sand.	GP-GM, GM, SP-SM, SM	A-1	0	40-65	35-50	25-45	5-20	---	NP
3011*:											
Defler	0-4	Gravelly fine sandy loam.	GM, SM	A-2, A-4, A-1	0-5	55-80	50-75	40-60	20-40	15-25	NP-5
	4-38	Very gravelly fine sandy loam, very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-10	30-55	25-50	15-40	10-30	15-25	NP-5
	38-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	0-10	25-40	20-35	10-20	5-15	---	NP
Orovada	0-5	Gravelly fine sandy loam.	SM-SC, SM	A-2, A-4	0-5	70-90	55-70	45-60	25-40	20-30	NP-10
	5-15	Fine sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-90	50-70	20-30	NP-10
	15-40	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	70-85	30-45	20-30	NP-10
	40-60	Stratified gravelly sandy loam to very gravelly sand.	SP-SM, SM	A-1	0-5	75-90	45-60	30-45	5-15	---	NP
3050	0-5	Cobbly loam	CL-ML	A-4	25-40	80-95	75-90	65-80	50-65	25-30	5-10
Novacan	5-24	Clay, gravelly clay.	CH	A-7	0-5	65-90	60-85	55-80	50-75	50-60	25-35
	24-45	Cemented	---	---	---	---	---	---	---	---	---
	45-60	Very cobbly loamy sand.	SM	A-1	50-60	65-90	55-80	35-50	10-20	---	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	
3071*:											
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Wieland	0-8	Gravelly loam	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-60	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
3072*:											
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3073*:											
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Kelk	0-4	Very fine sandy loam.	ML	A-4	0	100	95-100	90-100	75-90	15-25	NP-5
	4-12	Silt loam	ML, CL-ML	A-4	0	100	95-100	90-100	85-95	25-35	5-10
	12-40	Silt loam	CL-ML	A-4	0	100	95-100	90-100	85-95	20-30	5-10
	40-60	Silty clay loam	ML	A-6, A-7	0	100	100	95-100	90-100	35-45	10-15
3074*:											
Allor	0-12	Fine sandy loam	SM-SC, SM	A-2, A-4	0-5	85-100	85-95	65-80	25-40	25-35	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	GC, CL, SC	A-6, A-7	0-10	60-80	55-75	45-65	35-55	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	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	
3074*:											
Orovada	0-8	Very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3080*:											
Zaidy	0-5	Very gravelly sandy loam.	GM-GC, GM	A-2, A-1	10-15	50-65	40-55	25-40	15-30	20-30	NP-10
	5-25	Loam, clay loam, gravelly clay loam.	SC, CL	A-6	0	75-90	60-85	55-70	45-60	30-40	10-15
	25-60	Cemented	---	---	---	---	---	---	---	---	---
Ricert	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
3081*:											
Zaidy	0-5	Very gravelly fine sandy loam.	GM-GC, GM	A-2, A-1	10-15	50-65	40-55	35-50	20-30	20-30	NP-10
	5-25	Loam, clay loam, gravelly clay loam.	SC, CL	A-6	0	75-90	60-85	55-70	45-60	30-40	10-15
	25-60	Cemented	---	---	---	---	---	---	---	---	---
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
3091*:											
Packer	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2		40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1		40-55	40-55	30-45	20-35	10-25	20-25	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	
3091*:											
Packer, cobbly--	0-10	Extremely cobbly loam.	GM-GC	A-2	40-50	35-50	20-35	15-30	10-25	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	45-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam, very cobbly loam.	GM	A-1, A-2	40-50	40-55	30-50	20-45	10-35	20-25	NP-5
Newlands--------	0-10	Loam----------	CL-ML, CL	A-4, A-6	0-5	85-95	80-90	70-85	50-65	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3092*:											
Packer----------	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood---------	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Rock outcrop.											
3093*:											
Packer----------	0-10	Very gravelly loam.	GM-GC	A-2	5-10	45-60	35-50	30-45	20-35	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Layview---------	0-3	Very gravelly sandy loam.	GM-GC	A-2	10-15	35-60	30-55	20-35	10-20	25-30	5-10
	3-12	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	10-15	35-60	30-55	25-45	20-40	30-40	15-20
	12	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	
3093*:											
Hapgood	0-17	Fine sandy loam	SM	A-2, A-4	0	80-95	75-95	55-65	30-40	25-30	NP-5
	17-40	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
	40-60	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
3094*:											
Packer	0-10	Extremely gravelly sandy loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Torro	0-10	Very gravelly loam.	GM	A-1, A-2	0	45-55	35-50	30-40	20-35	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
3101*:											
Hackwood	0-18	Gravelly loam	CL	A-6	40-50	75-80	65-80	60-75	50-65	25-35	10-15
	18-32	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
	32-60	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	
3101*:											
Newlands	0-10	Extremely bouldery loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	50-65	75-90	65-80	60-75	45-60	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
3111*:											
Ninemile	0-9	Extremely cobbly loam.	GM-GC	A-4, A-2	45-65	30-50	30-45	25-45	20-40	25-30	5-10
	9-19	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	19-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Zoesta	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Itca	0-9	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3120*:											
Walti	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	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	
3120*:											
Chad	0-11	Cobbly loam	SM-SC, CL-ML	A-4	15-25	70-80	65-75	40-60	35-55	20-30	5-10
	11-43	Gravelly clay, gravelly clay loam, clay.	CL, MH, SM, SC	A-7	0-5	75-95	55-85	45-75	40-65	40-55	15-25
	43-47	Weathered bedrock	---	---	---	---	---	---	---	---	---
3121*:											
Walti	0-4	Extremely cobbly loam.	GM-GC	A-2	50-60	40-55	25-40	20-35	15-30	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Gravelly clay, clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Very cobbly loam	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Bucan	0-4	Very cobbly loam	GC, CL	A-6	25-50	55-70	50-65	45-60	35-55	30-35	10-15
	4-18	Clay	CH	A-7	0-10	85-95	80-90	75-85	65-75	50-60	35-45
	18-52	Cobbly clay, gravelly clay loam, gravelly clay.	CL	A-7	10-30	75-90	70-85	60-70	50-60	40-50	25-35
	52-56	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3122*:											
Walti	0-4	Gravelly loam	SM-SC, GM-GC, CL-ML	A-4	5-10	65-80	55-75	40-60	35-55	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine	0-10	Cobbly loam	CL-ML	A-4	20-30	80-90	75-85	65-75	50-65	20-30	5-10
	10-30	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
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Cobbly loam	SM-SC	A-4	25-40	75-90	70-85	55-70	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	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	
3123*:											
Walti	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Very gravelly loam.	GM-GC	A-2	0-5	45-60	35-50	30-45	20-35	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
Itca	0-2	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3125*:											
Walti	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Robson	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	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	
3130*:											
Itca	0-9	Very gravelly loam.	GC, GM-GC	A-2	5-10	50-60	35-50	30-40	25-35	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Reluctan	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3131*:											
Itca	0-9	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ninemile	0-2	Extremely cobbly loam.	GM-GC	A-4, A-2	45-65	30-50	30-45	25-45	20-40	25-30	5-10
	2-14	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3132*:											
Itca	0-2	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	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	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
3132*:											
Softscrabble----	0-16	Cobbly loam------	SM-SC	A-4	25-40	75-90	70-85	55-70	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Cleavage--------	0-4	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
	4-18	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
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3134*:											
Itca----------	0-9	Extremely cobbly fine sandy loam.	SM-SC	A-2	55-65	60-75	45-55	35-50	20-35	20-30	5-10
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine------	0-12	Extremely cobbly loam.	GM-GC	A-2	45-55	35-45	25-35	20-30	15-25	20-25	5-10
	12-38	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	38-42	Weathered bedrock	---	---	---	---	---	---	---	---	---
Torro----------	0-10	Very gravelly loam.	GM	A-1, A-2	0	45-55	35-50	30-40	20-35	20-25	NP-5
	10-38	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	38-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
3135*:											
Itca----------	0-2	Stony loam-------	CL, CL-ML	A-4, A-6	25-60	70-90	65-85	60-70	50-60	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	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	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
3135*:											
Clanalpine	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3136*:											
Itca	0-2	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Reluctan	0-9	Cobbly loam	SM-SC, CL-ML	A-4	15-30	80-90	70-90	60-85	40-70	20-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3137*:											
Itca	0-2	Stony loam	CL, CL-ML	A-4, A-6	25-60	70-90	65-85	60-70	50-60	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Reluctan	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	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	
3137*:											
Walti	0-4	Cobbly loam	CL-ML	A-4	25-40	70-85	65-80	55-70	50-60	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3140*:											
Sodhouse	0-7	Very fine sandy loam.	ML, SM	A-4	0	90-100	85-100	75-95	45-65	15-25	NP-5
	7-14	Very fine sandy loam, silt loam, loam.	ML	A-4	0	80-100	75-100	60-90	50-60	20-25	NP-5
	14-42	Indurated	---	---	---	---	---	---	---	---	---
	42-60	Gravelly sandy loam.	SM	A-2, A-4	0-10	65-80	60-75	50-65	25-40	15-25	NP-5
Tenabo	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	4-15	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	15-28	Indurated	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Desatoya Variant	0-3	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0	70-85	55-70	50-65	25-40	20-30	5-10
	3-13	Gravelly clay loam, gravelly sandy clay loam.	SC, CL	A-6, A-7	0	70-85	55-70	45-60	40-55	35-45	15-20
	13-26	Very gravelly sandy loam.	GM	A-1	0	45-60	35-50	25-40	10-25	15-20	NP-5
	26-60	Very gravelly sand.	GP-GM, SP-SM	A-1	0	45-60	35-50	20-35	5-10	---	NP
3151*:											
Robson	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ninemile	0-7	Extremely cobbly loam.	GM-GC	A-4, A-2	45-65	30-50	30-45	25-45	20-40	25-30	5-10
	7-19	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	19-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3151*:											
Ravenswood------	0-9	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-15	60-75	55-70	45-65	30-45	25-30	5-10
	9-13	Very gravelly clay loam.	GC	A-2	5-15	45-60	35-50	30-45	20-35	40-50	15-25
	13-36	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-15	45-60	35-50	30-45	25-40	40-55	20-30
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3153*:											
Robson----------	0-2	Cobbly loam------	SM-SC, SC, CL-ML, CL	A-4, A-6	15-45	90-95	65-95	55-65	45-60	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane----------	0-6	Gravelly loam----	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Gravelly loam----	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3154*:											
Robson----------	0-2	Very gravelly loam.	GM-GC, GC	A-2	5-15	40-50	30-40	20-35	15-30	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane----------	0-6	Very gravelly fine sandy loam.	GM-GC	A-2	5-15	50-65	30-45	25-40	15-30	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3155*:											
Robson----------	0-2	Very gravelly loam.	GM-GC, GC	A-2	5-15	40-50	30-40	20-35	15-30	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	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	
3155*:											
Itca	0-9	Very gravelly loam.	GC, GM-GC	A-2	5-10	50-60	35-50	30-40	25-35	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Gravelly loam	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3170*:											
Teguro	0-6	Very gravelly loam.	GM	A-1, A-2, A-4	10-35	30-55	25-50	20-45	15-40	15-25	NP-5
	6-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rubble land.											
Punchbowl	0-3	Cobbly loam	SM, ML	A-4	25-40	80-90	75-85	60-75	40-55	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3181*:											
Newlands	0-10	Loam	CL-ML, CL	A-4, A-6	0-5	85-95	80-90	70-85	50-65	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Packer	0-10	Very gravelly loam.	GM-GC	A-2	5-10	45-60	35-50	30-45	20-35	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	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	
3182*:											
Newlands--------	0-10	Extremely bouldery loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	50-65	75-90	65-80	60-75	45-60	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Packer----------	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood---------	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
3190*:											
Softscrabble----	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Clanalpine------	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Walti-----------	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3192*:											
Softscrabble----	0-16	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	45-60	35-50	25-45	10-25	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	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	
3192*:											
Walti	0-4	Extremely cobbly fine sandy loam.	GM-GC	A-2	50-60	40-55	25-40	20-35	10-25	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Gravelly clay, clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-4	Very gravelly fine sandy loam.	GM, SM	A-1	0-10	50-70	30-50	20-45	15-25	20-25	NP-5
	4-18	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
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3200	0-4	Gravelly loam	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
Dewar	4-14	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
	14-50	Indurated	---	---	---	---	---	---	---	---	---
3210*:											
Typic Argixerolls	0-4	Gravelly coarse sandy loam.	SM-SC	A-2	0-5	80-95	50-75	30-50	20-30	20-30	5-10
	4-15	Sandy clay loam, loam.	SC	A-2, A-6	0	85-100	85-95	60-85	30-50	30-35	10-15
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---
Torripsammentic Haploxerolls	0-2	Cobbly loamy coarse sand.	SM	A-1	30-45	90-100	85-95	35-50	15-25	---	NP
	2-7	Loamy coarse sand, coarse sand, gravelly loamy coarse sand.	SM	A-1	0	90-100	50-95	35-50	15-25	---	NP
	7	Weathered bedrock	---	---	---	---	---	---	---	---	---
Glean	0-6	Very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	6-39	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
	39-51	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
	51	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	
3231*:											
Stingdorn, moderately steep	0-7	Extremely cobbly loam.	GM, GM-GC	A-1, A-2	50-60	45-60	35-50	30-45	15-30	15-25	NP-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn, moderately sloping	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hooplite	0-4	Very gravelly loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	20-35	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3251*:											
Caphor	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Sandy loam, fine sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	17-35	Sandy loam, fine sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP
Tenabo	0-4	Very gravelly fine sandy loam.	GM	A-1, A-2	5-10	40-55	35-50	25-45	20-30	15-25	NP-5
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3251*:											
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
3252*:											
Caphor	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Fine sandy loam, sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	20-40	20-30	NP-10
	17-35	Fine sandy loam, sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP
Batan	0-5	Silt loam	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Unsel	0-8	Gravelly fine sandy loam.	SM-SC	A-2	0	75-85	55-75	40-60	25-35	25-30	5-10
	8-18	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0	75-85	55-75	45-60	35-45	35-40	15-20
	18-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC	A-2	0	60-75	50-70	35-50	20-35	20-30	5-10
	31-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand.	GP-GM, GP	A-1	0	40-50	20-35	10-25	0-10	---	NP
3253*:											
Caphor	0-7	Gravelly fine sandy loam.	SM-SC, SM	A-2, A-1	0-5	65-80	55-75	45-65	15-30	20-30	NP-10
	7-17	Sandy loam, fine sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	17-35	Sandy loam, fine sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
3253*:											
Caphor, moderately saline	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Fine sandy loam, sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	20-40	20-30	NP-10
	17-35	Fine sandy loam, sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP
3270 Koyen	0-4	Fine sandy loam	SM	A-4	0	90-100	85-100	75-90	35-50	15-25	NP-5
	4-14	Sandy loam	SM	A-4	0	90-95	85-95	50-75	35-50	15-25	NP-5
	14-60	Stratified loam to gravelly loamy sand.	SM	A-2, A-4	0	80-90	75-85	50-60	25-40	15-25	NP-5
3310*:											
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
3312*:											
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Buffaran	0-5	Gravelly loam	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated	---	---	---	---	---	---	---	---	---
	27-60	Cemented	---	---	---	---	---	---	---	---	---
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	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	
3314*:											
Spasprey	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Allor	0-12	Gravelly loam	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3341*:											
Halacan	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	45-55	35-50	30-45	25-40	30-40	NP-5
	5-17	Extremely channery loam, very channery loam.	GM	A-2, A-4, A-1	40-55	30-55	20-50	15-45	10-40	30-40	NP-5
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hatur	0-14	Gravelly loam	SM	A-2, A-4	0-5	65-80	55-70	45-60	25-45	20-25	NP-5
	14-29	Extremely gravelly loam, extremely gravelly sandy loam.	GM, GP-GM	A-1	0-25	20-30	15-25	10-25	5-20	20-25	NP-5
	29-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3342*:											
Halacan	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	45-55	35-50	30-45	25-40	30-40	NP-5
	5-17	Extremely channery loam, very channery loam.	GM	A-2, A-4, A-1	40-55	30-55	20-50	15-45	10-40	30-40	NP-5
	17	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	
3342*:											
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Granzan	0-12	Very cobbly loam	SM-SC, SC, GM-GC, GC	A-4, A-6	30-50	65-80	50-70	45-60	35-50	25-35	5-15
	12-43	Very gravelly loam, very gravelly silt loam.	GM-GC, GC	A-2, A-4, A-6	0-25	40-65	30-60	25-45	20-40	25-35	5-15
	43-47	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3411*:											
Zoesta	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Robson	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Very cobbly loam	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
3415*:											
Zoesta	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Handy	0-4	Gravelly loam	SM-SC, GM-GC, SC, GC	A-4, A-6	10-25	65-80	55-70	45-60	35-50	25-35	5-15
	4-30	Gravelly clay, clay.	CL, CH	A-7	0-5	80-100	70-90	65-80	55-70	45-55	20-30
	30-60	Gravelly loam	SM-SC, GM-GC	A-4	0-10	65-80	55-70	50-65	35-50	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		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
3417*:											
Zoesta	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Roca	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Gravelly loam	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3421*:											
Belate	0-14	Very gravelly loam.	GM-GC	A-2	5-15	50-65	35-50	30-40	25-35	20-25	5-10
	14-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
Softscrabble	0-16	Gravelly loam	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
Torro	0-10	Gravelly loam	SM	A-4	15-25	70-80	55-70	45-60	35-50	20-25	NP-5
	10-34	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-25	30-50	15-30	15-25	10-20	25-35	10-15
	34-60	Very gravelly coarse sandy loam, very gravelly sandy loam.	GM, SM	A-1	5-15	50-65	35-50	15-35	10-20	---	NP
3422*:											
Belate	0-12	Gravelly loam	SM-SC, CL-ML	A-4	5-10	75-85	60-75	55-70	45-60	20-25	5-10
	12-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
Robson	0-2	Gravelly loam	SM-SC, SC, CL-ML, CL	A-4, A-6	5-15	70-85	60-75	50-65	40-55	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3422*:											
Torro	0-10	Gravelly loam	SM	A-4	5-10	70-85	60-75	50-65	35-50	20-25	NP-5
	10-38	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	38-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
3423*:											
Belate	0-14	Very gravelly loam.	GM-GC	A-2	5-15	50-65	35-50	30-40	25-35	20-25	5-10
	14-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
Cleavage	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-15	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.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Gravelly loam	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3450*:											
Reluctan	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Robson	0-2	Very gravelly loam.	GM-GC, GC	A-2	5-15	40-50	30-40	20-35	15-30	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	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	
3450*:											
Cleavage	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-18	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
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3453*:											
Reluctan	0-9	Very gravelly loam.	GM-GC	A-2, A-4	10-25	35-65	30-55	25-55	20-40	25-30	5-10
	9-27	Gravelly clay loam, gravelly loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane	0-6	Extremely gravelly sandy loam.	GM-GC, GP-GC	A-2	5-20	40-55	15-25	10-20	5-15	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca	0-9	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3455*:											
Reluctan	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca	0-5	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	5-27	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Colbar	0-3	Cobbly loam	CL-ML	A-4	35-45	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	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		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
3457*:											
Reluctan--------	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine------	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Roca----------	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3461*:											
Torro----------	0-10	Very gravelly loam.	GM	A-1, A-2	0	45-55	35-50	30-40	20-35	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Rubble land.											
Cleavage--------	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-15	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	
3462*:											
Torro	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Reluctan	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-15	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.	---	---	---	---	---	---	---	---	---
3463*:											
Torro	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Clanalpine	0-10	Very cobbly loam	GM-GC, SM-SC	A-4	25-40	65-75	55-70	45-60	35-50	20-25	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	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	
3463*:											
Itca	0-2	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3464*:											
Torro	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Itca	0-2	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble	0-16	Gravelly loam	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3465*:											
Torro	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	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	
3465*:											
Clanalpine------	0-10	Extremely cobbly loam.	GM-GC	A-2	45-55	35-45	25-35	20-30	15-25	20-25	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Loam----------	SM-SC, CL-ML	A-4	0-5	85-100	80-90	65-80	40-65	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
3562*:											
Locane----------	0-6	Gravelly loam----	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Coztur----------	0-11	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-10	60-80	55-75	50-70	30-50	20-25	5-10
	11-17	Loam, clay loam	CL	A-6	0	90-100	85-95	70-85	50-65	30-40	10-15
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Punchbowl-------	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3563*:											
Locane----------	0-6	Gravelly sandy loam.	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Muni----------	0-3	Gravelly sandy loam.	SM-SC	A-2	0	80-90	60-75	50-65	25-35	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented---------	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP
Locane, eroded--	0-2	Very gravelly loam.	GM-GC	A-2	5-15	50-65	30-45	25-40	15-30	20-30	5-10
	2-10	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	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	
3625*:											
Minat	0-9	Very gravelly fine sandy loam.	GM-GC	A-2	5-10	45-60	35-50	30-45	10-25	20-30	5-10
	9-27	Very gravelly loam.	GC, GM-GC	A-2	0-10	45-60	30-50	25-45	20-35	25-35	5-15
	27-60	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	45-60	30-50	20-45	15-30	25-35	5-15
Coztur	0-11	Extremely gravelly loam.	GM-GC	A-2	5-10	20-35	15-25	10-25	10-20	20-25	5-10
	11-17	Loam, clay loam	CL	A-6	0	90-100	85-95	70-85	50-65	30-40	10-15
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Belate	0-12	Very cobbly loam	GM-GC	A-4	30-40	65-75	50-65	45-60	35-50	20-25	5-10
	12-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
3690*:											
Izod	0-4	Cobbly loam------	SM-SC, SM, CL-ML, ML	A-4	15-30	80-95	70-90	55-75	45-65	25-35	5-10
	4-10	Very gravelly loam, extremely gravelly loam.	GM-GC, GM	A-2	0-25	20-55	15-50	15-45	10-35	25-35	5-10
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Koynik	0-6	Extremely gravelly sandy loam.	GM-GC, GM	A-2, A-1	10-25	35-50	20-35	15-30	10-25	20-30	NP-10
	6-8	Very gravelly loam, very gravelly very fine sandy loam, very gravelly silt loam.	GM-GC, SM-SC, GC, SC	A-2	0-5	55-70	35-50	30-45	15-30	25-35	5-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3740	0-3	Silt loam--------	CL-ML, ML	A-4	0	100	100	95-100	85-95	25-35	5-10
Kelk	3-18	Silt loam--------	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	18-42	Silt loam--------	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	42-60	Silt loam--------	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
3741*:											
Kelk	0-14	Very fine sandy loam.	CL-ML	A-4	0	100	100	90-95	65-75	25-30	5-10
	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

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	
3741*:											
Settlemeyer	0-16	Fine sandy loam	SM	A-2	0	90-100	80-95	70-85	20-35	20-25	NP-5
	16-36	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-85	35-40	15-20
	36-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15
3742*:											
Kelk	0-14	Very fine sandy loam.	CL-ML	A-4	0	100	100	90-95	65-75	25-30	5-10
	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	0-4	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-36	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
3840*:											
Jung, moderately steep	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Newpass	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung, strongly sloping	0-8	Very cobbly fine sandy loam.	SM-SC	A-2	35-50	65-80	50-65	40-60	20-35	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	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 > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3841*:											
Jung	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca	0-9	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca	0-5	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	5-27	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3842*:											
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hooplite	0-4	Very gravelly loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	20-35	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3843*:											
Jung	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	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	
3843*:											
Newpass	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teguro	0-6	Very gravelly loam.	GM	A-1, A-2, A-4	10-35	30-55	25-50	20-45	15-40	15-25	NP-5
	6-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3845*:											
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn	0-7	Extremely cobbly loam.	GM, GM-GC	A-1, A-2	50-60	45-60	35-50	30-45	15-30	15-25	NP-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3846*:											
Jung	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	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	
3846*:											
Atlow	0-6	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	6-15	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McVegas	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	50-65	35-50	30-45	25-40	20-30	NP-5
	5-19	Very cobbly clay, very cobbly clay loam.	CL, CH	A-7	30-40	75-90	65-75	50-70	45-60	40-55	20-30
	19-22	Cemented	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3847*:											
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	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	
3848*:											
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McVegas	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	50-65	35-50	30-45	25-40	20-30	NP-5
	5-19	Very cobbly clay, very cobbly clay loam.	CL, CH	A-7	30-40	75-90	65-75	50-70	45-60	40-55	20-30
	19-22	Cemented	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Enko	0-6	Gravelly fine sandy loam.	SM-SC	A-2	0	60-80	50-75	40-65	15-30	20-25	5-10
	6-18	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-60	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
3851*:											
Decram, moderately steep	0-11	Extremely gravelly loam.	GC	A-2	10-25	35-50	20-35	15-30	10-20	25-35	10-15
	11-28	Very gravelly loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	15-55	40-65	35-60	25-55	20-50	25-35	10-15
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Decram, steep	0-11	Very gravelly loam.	GC	A-2	5-15	40-55	30-45	25-40	20-35	25-35	10-15
	11-28	Very gravelly loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	15-55	40-65	35-60	25-55	20-50	25-35	10-15
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	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	
3852*:											
Decram	0-11	Very gravelly loam.	GC	A-2	5-15	40-55	30-45	25-40	20-35	25-35	10-15
	11-28	Very gravelly loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	15-55	40-65	35-60	25-55	20-50	25-35	10-15
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Chad	0-17	Cobbly loam	SM-SC, CL-ML	A-4	15-25	70-80	65-75	40-60	35-55	20-30	5-10
	17-42	Gravelly clay, gravelly clay loam, clay.	CL, MH, SM, SC	A-7	0-5	75-95	55-85	45-75	40-65	40-55	15-25
	42-50	Weathered bedrock	---	---	---	---	---	---	---	---	---
3861*:											
Duco	0-6	Very cobbly loam	SM-SC, GM-GC	A-2, A-4	35-55	55-80	50-75	35-60	25-50	20-30	5-10
	6-15	Very gravelly clay loam, extremely stony clay loam, very cobbly sandy clay loam.	GC	A-2	15-55	35-60	30-55	20-35	15-30	35-40	15-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca	0-9	Very gravelly loam.	GC, GM-GC	A-2	5-10	50-60	35-50	30-40	25-35	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	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	
3863*:											
Duco	0-7	Stony loam	SM-SC, GM-GC, CL-ML	A-4	5-10	60-80	55-75	45-65	35-55	20-30	5-10
	7-19	Very gravelly clay loam, extremely stony clay loam, very cobbly sandy clay loam.	GC	A-2	15-55	35-60	30-55	20-35	15-30	35-40	15-20
	19-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Jung	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3881*:											
Layview	0-3	Extremely cobbly loam.	GM-GC	A-4	50-65	60-75	55-65	45-60	35-50	25-30	5-10
	3-12	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	10-15	45-55	40-50	35-45	30-40	30-40	15-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Packer	0-10	Gravelly loam	SM-SC, GM-GC	A-4	0-10	65-80	55-70	45-60	35-50	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	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	
3881*:											
Hapgood---------	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
3891*:											
Labshaft--------	0-8	Extremely stony loam.	SC, CL	A-2, A-6	50-65	65-80	60-75	40-65	30-55	30-35	10-15
	8-15	Very gravelly loam, very gravelly clay loam, extremely gravelly sandy clay loam.	GC	A-2	15-25	35-60	25-50	20-40	10-30	35-45	15-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Rock outcrop.											
3950*:											
Hooplite--------	0-4	Very gravelly loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	20-35	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung------------	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Izod------------	0-4	Very cobbly loam	SM-SC, SM, GM-GC, GM	A-2, A-4	25-40	60-80	40-65	35-55	25-50	25-35	5-10
	4-10	Very gravelly loam, extremely gravelly loam.	GM-GC, GM	A-2	0-25	20-55	15-50	15-45	10-35	25-35	5-10
	10	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	
3951*:											
Hooplite	0-4	Very gravelly fine sandy loam.	GM-GC, SM-SC	A-2	10-25	55-70	45-50	40-50	20-30	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp	0-2	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-15	50-60	35-45	30-40	20-30	15-25	NP-10
	2-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Puett	0-3	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	3-13	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
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---
3952*:											
Hooplite	0-4	Very gravelly fine sandy loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	10-20	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn	0-7	Gravelly loam	SM-SC	A-2, A-4	5-10	70-85	55-70	40-55	30-40	20-30	5-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3960 Pineval	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	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	
3961*:											
Pineval	0-5	Very cobbly loam	SM-SC, GM-GC	A-4	30-40	65-80	55-70	45-60	35-50	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0-5	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0	30-60	20-50	15-40	5-20	---	NP
Orovada	0-8	Cobbly fine sandy loam.	SM	A-4	25-35	85-95	75-90	60-75	35-50	15-25	NP-5
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	90-100	80-95	60-80	40-60	20-30	NP-5
	26-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	90-100	80-95	60-85	35-55	20-30	NP-5
Beoska	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
3964*:											
Pineval	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	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	
3964*:											
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3990	0-16	Fine sandy loam	SM	A-2	0	90-100	80-95	70-85	20-35	20-25	NP-5
Settlemeyer	16-36	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-85	35-40	15-20
	36-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15
3991*:											
Settlemeyer	0-16	Loam	CL-ML, CL	A-4, A-6	0	100	100	80-100	70-80	25-35	5-15
	16-36	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-85	35-40	15-20
	36-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15
Pineval	0-5	Gravelly loam	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
3992*:											
Settlemeyer, drained	0-16	Loam	CL, CL-ML	A-4, A-6	0	100	100	80-95	60-75	25-35	5-15
	16-40	Silt loam, silty clay loam.	CL	A-6, A-7	0	95-100	90-100	85-90	60-85	35-45	15-20
	40-60	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	90-100	80-90	40-60	20-30	5-10
Settlemeyer, frequently flooded	0-15	Loam	CL	A-6	0	90-100	90-100	75-90	50-65	25-35	10-15
	15-35	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-90	35-40	15-20
	35-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	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	
4041*:											
Hymas	0-9	Gravelly loam	GC, SC	A-6	5-10	65-80	55-70	50-60	35-50	25-35	10-15
	9-15	Very cobbly loam, extremely gravelly loam, extremely cobbly loam.	GM, GM-GC	A-2, A-1, A-4	30-70	35-65	30-60	25-55	20-45	20-30	NP-10
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Xine	0-10	Gravelly loam	SM	A-2, A-4	0-5	65-80	50-75	45-60	30-45	15-25	NP-5
	10-33	Very cobbly loam, very cobbly sandy loam.	GM, SM	A-2, A-4, A-1	35-50	55-80	50-75	35-60	20-45	15-25	NP-5
	33	Weathered bedrock	---	---	---	---	---	---	---	---	---
Attella	0-3	Very gravelly loam.	GM	A-1, A-2	5-15	35-55	30-50	25-40	20-35	25-35	NP-10
	3-7	Very gravelly loam, very gravelly silt loam.	GC, GM-GC	A-2	5-15	35-55	30-50	25-40	20-35	25-40	5-15
	7	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
4070*:											
Genaw	0-6	Gravelly loam	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wieland	0-8	Gravelly loam	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-60	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
Grina	0-3	Very gravelly loam.	GM-GC, GC	A-2	0-5	45-60	30-45	25-40	15-30	25-35	5-15
	3-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14-18	Weathered 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	
4072*:											
Genaw	0-6	Very fine sandy loam.	SM, SM-SC	A-4	0	90-100	85-95	75-90	35-50	15-30	NP-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	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	0-4	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	4-15	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
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---
4073*:											
Genaw	0-6	Gravelly loam----	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Broyles	0-13	Gravelly very fine sandy loam.	SM, GM	A-4	0	65-85	60-75	55-70	35-50	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2, A-4	0	70-100	60-95	30-50	25-45	---	NP
Perlor	0-7	Fine sandy loam	SM	A-2, A-4	0-5	85-100	80-100	70-90	25-40	15-25	NP-5
	7-14	Loam, sandy loam, gravelly sandy loam.	SM, ML	A-4	0-5	75-100	70-95	50-80	35-65	15-25	NP-5
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
4140 Welch	0-4	Loam----------	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	4-60	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

* 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
Akerue	Clayey-skeletal, montmorillonitic, frigid, shallow Xerollic Durargids
Allor	Fine-loamy, mixed, mesic Durixerollic Haplargids
Atlow	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Attella	Loamy-skeletal, mixed (calcareous), frigid Lithic Xeric Torriorthents
Barrier	Loamy, mixed, frigid, shallow Haploxerollic Durorthids
Batan	Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Belate	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Belted	Loamy, mixed, mesic, shallow Haplic Durargids
Beoska	Fine-loamy, mixed, mesic Duric Natrargids
Blackhawk	Loamy, mixed, mesic, shallow Entic Durorthids
Broyles	Coarse-loamy, mixed, mesic Duric Camborthids
Bubus	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Bucan	Fine, montmorillonitic, frigid Xerollic Haplargids
Buffaran	Clayey, montmorillonitic, mesic, shallow Xerollic Durargids
Burrita	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Caniwe	Fine-silty, mixed, mesic Aridic Duric Haploxerolls
Caphor	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Chad	Fine, mixed, frigid Aridic Argixerolls
Chedehap	Coarse-loamy, mixed, mesic Xerollic Camborthids
Chiara	Loamy, mixed, mesic, shallow Xerollic Durorthids
Clanalpine	Loamy-skeletal, mixed, frigid Typic Argixerolls
Cleavage	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Colbar	Fine-loamy, mixed, mesic Xerollic Haplargids
Coztur	Loamy, mixed, frigid Lithic Xerollic Haplargids
Creemon	Coarse-silty, mixed, mesic Duric Camborthids
Cren	Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Davey	Sandy, mixed, mesic Xerollic Camborthids
Decram	Loamy-skeletal, mixed Typic Cryoborolls
Defler	Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents
Desatoya	Clayey over loamy-skeletal, montmorillonitic, mesic Durixerollic Haplargids
Desatoya Variant	Fine-loamy, mixed, mesic Xerollic Haplargids
Dewar	Loamy, mixed, mesic, shallow Xerollic Durargids
Duco	Loamy-skeletal, mixed, mesic Lithic Argixerolls
Eastwell	Loamy-skeletal, mixed, mesic, shallow Haploxerollic Durorthids
Enko	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Fenster	Fine-silty, mixed (calcareous), frigid Typic Torriorthents
Filiran	Fine, montmorillonitic, mesic Haploxerollic Nadurargids
Fortank	Fine, montmorillonitic, frigid Xerollic Haplargids
Gando	Loamy-skeletal, mixed, frigid Lithic Haploxerolls
Genaw	Loamy, mixed, mesic, shallow Xerollic Haplargids
Glean	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
Glyphs	Fine-loamy, mixed, mesic Durixerollic Haplargids
Granzan	Loamy-skeletal, carbonatic, frigid Typic Calcixerolls
Grassval	Loamy, mixed, mesic, shallow Xerollic Durargids
Grina	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Gund	Fine-silty over clayey, mixed, nonacid, mesic Aquic Durorthidic Torriorthents
Hackwood	Fine-loamy, mixed Pachic Cryoborolls
Halacan	Loamy-skeletal, carbonatic Cryic Lithic Rendolls
Handy	Fine, montmorillonitic, frigid Xerollic Haplargids
Hapgood	Loamy-skeletal, mixed Pachic Cryoborolls
Hatur	Loamy-skeletal, carbonatic Cryic Rendolls
Hessing	Coarse-loamy, mixed, mesic Typic Camborthids
Hooplite	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Hopeka	Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents
Hymas	Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls
Isolde	Mixed, mesic Typic Torripsamments
Itca	Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls
Itca Variant	Loamy, mixed, frigid, shallow Aridic Argixerolls
Izo	Sandy-skeletal, mixed, mesic Typic Torriorthents

TABLE 6.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Izod	Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents
Jesse Camp	Fine-silty, mixed, frigid Xerollic Camborthids
Jung	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Kawich	Mixed, mesic Typic Torripsamments
Kelk	Fine-silty, mixed, mesic Durixerollic Camborthids
Kingingham	Fine, montmorillonitic, mesic Typic Nadurargids
Kobeh	Loamy-skeletal, mixed, frigid Durixerollic Camborthids
Koyen	Coarse-loamy, mixed, mesic Typic Camborthids
Koynik	Loamy-skeletal, carbonatic, mesic Lithic Torriorthents
Kram	Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents
Labshaft	Loamy-skeletal, mixed Lithic Cryoborolls
Laped	Loamy, mixed, mesic, shallow Typic Durargids
Laxal	Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents
Layview	Loamy-skeletal, mixed Argic Lithic Cryoborolls
Locane	Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids
Loncan	Loamy-skeletal, mixed, frigid Aridic Haploxerolls
Lopwash	Loamy-skeletal, mixed, frigid Typic Camborthids
McConnel	Sandy-skeletal, mixed, mesic Xerollic Camborthids
McVegas	Clayey-skeletal, montmorillonitic, mesic, shallow Haplic Nadurargids
Minat	Loamy-skeletal, mixed, mesic Xerollic Camborthids
Misad	Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents
Muni	Loamy, mixed, mesic, shallow Haploxerollic Durargids
Needle Peak	Fine-silty, mixed (calcareous), mesic Aquic Torriorthents
Newlands	Fine-loamy, mixed Argic Cryoborolls
Newpass	Fine, montmorillonitic, mesic Haploxerollic Nadurargids
Ninemile	Clayey, montmorillonitic, frigid Lithic Argixerolls
Nobuck	Loamy-skeletal, mixed, frigid Xerollic Haplargids
Novacan	Fine, montmorillonitic, mesic Haploxerollic Durargids
Ocala	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
*Old Camp	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Orovada	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Osoll	Loamy-skeletal, mixed, mesic, shallow Typic Durorthids
Oxcorel	Fine, montmorillonitic, mesic Duric Natrargids
Packer	Loamy-skeletal, mixed Argic Cryoborolls
Paranat	Fine-silty, mixed (calcareous), mesic Fluvaquentic Haplaquolls
Perlor	Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents
Pineval	Loamy-skeletal, mixed, mesic Durixerollic Haplargids
Poorcal	Coarse-loamy, mixed, frigid Durixerollic Calciorthids
Puett	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Pula	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
Punchbowl	Loamy, mixed, frigid Lithic Xerollic Haplargids
Rasille	Coarse-silty, mixed, mesic Durixerollic Camborthids
Ravenswood	Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls
Relley	Fine-silty, mixed, mesic Duric Camborthids
Reluctan	Fine-loamy, mixed, frigid Aridic Argixerolls
Ricert	Fine-loamy, mixed, mesic Duric Natrargids
Robson	Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids
Roca	Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids
Rotinom	Fine-silty, mixed (calcareous), mesic Durorthidic Torrifluvents
Rutab	Loamy-skeletal, mixed, frigid Xerollic Camborthids
Settlemeyer	Fine-loamy, mixed, mesic Fluvaquentic Haplaquolls
Shagnasty	Fine, montmorillonitic, frigid Typic Argixerolls
Shipley	Coarse-loamy, mixed (calcareous), frigid Xeric Torriorthents
Silverado	Coarse-loamy, mixed, frigid Durixerollic Camborthids
Simpark	Loamy-skeletal, mixed, frigid, shallow Xerollic Durargids
Skullwak	Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts
Sodhouse	Loamy, mixed, mesic, shallow Typic Durorthids
Softscrabble	Loamy-skeletal, mixed, frigid Pachic Argixerolls
Sonoma	Fine-silty, mixed (calcareous), mesic Aeric Fluvaquents
Spasprey	Fine-loamy, mixed, mesic Haploxerollic Durargids
Spike	Loamy-skeletal, mixed, mesic Typic Haplargids
Stampede	Fine, montmorillonitic, frigid Aridic Durixerolls
Stingdorn	Loamy-skeletal, mixed, mesic, shallow Typic Durargids

TABLE 6.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Sumine	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Sundown	Mixed, mesic Typic Torripsamments
Teguro	Loamy, mixed, frigid Lithic Argixerolls
Tenabo	Loamy, mixed, mesic, shallow Typic Nadurargids
Tessfive	Loamy, mixed (calcareous), mesic Lithic Xeric Torriorthents
Tomel	Loamy-skeletal, mixed, mesic, shallow Typic Durargids
Torripsammentic Haploxerolls	Torripsammentic Haploxerolls
Torro	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Trunk	Fine, montmorillonitic, mesic Xerollic Haplargids
Tulase	Coarse-silty, mixed (calcareous), mesic Durorthidic Xeric Torriorthents
Typic Argixerolls	Typic Argixerolls
Umberland	Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts
Unius	Loamy, mixed, mesic, shallow Haploxerollic Durorthids
Unsel	Fine-loamy, mixed, mesic Duric Haplargids
Unsel Variant	Fine-loamy, mixed, mesic Duric Haplargids
Valmy	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Walti	Fine, montmorillonitic, frigid Aridic Argixerolls
Wardenot	Sandy-skeletal, mixed, mesic Typic Torriorthents
Welch	Fine-loamy, mixed, frigid Cumulic Haplaquolls
Wendane	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
Whirlo	Loamy-skeletal, mixed, mesic Typic Camborthids
Wholan	Coarse-silty, mixed, mesic Typic Camborthids
Wieland	Fine, montmorillonitic, mesic Durixerollic Haplargids
Xine	Loamy-skeletal, mixed, frigid Aridic Calcixerolls
Yobe	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
Zaidy	Fine-loamy, mixed, mesic Haploxerollic Durargids
Zineb	Loamy-skeletal, mixed, mesic Durixerollic Camborthids
Zoesta	Fine, montmorillonitic, frigid Xerollic Paleargids
Zoesta Variant	Fine, montmorillonitic, mesic Xerollic Paleargids

Rangeland Plants and Woodland Understory

120--Akerue-Simpark-Robson 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--			
		Akerue	Simpark	Robson	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	5-10	---	5-10	---	---
Needleandthread	STCO4	5-15	5-15	---	---	2-5	---	---
Pine bluegrass	POSC	2-5	2-5	---	5-10	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	2-5	5-10	5-10	---	---
Thurber needlegrass	STTH2	---	---	5-15	---	20-30	---	---
Sandberg bluegrass	POSE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Idaho fescue	FEID	---	---	---	10-15	---	---	---
Other perennial grasses	PPGG	5-10	5-10	---	10-15	5-10	---	---
Perennial forbs	PPFF	5-15	5-15	5-10	5-10	5-10	---	---
Black sagebrush	ARARN	20-25	20-25	---	5-15	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	---	25-30	5-15	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-15	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10	---	---
Other shrubs	SSSS	10-20	10-20	10-15	5-10	---	---	---
Range site symbol		028B016N	028B016N	028B045N	028B038N	028B007N	None	None
Potential production (lb/acre):								
Favorable years		500	500	800	800	1,000	---	---
Normal years		250	250	600	600	750	---	---
Unfavorable years		150	150	400	400	600	---	---

121--Akerue-Simpark-Punchbowl 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--		
		Akerue	Simpark	Punchbowl	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	5-10	20-30	---
Needleandthread	STCO4	5-15	5-15	5-15	---	10-20	---
Pine bluegrass	POSC	2-5	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	1-3	2-5	---	---
Thurber needlegrass	STTH2	---	---	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	---	5-10	2-5	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	5-10	---
Other perennial grasses	PPGG	5-10	5-10	5-10	---	---	---
Perennial forbs	PPFF	5-15	5-15	5-15	5-10	2-5	---
Black sagebrush	ARARN	20-25	20-25	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	2-5	---	---	---
Low sagebrush	ARAR8	---	---	---	25-30	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20	---
Other shrubs	SSSS	10-20	10-20	10-20	10-15	5-15	---
Range site symbol		028B016N	028B016N	028B016N	028B045N	028B010N	None
Potential production (lb/acre):							
Favorable years		500	500	500	800	800	---
Normal years		250	250	250	600	600	---
Unfavorable years		150	150	150	400	400	---

141--Unsel-Wardenot-Belted 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--	
		Unsel	Wardenot	Belted	1	2
Galleta	HIJA	10-25	10-25	10-25	---	---
Indian ricegrass	ORHY	5-10	5-10	5-10	5-15	20-30
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	---	5-10
Desert needlegrass	STSP3	2-5	2-5	2-5	---	---
Needleandthread	STCO4	---	---	---	5-15	10-20
Pine bluegrass	POSC	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	1-3	---
Sandberg bluegrass	POSE	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	5-10	---
Perennial forbs	PPFF	4-10	4-10	4-10	5-15	2-5
Shadscale	ATCO	10-25	10-25	10-25	---	---
Bailey greasewood	SAVEB	5-15	5-15	5-15	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	2-5	---
Winterfat	EULA5	5-10	5-10	5-10	---	---
Black sagebrush	ARARN	---	---	---	20-25	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20
Other shrubs	SSSS	---	---	---	10-20	5-15
Range site symbol		029X017N	029X017N	029X017N	028B016N	028B010N
Potential production (lb/acre):						
Favorable years		350	350	350	500	800
Normal years		250	250	250	250	600
Unfavorable years		100	100	100	150	400

142--Unsel-Caphor-Chedehap association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Unsel	Caphor	Chedehap	1	2	3
Galleta	HIJA	10-25	---	---	---	---	---
Indian ricegrass	ORHY	5-10	5-15	15-25	---	5-15	20-30
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	5-10	5-15	5-10
Desert needlegrass	STSP3	2-5	---	---	---	---	---
Needleandthread	STCO4	---	5-10	---	---	1-3	10-20
Thurber needlegrass	STTH2	---	---	5-10	---	---	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	2-5
Other perennial grasses	PPGG	---	5-10	---	T-10	---	---
Scarlet globemallow	SPCO	---	---	2-5	---	---	---
Other perennial forbs	PPFF	4-10	5-10	---	2-8	2-8	2-5
Shadscale	ATCO	10-25	30-40	---	30-50	30-40	---
Bailey greasewood	SAVEB	5-15	---	---	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	5-15	20-30	---
Winterfat	EULA5	5-10	2-5	---	---	2-5	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	---	20-30	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-25	---	---	15-20
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Other shrubs	SSSS	---	5-15	5-10	---	2-5	5-15

Range site symbol	029X017N	028B017N	028B052N	024X003N	024X002N	028B010N
Potential production (lb/acre):						
Favorable years	350	700	600	600	700	800
Normal years	250	500	400	450	450	600
Unfavorable years	100	250	300	300	300	400

150--Chedehap-Enko-Ricert 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--		
		Chedehap	Enko	Ricert	1	2	3
Indian ricegrass	ORHY	15-25	20-30	5-15	15-25	20-30	5-15
Thurber needlegrass	STTH2	5-10	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	2-5	5-10	2-5	2-5	5-10	---
Needleandthread	STCO4	---	10-20	5-10	---	10-20	5-15
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5
Bluebunch wheatgrass	AGSP	---	---	---	---	---	1-3
Other perennial grasses	PPGG	---	---	5-10	---	---	5-10
Scarlet globemallow	SPCO	2-5	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-5	5-10	---	2-5	5-15
Spiny hopsage	GRSP	20-30	---	---	20-30	---	---
Wyoming big sagebrush	ARTRW*	15-25	15-20	---	15-25	15-20	---
Bud sagebrush	ARSP5	5-10	---	5-10	5-10	---	2-5
Shadscale	ATCO	---	---	30-40	---	---	---
Winterfat	EULA5	---	---	2-5	---	---	---
Fourwing saltbush	ATCA2	---	---	2-5	---	---	2-5
Black sagebrush	ARARN	---	---	---	---	---	20-25
Other shrubs	SSSS	5-10	5-15	5-15	5-10	5-15	10-20
Range site symbol		028B052N	028B010N	028B017N	028B052N	028B010N	028B016N
Potential production (lb/acre):							
Favorable years		600	800	700	600	800	500
Normal years		400	600	500	400	600	250
Unfavorable years		300	400	250	300	400	150

160--Batan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Batan	Batan, slightly saline	1	2
Bottlebrush squirreltail	SIHY	5-10	5-15	2-10	5-10
Indian ricegrass	ORHY	---	5-15	10-20	20-30
Sandberg bluegrass	POSE	---	2-5	---	2-5
Needleandthread	STCO4	---	1-3	---	10-20
Other perennial grasses	PPGG	T-10	---	---	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-5
Shadscale	ATCO	30-50	30-40	---	---
Black greasewood	SAVE4	15-30	---	---	---
Bud sagebrush	ARSP5	5-15	20-30	2-5	---
Seepweed	SUAED	2-15	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---
Winterfat	EULA5	---	2-5	60-70	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20
Other shrubs	SSSS	---	2-5	---	5-15

Range site symbol	024X003N	024X002N	024X004N	028B010N
Potential production (lb/acre):				
Favorable years	600	700	500	800
Normal years	450	450	350	600
Unfavorable years	300	300	200	400

161--Batan silt loam

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Batan	1	2	3
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---
Indian ricegrass	ORHY	---	---	10-30	---
Alkali sacaton	SPAI	---	---	T-5	15-30
Basin wildrye	ELCI2	---	---	---	40-60
Inland saltgrass	DISPS2	---	---	---	5-10
Other perennial grasses	PPGG	T-10	T-10	---	---
Perennial forbs	PPFF	2-8	2-8	T-5	---
Shadscale	ATCO	30-50	30-50	---	---
Black greasewood	SAVE4	15-30	15-30	---	5-15
Bud sagebrush	ARSP5	5-15	5-15	---	---
Seepweed	SUAED	2-15	2-15	---	---
Sickle saltbush	ATFA	---	---	50-65	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2
Rubber rabbitbrush	CHNA2	---	---	---	1-2
Range site symbol		024X003N	024X003N	024X012N	024X007N
Potential production (lb/acre):					
Favorable years		600	600	700	1,900
Normal years		450	450	400	1,400
Unfavorable years		300	300	200	800

162--Batan-Kelk association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Batan	Kelk, saline	Kelk, occasionally flooded	1	2
Bottlebrush squirreltail	SIHY	5-10	2-5	---	---	2-5
Basin wildrye	ELCI2	---	5-20	50-60	5-15	---
Indian ricegrass	ORHY	---	2-5	---	---	5-15
Western wheatgrass	AGSM	---	---	5-15	---	---
Inland saltgrass	DISPS2	---	---	---	5-10	---
Needleandthread	STCO4	---	---	---	---	5-10
Other perennial grasses	PPGG	T-10	---	---	---	5-10
Thelypody	THELY	---	2-4	---	---	---
Other perennial forbs	PPFF	2-8	---	2-8	T-5	5-10
Shadscale	ATCO	30-50	---	---	---	30-40
Black greasewood	SAVE4	15-30	20-30	2-10	60-75	---
Bud sagebrush	ARSP5	5-15	---	---	---	5-10
Seepweed	SUAED	2-15	---	---	---	---
Basin big sagebrush	ARTRT*	---	5-15	15-20	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---
Spiny hopsage	GRSP	---	5-15	---	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Winterfat	EULA5	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-15

Range site symbol	024X003N	024X022N	024X006N	024X011N	028B017N
Potential production (lb/acre):					
Favorable years	600	800	1,500	500	700
Normal years	450	600	1,100	350	500
Unfavorable years	300	350	600	200	250

168--Batan-Bubus-Ocala association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Batan	Bubus	Ocala	1	2
Bottlebrush squirreltail	SIHY	5-10	5-10	---	---	5-15
Basin wildrye	ELCI2	---	---	40-60	50-60	---
Alkali sacaton	SPAI	---	---	15-30	---	---
Inland saltgrass	DISPS2	---	---	5-10	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Sandberg bluegrass	POSE	---	---	---	---	2-5
Needleandthread	STCO4	---	---	---	---	1-3
Other perennial grasses	PPGG	T-10	T-10	---	---	---
Perennial forbs	PPFF	2-8	2-8	---	2-8	2-8
Shadscale	ATCO	30-50	30-50	---	---	30-40
Black greasewood	SAVE4	15-30	15-30	5-15	2-10	---
Bud sagebrush	ARSP5	5-15	5-15	---	---	20-30
Seepweed	SUAED	2-15	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	---	1-2	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---
Spiny hopsage	GRSP	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	2-5

Range site symbol	024X003N	024X003N	024X007N	024X006N	024X002N
Potential production (lb/acre):					
Favorable years	600	600	1,900	1,500	700
Normal years	450	450	1,400	1,100	450
Unfavorable years	300	300	800	600	300

169--Batan-Ocala association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Batan	Ocala, occasionally flooded	Ocala, rarely flooded	1	2	3
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---	---
Basin wildrye	ELCI2	---	5-15	5-15	50-60	---	---
Inland saltgrass	DISPS2	---	5-10	5-10	---	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Thurber needlegrass	STTH2	---	---	---	---	---	20-50
Bluebunch wheatgrass	AGSP	---	---	---	---	---	5-10
Other perennial grasses	PPGG	T-10	---	---	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-4
Tapertip hawksbeard	CRAC2	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	T-5	T-5	2-8	---	---
Shadscale	ATCO	30-50	---	---	---	---	---
Black greasewood	SAVE4	15-30	60-75	60-75	2-10	---	---
Bud sagebrush	ARSP5	5-15	---	---	---	---	---
Seepweed	SUAED	2-15	---	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	15-20
Downy rabbitbrush	CHVIP	---	---	---	---	---	2-5
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	2-10
Range site symbol		024X003N	024X011N	024X011N	024X006N	None	024X005N
Potential production (lb/acre):							
Favorable years		600	500	500	1,500	---	800
Normal years		450	350	350	1,100	---	600
Unfavorable years		300	200	200	600	---	400

170--Beoska-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--		
		Beoska	Orovada	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	2-10	---	5-15
Indian ricegrass	ORHY	5-15	20-30	5-15	---	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-10	---	2-5
Needleandthread	STCO4	1-3	10-20	---	---	1-3
Thurber needlegrass	STTH2	---	---	0-20	20-50	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---
Tapertip hawksbeard	CRAC2	---	---	1-2	2-4	---
Globemallow	SPHAE	---	---	1-2	---	---
Phlox	PHLOX	---	---	1-2	---	---
Balsamroot	BALSA	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	2-5	---	---	2-8
Shadscale	ATCO	30-40	---	---	---	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30
Spiny hopsage	GRSP	2-5	---	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	30-35	15-20	---
Downy rabbitbrush	CHVIP	---	---	---	2-5	---
Other shrubs	SSSS	2-5	5-15	---	2-10	2-5

Range site symbol	O24XO02N	O28BO10N	O24XO20N	O24XO05N	O24XO02N
Potential production (lb/acre):					
Favorable years	700	800	700	800	700
Normal years	450	600	450	600	450
Unfavorable years	300	400	300	400	300

171--Beoska silt 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--			
		Beoska	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-15	2-10
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-10
Needleandthread	STCO4	1-3	1-3	1-3	1-3	---
Thurber needlegrass	STTH2	---	---	---	---	10-20
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Shadscale	ATCO	30-40	30-40	30-40	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	20-30	---
Spiny hopsage	GRSP	2-5	2-5	2-5	2-5	5-15
Winterfat	EULA5	2-5	2-5	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35
Other shrubs	SSSS	2-5	2-5	2-5	2-5	---
Range site symbol		024X002N	024X002N	024X002N	024X002N	024X020N
Potential production (lb/acre):						
Favorable years		700	700	700	700	700
Normal years		450	450	450	450	450
Unfavorable years		300	300	300	300	300

172--Beoska-Tenabo complex

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Beoska	Tenabo	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	---	1-3
Thurber needlegrass	STTH2	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	1-2	---
Globemallow	SPHAE	---	---	1-2	---
Phlox	PHLOX	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	20-30
Spiny hopsage	GRSP	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	30-35	---
Other shrubs	SSSS	2-5	2-5	---	2-5
Range site symbol		024X002N	024X002N	024X020N	024X002N
Potential production (lb/acre):					
Favorable years		700	700	700	700
Normal years		450	450	450	450
Unfavorable years		300	300	300	300

173--Beoska-Allor 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--		
		Beoska	Allor	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	2-10	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	---	2-10	2-10	2-5
Needleandthread	STCO4	1-3	---	---	---	1-3
Pine bluegrass	POSC	---	5-15	---	---	---
Thurber needlegrass	STTH2	---	---	10-20	10-20	---
Other perennial grasses	PPGG	---	5-10	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-2	1-2	---
Globemallow	SPHAE	---	---	1-2	1-2	---
Phlox	PHLOX	---	---	1-2	1-2	---
Other perennial forbs	PPFF	2-8	5-10	---	---	2-8
Shadscale	ATCO	30-40	---	---	---	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30
Spiny hopsage	GRSP	2-5	10-20	5-15	5-15	2-5
Winterfat	EULA5	2-5	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	10-20	30-35	30-35	---
Nevada ephedra	EPNE	---	5-10	---	---	---
Other shrubs	SSSS	2-5	---	---	---	2-5
Range site symbol		024X002N	027X008N	024X020N	024X020N	024X002N
Potential production (lb/acre):						
Favorable years		700	700	700	700	700
Normal years		450	500	450	450	450
Unfavorable years		300	300	300	300	300

174--Beoska-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--		
		Beoska	Chiara	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	2-10	---	5-15
Indian ricegrass	ORHY	5-15	---	5-15	---	5-15
Sandberg bluegrass	POSE	2-5	---	2-10	---	2-5
Needleandthread	STCO4	1-3	---	---	---	1-3
Thurber needlegrass	STTH2	---	20-50	10-20	---	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	15-25	---
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	1-2	---	---
Globemallow	SPHAE	---	---	1-2	---	---
Phlox	PHLOX	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	---	---	2-5	2-8
Shadscale	ATCO	30-40	---	---	---	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	5-15	---	2-5
Winterfat	EULA5	2-5	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	30-35	---	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---
Other shrubs	SSSS	2-5	2-10	---	5-10	2-5

Range site symbol	O24X002N	O24X005N	O24X020N	O28B003N	O24X002N
Potential production (lb/acre):					
Favorable years	700	800	700	2,600	700
Normal years	450	600	450	1,250	450
Unfavorable years	300	400	300	800	300

175--Beoska-Whirlo-Misad 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--	
		Beoska	Whirlo	Misad	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	1-3	---	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	30-35	---
Other shrubs	SSSS	2-5	2-5	2-5	---	2-5
Range site symbol		024X002N	024X002N	024X002N	024X020N	024X002N
Potential production (lb/acre):						
Favorable years		700	700	700	700	700
Normal years		450	450	450	450	450
Unfavorable years		300	300	300	300	300

177--Beoska-Dewar-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--		
		Beoska	Dewar	Orovada	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	5-10	---	---	5-15
Indian ricegrass	ORHY	5-15	---	20-30	---	15-30	5-15
Sandberg bluegrass	POSE	2-5	---	2-5	---	---	2-5
Needleandthread	STCO4	1-3	---	10-20	---	---	1-3
Thurber needlegrass	STTH2	---	20-50	---	20-50	5-10	---
Bluebunch wheatgrass	AGSP	---	5-10	---	5-10	---	---
Other perennial grasses	PPGG	---	---	---	---	5-15	---
Balsamroot	BALSA	---	2-4	---	2-4	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	2-4	---	---
Globemallow	SPHAE	---	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	---	2-5	---	---	2-8
Shadscale	ATCO	30-40	---	---	---	2-5	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	---	2-5	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-20	15-30	---
Downy rabbitbrush	CHVIP	---	2-5	---	2-5	---	---
Other shrubs	SSSS	2-5	2-10	5-15	2-10	2-5	2-5
Range site symbol		O24XO02N	O24XO05N	O28BO10N	O24XO05N	O24XO45N	O24XO02N
Potential production (lb/acre):							
Favorable years		700	800	800	800	350	700
Normal years		450	600	600	600	200	450
Unfavorable years		300	400	400	400	100	300

180--Needle Peak-Batan-Yobe association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Needle Peak	Batan	Yobe	1	2
Basin wildrye	ELCI2	50-60	---	40-60	5-20	---
Western wheatgrass	AGSM	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	2-5	2-5
Alkali sacaton	SPAI	---	---	15-30	---	---
Inland saltgrass	DISPS2	---	---	5-10	---	---
Indian ricegrass	ORHY	---	---	---	2-5	5-15
Needleandthread	STCO4	---	---	---	---	5-10
Other perennial grasses	PPGG	---	T-10	---	---	5-10
Thelypody	THELY	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	2-8	---	---	5-10
Basin big sagebrush	ARTRT*	15-20	---	---	5-15	---
Black greasewood	SAVE4	2-10	15-30	5-15	20-30	---
Rubber rabbitbrush	CHNA2	2-5	---	1-2	---	---
Shadscale	ATCO	---	30-50	---	---	30-40
Bud sagebrush	ARSP5	---	5-15	---	---	5-10
Seepweed	SUAED	---	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	1-2	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	5-10	---
Spiny hopsage	GRSP	---	---	---	5-15	---
Winterfat	EULA5	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-15

Range site symbol	024X006N	024X003N	024X007N	024X022N	028B017N
Potential production (lb/acre):					
Favorable years	1,500	600	1,900	800	700
Normal years	1,100	450	1,400	600	500
Unfavorable years	600	300	800	350	250

190--Wardenot-Sundown 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--	
		Wardenot	Sundown	1	2
Galleta	HIJA	10-25	---	10-25	---
Indian ricegrass	ORHY	5-10	20-30	5-10	15-25
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---
Desert needlegrass	STSP3	2-5	---	2-5	---
Sand dropseed	SPCR	---	3-10	---	---
Needleandthread	STCO4	---	---	---	5-10
Basin wildrye	ELCI2	---	---	---	2-5
Bluebunch wheatgrass	AGSP	---	---	---	2-5
Other perennial grasses	PPGG	---	5-15	---	---
Perennial forbs	PPFF	4-10	5-10	4-10	5-10
Shadscale	ATCO	10-25	---	10-25	---
Bailey greasewood	SAVEB	5-15	---	5-15	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	2-5
Winterfat	EULA5	5-10	5-10	5-10	5-10
Fourwing saltbush	ATCA2	---	15-25	---	---
Spiny hopsage	GRSP	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	20-30
Small rabbitbrush	CHVIS	---	---	---	2-5
Other shrubs	SSSS	---	10-20	---	---
Range site symbol		O29XO17N	O29XO12N	O29XO17N	O28BO11N
Potential production (lb/acre):					
Favorable years		350	500	350	950
Normal years		250	350	250	700
Unfavorable years		100	200	100	400

191--Wardenot-Laxal association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Wardenot	Laxal	Wardenot, strongly saline	1	2
Galleta	HIJA	10-25	10-25	---	10-25	---
Indian ricegrass	ORHY	5-10	5-10	---	5-10	---
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	2-5	---
Desert needlegrass	STSP3	2-5	2-5	---	2-5	---
Alkali sacaton	SPAI	---	---	---	---	5-10
Inland saltgrass	DISPS2	---	---	---	---	5-8
Basin wildrye	ELCI2	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	T-10	---	2-5
Perennial forbs	PPFF	4-10	4-10	2-8	4-10	2-5
Shadscale	ATCO	10-25	10-25	30-50	10-25	2-5
Bailey greasewood	SAVEB	5-15	5-15	---	5-15	---
Bud sagebrush	ARSP5	5-10	5-10	5-15	5-10	---
Winterfat	EULA5	5-10	5-10	---	5-10	---
Black greasewood	SAVE4	---	---	15-30	---	50-60
Seepweed	SUAED	---	---	2-15	---	---
Iodinebush	ALOC2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-10
Range site symbol		029X017N	029X017N	024X003N	029X017N	028B020N
Potential production (lb/acre):						
Favorable years		350	350	600	350	600
Normal years		250	250	450	250	450
Unfavorable years		100	100	300	100	200

200--Izo-Misad association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Izo	Misad	1	2
Galleta	HIJA	10-25	---	10-25	---
Indian ricegrass	ORHY	5-10	5-15	5-10	---
Bottlebrush squirreltail	SIHY	2-5	5-15	2-5	5-10
Desert needlegrass	STSP3	2-5	---	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---
Needleandthread	STCO4	---	1-3	---	---
Other perennial grasses	PPGG	---	---	---	T-10
Perennial forbs	PPFF	4-10	2-8	4-10	2-8
Shadscale	ATCO	10-25	30-40	10-25	30-50
Bailey greasewood	SAVEB	5-15	---	5-15	---
Bud sagebrush	ARSP5	5-10	20-30	5-10	5-15
Winterfat	EULA5	5-10	2-5	5-10	---
Spiny hopsage	GRSP	---	2-5	---	---
Black greasewood	SAVE4	---	---	---	15-30
Seepweed	SUAED	---	---	---	2-15
Other shrubs	SSSS	---	2-5	---	---
Range site symbol		029X017N	024X002N	029X017N	024X003N
Potential production (lb/acre):					
Favorable years		350	700	350	600
Normal years		250	450	250	450
Unfavorable years		100	300	100	300

201--Izo-Bubus association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Izo	Bubus	1	2
Galleta	HIJA	10-25	---	---	---
Indian ricegrass	ORHY	5-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	---
Desert needlegrass	STSP3	2-5	---	---	---
Other perennial grasses	PPGG	---	T-10	T-10	---
Perennial forbs	PPFF	4-10	2-8	2-8	---
Shadscale	ATCO	10-25	30-50	30-50	---
Bailey greasewood	SAVEB	5-15	---	---	---
Bud sagebrush	ARSP5	5-10	5-15	5-15	---
Winterfat	EULA5	5-10	---	---	---
Black greasewood	SAVE4	---	15-30	15-30	---
Seepweed	SUAED	---	2-15	2-15	---
Range site symbol		029X017N	024X003N	024X003N	None
Potential production (lb/acre):					
Favorable years		350	600	600	---
Normal years		250	450	450	---
Unfavorable years		100	300	300	---

210--Laxal association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Laxal	Laxal, occasionally flooded	1	2	3
Galleta	HIJA	10-25	10-25	5-20	---	---
Indian ricegrass	ORHY	5-10	5-10	5-10	2-5	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	2-5	5-10
Desert needlegrass	STSP3	2-5	2-5	---	---	---
Needlegrass	STIPA	---	---	5-15	---	---
Basin wildrye	ELCI2	---	---	---	10-20	---
Needleandthread	STCO4	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	10-15	5-10	T-10
Perennial forbs	PPFF	4-10	4-10	3-8	5-10	2-8
Annual forbs	AAFF	---	---	2-5	---	---
Shadscale	ATCO	10-25	10-25	---	---	30-50
Bailey greasewood	SAVEB	5-15	5-15	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	---	5-15
Winterfat	EULA5	5-10	5-10	2-5	---	---
Nevada ephedra	EPNE	---	---	2-5	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	---	15-30
Seepweed	SUAED	---	---	---	---	2-15
Other shrubs	SSSS	---	---	10-20	5-10	---
Range site symbol		029X017N	029X017N	029X008N	028B009N	024X003N
Potential production (lb/acre):						
Favorable years		350	350	700	700	600
Normal years		250	250	400	400	450
Unfavorable years		100	100	200	300	300

211--Laxal gravelly fine sandy loam, occasionally flooded, 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--	
		Laxal	1	2
Galleta	HIJA	10-25	---	5-20
Indian ricegrass	ORHY	5-10	2-5	5-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---
Desert needlegrass	STSP3	2-5	---	---
Basin wildrye	ELCI2	---	10-20	---
Needleandthread	STCO4	---	2-5	---
Needlegrass	STIPA	---	---	5-15
Other perennial grasses	PPGG	---	5-10	10-15
Perennial forbs	PPFF	4-10	5-10	3-8
Annual forbs	AAFF	---	---	2-5
Shadscale	ATCO	10-25	---	---
Bailey greasewood	SAVEB	5-15	---	---
Bud sagebrush	ARSP5	5-10	---	5-10
Basin big sagebrush	ARTRT*	---	10-15	---
Greene rabbitbrush	CHGR6	---	2-5	---
Nevada ephedra	EPNE	---	2-5	2-5
Fourwing saltbush	ATCA2	---	2-5	---
Other shrubs	SSSS	---	5-10	10-20

Range site symbol	029X017N	028B009N	029X008N
Potential production (lb/acre):			
Favorable years	350	700	700
Normal years	250	400	400
Unfavorable years	100	300	200

212--Laxal-Tomel association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Laxal	Tomel	Laxal, occasionally flooded	1	2	3
Galleta	HIJA	10-25	10-25	10-25	---	5-20	---
Indian ricegrass	ORHY	5-10	5-10	5-10	---	5-10	2-5
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	5-10	---	---
Desert needlegrass	STSP3	2-5	2-5	2-55	---	---	---
Needlegrass	STIPA	---	---	---	---	5-15	---
Basin wildrye	ELCI2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	T-10	10-15	5-10
Perennial forbs	PPFF	4-10	4-10	4-10	2-8	3-8	5-10
Annual forbs	AAFF	---	---	---	---	2-5	---
Shadscale	ATCO	10-25	10-25	10-25	30-50	---	---
Bailey greasewood	SAVEB	5-15	5-15	5-15	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	5-15	5-10	---
Winterfat	EULA5	5-10	5-10	5-10	---	2-5	---
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Nevada ephedra	EPNE	---	---	---	---	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-20
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	10-20	10-25
Range site symbol		029X017N	029X017N	029X017N	024X003N	029X008N	029X009N
Potential production (lb/acre):							
Favorable years		350	350	350	600	700	700
Normal years		250	250	250	450	400	500
Unfavorable years		100	100	100	300	200	200

220--Blackhawk very fine sandy loam, 2 to 8 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Blackhawk	1	2	3
Bottlebrush squirreltail	SIHY	5-15	2-5	2-10	5-10
Indian ricegrass	ORHY	5-15	2-5	5-15	---
Sandberg bluegrass	POSE	2-5	---	2-10	---
Needleandthread	STCO4	1-3	2-5	---	---
Basin wildrye	ELCI2	---	10-20	---	---
Thurber needlegrass	STTH2	---	---	10-20	---
Other perennial grasses	PPGG	---	5-10	---	T-10
Tapertip hawksbeard	CRAC2	---	---	1-2	---
Globemallow	SPHAE	---	---	1-2	---
Phlox	PHLOX	---	---	1-2	---
Other perennial forbs	PPFF	2-8	5-10	---	2-8
Shadscale	ATCO	30-40	---	---	30-50
Bud sagebrush	ARSP5	20-30	---	---	5-15
Spiny hopsage	GRSP	2-5	---	5-15	---
Winterfat	EULA5	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	10-15	---	---
Greene rabbitbrush	CHGR6	---	2-5	---	---
Nevada ephedra	EPNE	---	2-5	---	---
Fourwing saltbush	ATCA2	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	30-35	---
Black greasewood	SAVE4	---	---	---	15-30
Seepweed	SUAED	---	---	---	2-15
Other shrubs	SSSS	2-5	5-10	---	---

Range site symbol	024X002N	028B009N	024X020N	024X003N
Potential production (lb/acre):				
Favorable years	700	700	700	600
Normal years	450	400	450	450
Unfavorable years	300	300	300	300

221--Blackhawk-Tenabo-Desatoya 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--		
		Blackhawk	Tenabo	Desatoya Variant	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	---	---	5-10
Indian ricegrass	ORHY	5-15	5-15	10-15	10-15	15-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---
Needleandthread	STCO4	1-3	1-3	---	---	---	---
Thurber needlegrass	STTH2	---	---	10-15	10-15	5-10	---
Bluegrass	POA++	---	---	2-10	2-10	---	---
Pine bluegrass	POSC	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	5-20	5-20	5-15	5-10
Globemallow	SPHAE	---	---	2-5	2-5	2-4	---
Other perennial forbs	PPFF	2-8	2-8	---	---	---	5-10
Shadscale	ATCO	30-40	30-40	---	---	2-5	---
Bud sagebrush	ARSP5	20-30	20-30	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	10-20
Winterfat	EULA5	2-5	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	25-35	25-35	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-30	10-20
Nevada ephedra	EPNE	---	---	---	---	---	5-10
Other shrubs	SSSS	2-5	2-5	5-35	5-35	2-5	---

Range site symbol	O24XO02N	O24XO02N	O24XO3ON	O24XO3ON	O24XO45N	O27XO08N
Potential production (lb/acre):						
Favorable years	700	700	500	500	350	700
Normal years	450	450	350	350	200	500
Unfavorable years	300	300	250	250	100	300

231--Broyles very fine sandy loam, 2 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--		
		Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Needleandthread	STCO4	1-3	1-3	1-3	1-3
Perennial forbs	PPFF	2-8	2-8	2-8	2-8
Shadscale	ATCO	30-40	30-40	30-40	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	2-5
Winterfat	EULA5	2-5	2-5	2-5	2-5
Other shrubs	SSSS	2-5	2-5	2-5	2-5
Range site symbol		024X002N	024X002N	024X002N	024X002N
Potential production (lb/acre):					
Favorable years		700	700	700	700
Normal years		450	450	450	450
Unfavorable years		300	300	300	300

235--Broyles-Creemon association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Broyles	Creemon	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-15	2-10
Indian ricegrass	ORHY	5-15	5-15	---	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-10
Needleandthread	STCO4	1-3	1-3	---	1-3	---
Thurber needlegrass	STTH2	---	---	---	---	10-20
Other perennial grasses	PPGG	---	---	T-10	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Shadscale	ATCO	30-40	30-40	30-50	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	5-15	20-30	---
Spiny hopsage	GRSP	2-5	2-5	---	2-5	5-15
Winterfat	EULA5	2-5	2-5	---	2-5	---
Black greasewood	SAVE4	---	---	15-30	---	---
Seepweed	SUAED	---	---	2-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35
Other shrubs	SSSS	2-5	2-5	---	2-5	---
Range site symbol		O24XO02N	O24XO02N	O24XO03N	O24XO02N	O24XO20N
Potential production (lb/acre):						
Favorable years		700	700	600	700	700
Normal years		450	450	450	450	450
Unfavorable years		300	300	300	300	300

236--Broyles association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Broyles	Broyles, moderately saline	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	2-5	5-15	2-10
Indian ricegrass	ORHY	5-15	---	2-5	5-15	5-15
Sandberg bluegrass	POSE	2-5	---	---	2-5	2-10
Needleandthread	STCO4	1-3	---	---	1-3	---
Basin wildrye	ELCI2	---	---	5-20	---	---
Thurber needlegrass	STTH2	---	---	---	---	10-20
Other perennial grasses	PPGG	---	T-10	---	---	---
Thelypody	THELY	---	---	2-4	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	---	2-8	---
Shadscale	ATCO	30-40	30-50	---	30-40	---
Bud sagebrush	ARSP5	20-30	5-15	---	20-30	---
Spiny hopsage	GRSP	2-5	---	5-15	2-5	5-15
Winterfat	EULA5	2-5	---	---	2-5	---
Black greasewood	SAVE4	---	15-30	20-30	---	---
Seepweed	SUAED	---	2-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	5-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	30-35
Other shrubs	SSSS	2-5	---	---	2-5	---

Range site symbol	024X002N	024X003N	024X022N	024X002N	024X020N
Potential production (lb/acre):					
Favorable years	700	600	800	700	700
Normal years	450	450	600	450	450
Unfavorable years	300	300	350	300	300

237--Broyles-Beoska-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--	
		Broyles	Beoska	Orovada	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	10-20	---	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-5	---	2-8
Shadscale	ATCO	30-40	30-40	---	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	---	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	15-20	30-35	---
Other shrubs	SSSS	2-5	2-5	5-15	---	2-5
Range site symbol		O24XO02N	O24XO02N	O28BO10N	O24XO20N	O24XO02N
Potential production (lb/acre):						
Favorable years		700	700	800	700	700
Normal years		450	450	600	450	450
Unfavorable years		300	300	400	300	300

239--Broyles-Tessfive-Perlor association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Broyles	Tessfive	Perlor	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	5-15	5-10	5-10	2-10
Indian ricegrass	ORHY	5-15	10-15	5-15	---	10-30	5-15
Sandberg bluegrass	POSE	2-5	---	2-5	---	---	2-10
Needleandthread	STCO4	1-3	---	1-3	---	---	---
Thurber needlegrass	STTH2	---	10-15	---	---	---	10-20
Bluegrass	POA++	---	2-10	---	---	---	---
Other perennial grasses	PPGG	---	5-20	---	T-10	10-20	---
Globemallow	SPHAE	---	2-5	---	---	---	1-2
Tapertip hawksbeard	CRAC2	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	---	2-8	2-8	5-15	---
Shadscale	ATCO	30-40	---	30-40	30-50	---	---
Bud sagebrush	ARSP5	20-30	---	20-30	5-15	---	---
Spiny hopsage	GRSP	2-5	---	2-5	---	1-5	5-15
Winterfat	EULA5	2-5	---	2-5	---	---	---
Black sagebrush	ARARN	---	25-35	---	---	5-15	---
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-5	---
Purple sage	SADOC2	---	---	---	---	T-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-25	30-35
Other shrubs	SSSS	2-5	5-35	2-5	---	2-4	---
Range site symbol		024X002N	024X030N	024X002N	024X003N	025X025N	024X020N
Potential production (lb/acre):							
Favorable years		700	500	700	600	200	700
Normal years		450	350	450	450	150	450
Unfavorable years		300	250	300	300	100	300

249--Bubus association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Bubus, slightly saline	Bubus	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	5-10	---
Indian ricegrass	ORHY	5-15	---	5-15	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	---	---
Needleandthread	STCO4	1-3	---	1-3	---	---
Other perennial grasses	PPGG	---	T-10	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Shadscale	ATCO	30-40	30-50	30-40	30-50	---
Bud sagebrush	ARSP5	20-30	5-15	20-30	5-15	---
Spiny hopsage	GRSP	2-5	---	2-5	---	---
Winterfat	EULA5	2-5	---	2-5	---	---
Black greasewood	SAVE4	---	15-30	---	15-30	---
Seepweed	SUAED	---	2-15	---	2-15	---
Other shrubs	SSSS	2-5	---	2-5	---	---
Range site symbol		024X002N	024X003N	024X002N	024X003N	None
Potential production (lb/acre):						
Favorable years		700	600	700	600	---
Normal years		450	450	450	450	---
Unfavorable years		300	300	300	300	---

260--Umberland-Wendane association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Umberland	Wendane	1	2
Alkali sacaton	SPAI	40-70	15-30	---	5-10
Inland saltgrass	DISPS2	T-15	5-10	5-10	2-5
Basin wildrye	ELCI2	T-55	40-60	5-15	15-25
Other perennial grasses	PPGG	---	---	---	2-5
Perennial forbs	PPFF	2-8	---	T-5	2-5
Iodinebush	ALOC2	10-20	---	---	---
Saltbush	ATRIP	5-10	---	---	---
Black greasewood	SAVE4	2-5	5-15	60-75	5-15
Alkali rabbitbrush	CHAL9	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	1-2	---	---
Silver buffaloberry	SHAR	---	---	---	10-20
Other shrubs	SSSS	---	---	---	5-15
Range site symbol		024X010N	024X007N	024X011N	028B057N
Potential production (lb/acre):					
Favorable years		450	1,900	500	1,500
Normal years		300	1,400	350	1,000
Unfavorable years		150	800	200	600

261--Umberland-Wendane-Ocala association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Umberland	Wendane	Ocala	1	2
Alkali sacaton	SPAI	40-70	15-30	---	5-10	---
Inland saltgrass	DISPS2	T-15	5-10	5-10	2-5	---
Basin wildrye	ELCI2	T-5	40-60	5-15	15-25	---
Other perennial grasses	PPGG	---	---	---	2-5	---
Perennial forbs	PPFF	2-8	---	T-5	2-5	---
Iodinebush	ALOC2	10-20	---	---	---	---
Saltbush	ATRIP	5-10	---	---	---	---
Black greasewood	SAVE4	2-5	5-15	60-75	5-15	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---
Rubber rabbitbrush	CHNA2	---	1-2	---	---	---
Silver buffaloberry	SHAR	---	---	---	10-20	---
Other shrubs	SSSS	---	---	---	5-15	---

Range site symbol	O24XO10N	O24XO07N	O24XO11N	O28BO57N	None
Potential production (lb/acre):					
Favorable years	450	1,900	500	1,500	---
Normal years	300	1,400	350	1,000	---
Unfavorable years	150	800	200	600	---

262--Umberland silt loam, frequently flooded, 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--		
		Umberland	1	2	3
Alkali sacaton	SPAI	30-40	15-30	---	5-10
Alkali muhly	MUAS	5-15	---	---	---
Alkali cordgrass	SPGR	5-10	---	---	---
Basin wildrye	ELCI2	---	40-60	50-60	15-25
Inland saltgrass	DISPS2	---	5-10	---	2-5
Western wheatgrass	AGSM	---	---	5-15	---
Other perennial grasses	PPGG	10-15	---	---	2-5
Perennial forbs	PPFF	5-10	---	2-8	2-5
Black greasewood	SAVE4	---	5-15	2-10	5-15
Alkali rabbitbrush	CHAL9	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	1-2	2-5	---
Basin big sagebrush	ARTRT*	---	---	15-20	---
Silver buffaloberry	SHAR	---	---	---	10-20
Other shrubs	SSSS	5-10	---	---	5-15

Range site symbol	028B002N	024X007N	024X006N	028B057N
Potential production (lb/acre):				
Favorable years	3,000	1,900	1,500	1,500
Normal years	1,500	1,400	1,100	1,000
Unfavorable years	700	800	600	600

270--Tomel-Laxal 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--	
		Tomel	Laxal	1	2
Galleta	HIJA	10-25	10-25	---	5-20
Indian ricegrass	ORHY	5-10	5-10	2-5	5-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---
Desert needlegrass	STSP3	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	2-5	---
Needlegrass	STIPA	---	---	---	5-15
Other perennial grasses	PPGG	---	---	5-10	10-15
Perennial forbs	PPFF	4-10	4-10	5-10	3-8
Annual forbs	AAFF	---	---	---	2-5
Shadscale	ATCO	10-25	10-25	---	---
Bailey greasewood	SAVEB	5-15	5-15	---	---
Bud sagebrush	ARSP5	5-10	5-10	---	5-10
Winterfat	EULA5	5-10	5-10	---	2-5
Basin big sagebrush	ARTRT*	---	---	10-20	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5
Other shrubs	SSSS	---	---	10-25	10-20

Range site symbol	O29XO17N	O29XO17N	O29XO09N	O29XO08N
Potential production (lb/acre):				
Favorable years	350	350	700	700
Normal years	250	250	500	400
Unfavorable years	100	100	200	200

280--Chiara-Filiran 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	Filiran	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	15-30
Needleandthread	STCO4	10-20	10-20	10-20	1-3	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-15	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Thurber needlegrass	STTH2	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	5-15
Globemallow	SPHAE	---	---	---	---	2-4
Other perennial forbs	PPFF	2-5	2-5	2-5	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-30
Shadscale	ATCO	---	---	---	30-40	2-5
Bud sagebrush	ARSP5	---	---	---	20-30	---
Spiny hopsage	GRSP	---	---	---	2-5	2-5
Winterfat	EULA5	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	2-5	2-5
Range site symbol		028B010N	028B010N	028B010N	024X002N	024X045N
Potential production (lb/acre):						
Favorable years		800	800	800	700	350
Normal years		600	600	600	450	200
Unfavorable years		400	400	400	300	100

284--Chiara-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--		
		Chiara	Dewar	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	20-30
Needleandthread	STCO4	10-20	10-20	10-20	5-10	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5
Other perennial grasses	PPGG	---	---	---	5-10	---
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-20
Shadscale	ATCO	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO17N	O28BO10N
Potential production (lb/acre):						
Favorable years		800	800	800	700	800
Normal years		600	600	600	500	600
Unfavorable years		400	400	400	250	400

290--Creemon silt 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--		
		Creemon	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10
Indian ricegrass	ORHY	5-15	5-15	5-15	10-20
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Needleandthread	STCO4	1-3	1-3	1-3	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-8
Shadscale	ATCO	30-40	30-40	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5	---
Winterfat	EULA5	2-5	2-5	2-5	60-70
Other shrubs	SSSS	2-5	2-5	2-5	---
Range site symbol		024X002N	024X002N	024X002N	024X004N
Potential production (lb/acre):					
Favorable years		700	700	700	500
Normal years		450	450	450	350
Unfavorable years		300	300	300	200

291--Creemon-Wholan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Creemon	Wholan	Wholan, alkaline	1	2	3
Bottlebrush squirreltail	SIHY	5-15	2-10	5-10	2-5	5-10	5-10
Indian ricegrass	ORHY	5-15	10-20	10-30	5-15	---	20-30
Sandberg bluegrass	POSE	2-5	---	---	---	---	2-5
Needleandthread	STCO4	1-3	---	---	5-10	---	10-20
Alkali sacaton	SPAI	---	---	T-5	---	---	---
Other perennial grasses	PPGG	---	---	---	5-10	T-10	---
Perennial forbs	PPFF	2-8	2-8	T-5	5-10	2-8	2-5
Shadscale	ATCO	30-40	---	---	30-40	30-50	---
Bud sagebrush	ARSP5	20-30	2-5	---	5-10	5-15	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Winterfat	EULA5	2-5	60-70	---	2-5	---	---
Sickle saltbush	ATFA	---	---	50-65	---	---	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Black greasewood	SAVE4	---	---	---	---	15-30	---
Seepweed	SUAED	---	---	---	---	2-15	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	15-20
Other shrubs	SSSS	2-5	---	---	5-15	---	5-15

Range site symbol	O24XO02N	O24XO04N	O24XO12N	O28BO17N	O24XO03N	O28BO10N
Potential production (lb/acre):						
Favorable years	700	500	700	700	600	800
Normal years	450	350	400	500	450	600
Unfavorable years	300	200	200	250	300	400

295--Creemon-Cren association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Creemon	Cren	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	5-10	2-5
Indian ricegrass	ORHY	5-15	5-15	---	---	2-10
Sandberg bluegrass	POSE	2-5	2-5	---	---	2-5
Needleandthread	STCO4	1-3	1-3	---	---	---
Basin wildrye	ELCI2	---	---	50-60	---	10-20
Western wheatgrass	AGSM	---	---	5-15	---	---
Other perennial grasses	PPGG	---	---	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Shadscale	ATCO	30-40	30-40	---	30-50	---
Bud sagebrush	ARSP5	20-30	20-30	---	5-15	---
Spiny hopsage	GRSP	2-5	2-5	---	---	15-30
Winterfat	EULA5	2-5	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	15-20	---	15-25
Black greasewood	SAVE4	---	---	2-10	15-30	2-10
Rubber rabbitbrush	CHNA2	---	---	2-5	---	2-5
Seepweed	SUAED	---	---	---	2-15	---
Anderson peachbrush	PRAN2	---	---	---	---	2-10
Other shrubs	SSSS	2-5	2-5	---	---	---

Range site symbol	O24XO02N	O24XO02N	O24XO06N	O24XO03N	O24XO41N
Potential production (lb/acre):					
Favorable years	700	700	1,500	600	1,000
Normal years	450	450	1,100	450	800
Unfavorable years	300	300	600	300	600

296--Creemon-Hessing 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--		
		Creemon	Hessing	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	2-10	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-10	2-5	2-5
Needleandthread	STCO4	1-3	1-3	---	---	1-3
Thurber needlegrass	STTH2	---	---	10-20	---	---
Tapertip hawksbeard	CRAC2	---	---	1-2	---	---
Globemallow	SPHAE	---	---	1-2	1-4	---
Phlox	PHLOX	---	---	1-2	1-4	---
Other perennial forbs	PPFF	2-8	2-8	---	---	2-8
Shadscale	ATCO	30-40	30-40	---	2-5	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	20-30	20-30
Spiny hopsage	GRSP	2-5	2-5	5-15	---	2-5
Winterfat	EULA5	2-5	2-5	---	20-40	2-5
Wyoming big sagebrush	ARTRW*	---	---	30-35	---	---
Other shrubs	SSSS	2-5	2-5	---	---	2-5
Range site symbol		O24XOO2N	O24XOO2N	O24XO20N	O24XO14N	O24XOO2N
Potential production (lb/acre):						
Favorable years		700	700	700	400	700
Normal years		450	450	450	300	450
Unfavorable years		300	300	300	200	300

297--Creemon-Rasille-Tulase association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Creemon	Rasille	Tulase	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	---	5-10	2-5	2-10
Indian ricegrass	ORHY	5-15	---	---	---	2-10	5-15
Sandberg bluegrass	POSE	2-5	---	---	---	2-5	2-10
Needleandthread	STCO4	1-3	---	---	---	---	---
Thurber needlegrass	STTH2	---	20-50	20-50	---	---	10-20
Bluebunch wheatgrass	AGSP	---	5-10	5-10	---	---	---
Basin wildrye	ELCI2	---	---	---	---	10-20	---
Other perennial grasses	PPGG	---	---	---	T-10	---	---
Balsamroot	BALSA	---	2-4	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	2-4	---	---	1-2
Globemallow	SPHAE	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	---	---	2-8	---	---
Shadscale	ATCO	30-40	---	---	30-50	---	---
Bud sagebrush	ARSP5	20-30	---	---	5-15	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	15-30	5-15
Winterfat	EULA5	2-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---	30-35
Downy rabbitbrush	CHVIP	---	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	---	15-30	2-10	---
Seepweed	SUAED	---	---	---	2-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-25	---
Anderson peachbrush	PRAN2	---	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Other shrubs	SSSS	2-5	2-10	2-10	---	---	---

Range site symbol	O24XO02N	O24XO05N	O24XO05N	O24XO03N	O24XO41N	O24XO2ON
Potential production (lb/acre):						
Favorable years	700	800	800	600	1,000	700
Normal years	450	600	600	450	800	450
Unfavorable years	300	400	400	300	600	300

298--Creemon-Misad association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Creemon	Misad	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-10	2-10	2-10
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-10	2-10
Needleandthread	STCO4	1-3	1-3	1-3	---	---	---
Thurber needlegrass	STTH2	---	---	---	---	10-20	10-20
Other perennial grasses	PPGG	---	---	---	T-10	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2	1-2
Globemallow	SPHAE	---	---	---	---	1-2	1-2
Phlox	PHLOX	---	---	---	---	1-2	1-2
Other perennial forbs	PPFF	2-8	2-8	2-8	2-8	---	---
Shadscale	ATCO	30-40	30-40	30-40	30-50	---	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	5-15	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	5-15	5-15
Winterfat	EULA5	2-5	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35	30-35
Other shrubs	SSSS	2-5	2-5	2-5	---	---	---
Range site symbol		O24XOO2N	O24XOO2N	O24XOO2N	O24XOO3N	O24XO20N	O24XO20N
Potential production (lb/acre):							
Favorable years		700	700	700	600	700	700
Normal years		450	450	450	450	450	450
Unfavorable years		300	300	300	300	300	300

301--Cren-Ocala-Playas association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cren	Ocala	Playas	1	2	3
Bottlebrush squirreltail	SIHY	5-10	---	---	---	5-10	---
Basin wildrye	ELCI2	---	5-15	---	40-60	---	---
Inland saltgrass	DISPS2	---	5-10	---	5-10	---	---
Alkali sacaton	SPAI	---	---	---	15-30	---	---
Indian ricegrass	ORHY	---	---	---	---	---	10-20
Needleandthread	STCO4	---	---	---	---	---	5-10
Other perennial grasses	PPGG	T-10	---	---	---	T-10	2-5
Perennial forbs	PPFF	2-8	T-5	---	---	2-8	2-5
Shadscale	ATCO	30-50	---	---	---	30-50	---
Black greasewood	SAVE4	15-30	60-75	---	5-15	15-30	10-40
Bud sagebrush	ARSP5	5-15	---	---	---	5-15	---
Seepweed	SUAED	2-15	---	---	---	2-15	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	---	---	1-2	---	---
Other shrubs	SSSS	---	---	---	---	---	5-20
Range site symbol		024X003N	024X011N	None	024X007N	024X003N	027X016N
Potential production (lb/acre):							
Favorable years		600	500	---	1,900	600	300
Normal years		450	350	---	1,400	450	200
Unfavorable years		300	200	---	800	300	50

310--Yobe-Kawich-Playas association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Yobe	Kawich	Playas	1	2
Basin wildrye	ELCI2	5-15	---	---	---	40-60
Inland saltgrass	DISPS2	5-10	---	---	---	5-10
Indian ricegrass	ORHY	---	10-20	---	---	---
Needleandthread	STCO4	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Other perennial grasses	PPGG	---	2-5	---	T-10	---
Perennial forbs	PPFF	T-5	2-5	---	2-8	---
Black greasewood	SAVE4	60-75	10-40	---	15-30	5-15
Shadscale	ATCO	---	---	---	30-50	---
Bud sagebrush	ARSP5	---	---	---	5-15	---
Seepweed	SUAED	---	---	---	2-15	---
Alkali rabbitbrush	CHAL9	---	---	---	---	1-2
Rubber rabbitbrush	CHNA2	---	---	---	---	1-2
Other shrubs	SSSS	---	5-20	---	---	---
Range site symbol		024X011N	027X016N	None	024X003N	024X007N
Potential production (lb/acre):						
Favorable years		500	300	---	600	1,900
Normal years		350	200	---	450	1,400
Unfavorable years		200	50	---	300	800

320--Newpass-Jung 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--		
		Newpass	Jung	1	2	3
Pine bluegrass	POSC	5-15	---	---	---	5-15
Indian ricegrass	ORHY	5-15	---	2-5	---	5-15
Bottlebrush squirreltail	SIHY	5-10	---	2-10	---	5-10
Bluegrass	POA++	---	10-40	---	---	---
Thurber needlegrass	STTH2	---	2-10	---	---	---
Desert needlegrass	STSP3	---	---	2-10	---	---
Sandberg bluegrass	POSE	---	---	1-3	---	---
Other perennial grasses	PPGG	5-10	5-10	---	---	5-10
Perennial forbs	PPFF	5-10	5-10	2-8	---	5-10
Wyoming big sagebrush	ARTRW*	10-20	---	---	---	10-20
Spiny hopsage	GRSP	10-20	---	---	---	10-20
Nevada ephedra	EPNE	5-10	---	---	---	5-10
Black sagebrush	ARARN	---	20-30	---	---	---
Shadscale	ATCO	---	5-10	30-50	---	---
Bud sagebrush	ARSP5	---	---	15-30	---	---
Other shrubs	SSSS	---	5-10	---	---	---

Range site symbol	027X008N	027X032N	024X025N	None	027X008N
Potential production (lb/acre):					
Favorable years	700	600	250	---	700
Normal years	500	400	150	---	500
Unfavorable years	300	200	75	---	300

321--Newpass-Old Camp 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--	
		Newpass	Old Camp, strongly sloping	Old Camp, moderately steep	1	2
Pine bluegrass	POSC	5-15	20-30	20-30	---	---
Indian ricegrass	ORHY	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	5-10	---	X
Basin wildrye	ELCI2	---	---	---	50-60	X
Western wheatgrass	AGSM	---	---	---	5-15	---
Bluebunch wheatgrass	AGSP	---	---	---	---	X
Nevada bluegrass	PONE3	---	---	---	---	X
Idaho fescue	FEID	---	---	---	---	X
Other perennial grasses	PPGG	5-10	5-15	5-15	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	X
Arrowleaf balsamroot	BASA3	---	---	---	---	X
Other perennial forbs	PPFF	5-10	5-10	5-10	2-8	---
Wyoming big sagebrush	ARTRW*	10-20	10-20	10-20	---	---
Spiny hopsage	GRSP	10-20	5-15	5-15	---	---
Nevada ephedra	EPNE	5-10	5-10	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---
Black greasewood	SAVE4	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	X
Snowberry	SYMPH	---	---	---	---	X
Currant	RIBES	---	---	---	---	X
Other shrubs	SSSS	---	5-10	5-10	---	---
Singleleaf pinyon	PIMO	---	---	---	---	X
Utah juniper	JUOS	---	---	---	---	X

Range site symbol	027X008N	027X007N	027X007N	024X006N	---
Woodland site symbol	---	---	---	---	025X062N
Potential production (lb/acre):					
Favorable years	700	600	600	1,500	500
Normal years	500	450	450	1,100	350
Unfavorable years	300	300	300	600	200

360--Eastwell-Blackhawk-Pineval 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--	
		Eastwell	Blackhawk	Pineval	1	2
Bluegrass	POA++	10-40	---	---	---	---
Thurber needlegrass	STTH2	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-15	5-10	5-10	5-10
Indian ricegrass	ORHY	---	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	---	2-5	---	---	---
Needleandthread	STCO4	---	1-3	---	---	---
Pine bluegrass	POSC	---	---	5-15	5-15	5-15
Other perennial grasses	PPGG	5-10	---	5-10	5-10	5-10
Perennial forbs	PPFF	5-10	2-8	5-10	5-10	5-10
Black sagebrush	ARARN	20-30	---	---	---	---
Shadscale	ATCO	5-10	30-40	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	---	---
Spiny hopsage	GRSP	---	2-5	10-20	10-20	10-20
Winterfat	EULA5	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-20	10-20	10-20
Nevada ephedra	EPNE	---	---	5-10	5-10	5-10
Other shrubs	SSSS	5-10	2-5	---	---	---
Range site symbol		027X032N	024X002N	027X008N	027X008N	027X008N
Potential production (lb/acre):						
Favorable years		600	700	700	700	700
Normal years		400	450	500	500	500
Unfavorable years		200	300	300	300	300

404--Glean-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--			
		Glean	Gando	1	2	3	4
Idaho fescue	FEID	30-60	2-5	---	---	---	10-15
Bluebunch wheatgrass	AGSP	5-10	10-15	---	---	---	5-10
Cusick bluegrass	POCU3	5-10	---	---	---	---	---
Mountain brome	BRCA5	2-5	---	---	---	---	---
Sedge	CAREX	2-5	---	---	---	5-10	---
Indian ricegrass	ORHY	---	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	5-10	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	5-10	---
Meadow barley	HOBR2	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	5-10	---	5-15	2-10	10-15
Tapertip hawksbeard	CRAC2	1-3	---	---	---	---	---
Lupine	LUPIN	1-2	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-10	---	5-10	10-20	5-10
Mountain big sagebrush	ARVA2	5-15	---	---	---	---	---
Snowberry	SYMPH	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	10-15	---	---	---	5-15
Black sagebrush	ARARN	---	10-15	---	---	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Willow	SALIX	---	---	---	---	2-5	---
Other shrubs	SSSS	---	5-10	---	5-10	2-5	5-10

Range site symbol	024X023N	028B034N	None	028B024N	025X005N	028B038N
Potential production (lb/acre):						
Favorable years	1,500	600	---	2,800	2,000	800
Normal years	1,200	400	---	1,700	1,700	600
Unfavorable years	900	250	---	1,000	1,000	400

441--Gund-Umberland association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Gund	Umberland	1	2	3
Basin wildrye	ELCI2	50-60	---	15-20	40-60	---
Western wheatgrass	AGSM	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-10	---	---
Inland saltgrass	DISPS2	---	---	2-10	5-10	---
Alkali sacaton	SPAI	---	---	---	15-30	---
Other perennial grasses	PPGG	---	T-10	---	---	---
Perennial forbs	PPFF	2-8	2-8	2-8	---	---
Basin big sagebrush	ARTRT*	15-20	---	---	---	---
Black greasewood	SAVE4	2-10	15-30	40-60	5-15	---
Rubber rabbitbrush	CHNA2	2-5	---	---	1-2	---
Shadscale	ATCO	---	30-50	---	---	---
Bud sagebrush	ARSP5	---	5-15	---	---	---
Seepweed	SUAED	---	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---
Range site symbol		024X006N	024X003N	024X008N	024X007N	None
Potential production (lb/acre):						
Favorable years		1,500	600	800	1,900	---
Normal years		1,100	450	600	1,400	---
Unfavorable years		600	300	400	800	---

442--Gund-Bubus-Wendane association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Gund	Bubus	Wendane	1	2	3
Basin wildrye	ELCI2	15-20	---	40-60	50-60	15-20	5-15
Bottlebrush squirreltail	SIHY	2-10	5-10	---	---	2-10	---
Inland saltgrass	DISPS2	2-10	---	5-10	---	2-10	5-10
Alkali sacaton	SPAI	---	---	15-30	---	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Other perennial grasses	PPGG	---	T-10	---	---	---	---
Perennial forbs	PPFF	2-8	2-8	---	2-8	2-8	T-5
Black greasewood	SAVE4	40-60	15-30	5-15	2-10	40-60	60-75
Shadscale	ATCO	---	30-50	---	---	---	---
Bud sagebrush	ARSP5	---	5-15	---	---	---	---
Seepweed	SUAED	---	2-15	---	---	---	---
Alkali rabbitbrush	CHAL9	---	---	1-2	---	---	---
Rubber rabbitbrush	CHNA2	---	---	1-2	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	---

Range site symbol	O24X008N	O24X003N	O24X007N	O24X006N	O24X008N	O24X011N
Potential production (lb/acre):						
Favorable years	800	600	1,900	1,500	800	500
Normal years	600	450	1,400	1,100	600	350
Unfavorable years	400	300	800	600	400	200

443--Gund-Batan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Gund	Batan	1	2	3
Basin wildrye	ELCI2	15-20	---	5-15	40-60	---
Bottlebrush squirreltail	SIHY	2-10	5-10	---	---	---
Inland saltgrass	DISPS2	2-10	---	5-10	5-10	10-25
Alkali sacaton	SPAI	---	---	---	15-30	---
Nuttall alkaligrass	PUAI	---	---	---	---	5-10
Baltic rush	JUBA	---	---	---	---	5-10
Other perennial grasses	PPGG	---	T-10	---	---	---
Cinquefoil	POTEN	---	---	---	---	5-10
Eriogonum	ERIOG	---	---	---	---	2-5
Other perennial forbs	PPFF	2-8	2-8	T-5	---	---
Black greasewood	SAVE4	40-60	15-30	60-75	5-15	T-5
Shadscale	ATCO	---	30-50	---	---	---
Bud sagebrush	ARSP5	---	5-15	---	---	---
Seepweed	SUAED	---	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	20-35
Rubber rabbitbrush	CHNA2	---	---	---	1-2	T-5

Range site symbol	024X008N	024X003N	024X011N	024X007N	024X044N
Potential production (lb/acre):					
Favorable years	800	600	500	1,900	350
Normal years	600	450	350	1,400	225
Unfavorable years	400	300	200	800	150

444--Gund 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--		
		Gund	Gund, drained	1	2	3
Basin wildrye	ELCI2	50-60	15-20	5-20	---	40-60
Western wheatgrass	AGSM	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-10	2-5	5-10	---
Inland saltgrass	DISPS2	---	2-10	---	---	5-10
Indian ricegrass	ORHY	---	---	2-5	20-30	---
Needleandthread	STCO4	---	---	---	10-20	---
Sandberg bluegrass	POSE	---	---	---	2-5	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Thelypody	THELY	---	---	2-4	---	---
Other perennial forbs	PPFF	2-8	2-8	---	2-5	---
Basin big sagebrush	ARTRT*	15-20	---	5-15	---	---
Black greasewood	SAVE4	2-10	40-60	20-30	---	5-15
Rubber rabbitbrush	CHNA2	2-5	---	---	---	1-2
Wyoming big sagebrush	ARTRW*	---	---	5-10	15-20	---
Spiny hopsage	GRSP	---	---	5-15	---	---
Alkali rabbitbrush	CHAL9	---	---	---	---	1-2
Other shrubs	SSSS	---	---	---	5-15	---

Range site symbol	024X006N	024X008N	024X022N	028B010N	024X007N
Potential production (lb/acre):					
Favorable years	1,500	800	800	800	1,900
Normal years	1,100	600	600	600	1,400
Unfavorable years	600	400	350	400	800

461--Hapgood-Packer-Layview 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	Packer	Layview	1	2	3	4
Mountain brome	BRCA5	10-15	---	---	---	---	---	X
Slender wheatgrass	AGTR	20-30	---	---	2-5	---	---	X
Idaho fescue	FEID	5-15	10-20	10-20	---	---	25-50	X
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	15-30	X
Spike fescue	LEKI2	2-15	---	---	---	---	2-10	---
Bulbous oniongrass	MEBU	2-5	---	---	---	---	---	X
Nevada bluegrass	PONE3	2-5	---	---	---	---	---	X
Webber ricegrass	STWE	---	5-10	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	---	---	---
Cusick bluegrass	POCU3	---	2-5	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---	---
Pine bluegrass	POSC	---	2-5	2-5	---	---	---	---
Letterman needlegrass	STLE4	---	---	---	60-70	---	---	X
Columbia needlegrass	STNE3	---	---	---	2-5	---	---	X
Thurber needlegrass	STTH2	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	---	X
Blue wildrye	ELGL	---	---	---	---	---	---	X
Basin wildrye	ELCI2	---	---	---	---	---	---	X
Other perennial grasses	PPGG	---	---	---	2-5	---	---	---
Geranium	GERAN	2-5	---	---	---	---	---	---
Groundsel	SENEC	2-5	---	---	---	---	---	X
Lupine	LUPIN	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	2-5	---	---	---	---
Phlox	PHLOX	---	2-5	2-5	---	---	---	---
Tailcup lupine	LUCA	---	---	---	20-40	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Horsemint	AGUR	---	---	---	---	---	---	X
Serviceberry	AMELA	5-10	---	---	---	---	---	X
Mountain big sagebrush	ARVA2	5-10	1-5	1-5	---	---	---	X
Snowberry	SYMPH	2-10	---	---	---	---	---	X
Low sagebrush	ARAR8	---	5-15	5-15	---	---	10-20	---
Black sagebrush	ARARN	---	5-15	5-15	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	2-5	---
Woods rose	ROWO	---	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	---	X
Quaking aspen	POTR5	---	---	---	---	---	---	X
Range site symbol		024X032N	024X016N	024X016N	025X028N	None	024X027N	---
Woodland site symbol		---	---	---	---	---	---	025X065N
Potential production (lb/acre):								
Favorable years		2,200	350	350	1,000	---	1,200	800
Normal years		1,700	250	250	800	---	800	600
Unfavorable years		1,200	150	150	500	---	600	400

463--Hapgood-Packer-Rubble land 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--		
		Hapgood	Packer	Rubble land	1	2	3
Mountain brome	BRCA5	10-15	---	---	---	---	5-10
Slender wheatgrass	AGTR	20-30	---	---	---	---	2-5
Idaho fescue	FEID	5-15	10-20	---	10-20	25-50	5-15
Bluebunch wheatgrass	AGSP	5-10	---	---	---	15-30	5-15
Spike fescue	LEKI2	2-15	---	---	---	2-10	---
Bulbous oniongrass	MEBU	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	2-5	---	---	---	---	2-5
Webber ricegrass	STWE	---	5-10	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	---	---
Cusick bluegrass	POCU3	---	2-5	---	2-5	---	2-5
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	---
Pine bluegrass	POSC	---	2-5	---	2-5	---	---
Thurber needlegrass	STTH2	---	---	---	---	2-10	---
Letterman needlegrass	STLE4	---	---	---	---	---	2-5
Basin wildrye	ELCI2	---	---	---	---	---	2-5
Geranium	GERAN	2-5	---	---	---	---	---
Groundsel	SENEC	2-5	---	---	---	---	---
Lupine	LUPIN	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	2-5	---	---
Phlox	PHLOX	---	2-5	---	2-5	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	---	---	---	---	5-15
Serviceberry	AMELA	5-10	---	---	---	---	5-10
Mountain big sagebrush	ARVA2	5-10	1-5	---	1-5	---	5-10
Snowberry	SYMPH	2-10	---	---	---	---	2-10
Low sagebrush	ARAR8	---	5-15	---	5-15	10-20	---
Black sagebrush	ARARN	---	5-15	---	5-15	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Oceanspray	HOLOD	---	---	---	---	---	5-10
Threetip sagebrush	ARTR4	---	---	---	---	---	2-10
Currant	RIBES	---	---	---	---	---	2-5

Range site symbol	O24XO32N	O24XO16N	None	O24XO16N	O24XO27N	O24XO34N
Potential production (lb/acre):						
Favorable years	2,200	350	---	350	1,200	1,600
Normal years	1,700	250	---	250	800	1,300
Unfavorable years	1,200	150	---	150	600	800

465--Hapgood-Halacan-Hatur 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--			
		Hapgood	Halacan	Hatur	1	2	3	4
Mountain brome	BRCA5	10-15	---	15-20	---	---	---	---
Slender wheatgrass	AGTR	20-30	---	---	---	---	---	---
Idaho fescue	FEID	5-15	10-20	10-15	30-60	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	2-10	---	---	---
Spike fescue	LEKI2	2-15	---	5-10	---	---	---	---
Bulbous oniongrass	MEBU	2-5	---	---	---	---	---	---
Nevada bluegrass	PONE3	2-5	---	---	---	---	5-15	---
Webber ricegrass	STWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---	---
Cusick bluegrass	POCU3	---	2-5	---	5-10	---	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	---	---	---
Pine bluegrass	POSC	---	2-5	---	---	---	---	---
Letterman needlegrass	STLE4	---	---	5-10	---	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	50-60	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	---	---	5-15	---	---	15-20	---
Geranium	GERAN	2-5	---	---	---	---	---	---
Groundsel	SENEC	2-5	---	---	---	---	---	---
Lupine	LUPIN	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	---	---	5-10	---	---	5-10	---
Serviceberry	AMELA	5-10	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	5-10	1-5	10-20	---	---	---	---
Snowberry	SYMPH	2-10	---	5-10	---	---	---	---
Low sagebrush	ARAR8	---	5-15	---	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	10-20	---	---	---
Utah serviceberry	AMUT	---	---	5-10	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	---	---	---	---	---	2-5	---

Range site symbol	024X032N	024X016N	028B029N	024X042N	None	025X003N	None
Potential production (lb/acre):							
Favorable years	2,200	350	1,500	1,000	---	2,500	---
Normal years	1,700	250	900	800	---	1,900	---
Unfavorable years	1,200	150	650	500	---	1,200	---

491--Enko-Orovada association, gently sloping

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Orovada	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO10N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

492--Enko-Glyphs association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Glyphs	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

493--Enko-Orovada association, nearly level

[Absence of an entry indicates that the named plant is not a key species in the potential native 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	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	2-5	---
Needleandthread	STCO4	10-20	10-20	10-20	2-5	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	10-20	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	5-10	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	5-10
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-10
Range site symbol		O28B010N	O28B010N	O28B010N	O28B009N	O28B003N
Potential production (lb/acre):						
Favorable years		800	800	800	700	2,600
Normal years		600	600	600	400	1,250
Unfavorable years		400	400	400	300	800

512--Hessing-Relley association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Hessing	Relley	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	5-15	---
Indian ricegrass	ORHY	5-15	10-30	5-15	5-15	---
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---
Needleandthread	STCO4	1-3	---	1-3	1-3	---
Alkali sacaton	SPAI	---	T-5	---	---	---
Basin wildrye	ELCI2	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	5-15
Other perennial forbs	PPFF	2-8	T-5	2-8	2-8	2-8
Shadscale	ATCO	30-40	---	30-40	30-40	---
Bud sagebrush	ARSP5	20-30	---	20-30	20-30	---
Spiny hopsage	GRSP	2-5	---	2-5	2-5	---
Winterfat	EULA5	2-5	---	2-5	2-5	---
Sickle saltbush	ATFR	---	50-65	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	2-5	---	2-5	2-5	---
Range site symbol		O24XO02N	O24XO12N	O24XO02N	O24XO02N	O24XO06N
Potential production (lb/acre):						
Favorable years		700	700	700	700	1,500
Normal years		450	400	450	450	1,100
Unfavorable years		300	200	300	300	600

560--Jesse Camp silt loam

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Jesse Camp	1	2	3
Basin wildrye	ELCI2	30-50	---	---	10-20
Nevada bluegrass	PONE3	2-5	---	---	---
Western wheatgrass	AGSM	2-5	---	---	---
Indian ricegrass	ORHY	---	20-30	5-15	2-5
Needleandthread	STCO4	---	10-20	5-10	2-5
Bottlebrush squirreltail	SIHY	---	5-10	2-5	2-5
Sandberg bluegrass	POSE	---	2-5	---	---
Other perennial grasses	PPGG	15-25	---	5-10	5-10
Perennial forbs	PPFF	2-5	2-5	5-10	5-10
Basin big sagebrush	ARTRT*	5-10	---	---	10-15
Wyoming big sagebrush	ARTRW*	---	15-20	---	---
Shadscale	ATCO	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	5-10	---
Winterfat	EULA5	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	2-5	2-5
Greene rabbitbrush	CHGR6	---	---	---	2-5
Nevada ephedra	EPNE	---	---	---	2-5
Other shrubs	SSSS	5-10	5-15	5-15	5-10

Range site symbol	028B003N	028B010N	028B017N	028B009N
Potential production (lb/acre):				
Favorable years	2,600	800	700	700
Normal years	1,250	600	500	400
Unfavorable years	800	400	250	300

621--Loncan-Gando-Glean 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--			
		Loncan	Gando	Glean	1	2	3	4
Bluebunch wheatgrass	AGSP	10-20	---	10-20	---	---	---	---
Thurber needlegrass	STTH2	5-10	---	5-10	---	---	---	---
Basin wildrye	ELCI2	2-5	---	2-5	---	50-60	---	---
Pine bluegrass	POSC	2-5	2-5	2-5	---	---	---	---
Idaho fescue	FEID	---	10-20	---	---	---	5-10	---
Webber ricegrass	STWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---	---
Cusick bluegrass	POCU3	---	2-5	---	---	---	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	5-15	---	5-10
Mat muhly	MURI	---	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	---	1-5	---	5-10
Mountain brome	BRCA5	---	---	---	---	---	2-5	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	10-20	---	10-20	---	15-20	5-15	2-10
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-12	---	5-12	---	5-10	5-15	10-20
Mountain big sagebrush	ARVA2	15-25	1-5	15-25	---	---	---	---
Antelope bitterbrush	PUTR2	5-10	---	5-10	---	---	---	---
Utah serviceberry	AMUT	2-10	---	2-10	---	---	2-5	---
Low sagebrush	ARAR8	---	5-15	---	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---	---
Common chokecherry	PRVI	---	---	---	---	---	20-30	---
Snowberry	SYMPH	---	---	---	---	---	5-10	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	---	5-15	---	2-5	5-15	2-5
Range site symbol		028B030N	024X016N	028B030N	None	025X003N	028B026N	025X005N
Potential production (lb/acre):								
Favorable years		1,100	350	1,100	---	2,500	1,400	2,000
Normal years		850	250	850	---	1,900	1,000	1,700
Unfavorable years		550	150	550	---	1,200	700	1,000

632--McConnel-Orovada-Misad association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		McConnel	Orovada	Misad	1	2	3
Thurber needlegrass	STTH2	20-50	---	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	---
Indian ricegrass	ORHY	---	20-30	5-15	2-5	---	10-20
Needleandthread	STCO4	---	10-20	1-3	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-15	2-5	5-10	2-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	5-20	---	---
Other perennial grasses	PPGG	---	---	---	---	T-10	---
Balsamroot	BALSA	2-4	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---	---
Thelypody	THELY	---	---	---	2-4	---	---
Other perennial forbs	PPFF	---	2-5	2-8	---	2-8	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	5-10	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	2-5	5-15	---	---
Shadscale	ATCO	---	---	30-40	---	30-50	---
Bud sagebrush	ARSP5	---	---	20-30	---	5-15	2-5
Winterfat	EULA5	---	---	2-5	---	---	60-70
Black greasewood	SAVE4	---	---	---	20-30	15-30	---
Basin big sagebrush	ARTRT*	---	---	---	5-15	---	---
Seepweed	SUAED	---	---	---	---	2-15	---
Other shrubs	SSSS	2-10	5-15	2-5	---	---	---

Range site symbol	O24XO05N	O28BO10N	O24XO02N	O24XO22N	O24XO03N	O24XO04N
Potential production (lb/acre):						
Favorable years	800	800	700	800	600	500
Normal years	600	600	450	600	450	350
Unfavorable years	400	400	300	350	300	200

633--McConnel-Rasille-Wholan 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--		
		McConnel	Rasille	Wholan	1	2	3
Thurber needlegrass	STTH2	20-50	---	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	---
Indian ricegrass	ORHY	---	20-30	10-20	20-30	15-25	---
Needleandthread	STCO4	---	10-20	---	10-20	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-10	5-10	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	---	---	5-10	---
Balsamroot	BALSA	2-4	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---	---
Other perennial forbs	PPFF	---	2-5	2-8	2-5	5-10	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Winterfat	EULA5	---	---	60-70	---	30-45	---
Bud sagebrush	ARSP5	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	5-15	---	5-15	5-15	---

Range site symbol	O24XO05N	O28BO10N	O24XO04N	O28BO10N	O28BO13N	O24XO06N
Potential production (lb/acre):						
Favorable years	800	800	500	800	800	1,500
Normal years	600	600	350	600	550	1,100
Unfavorable years	400	400	200	400	300	600

635--McConnel-Rasille 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--		
		McConnel	Rasille	1	2	3
Thurber needlegrass	STTH2	20-50	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---
Indian ricegrass	ORHY	---	20-30	20-30	20-30	10-30
Needleandthread	STCO4	---	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	2-5	---
Alkali sacaton	SPAI	---	---	---	---	1-5
Other perennial grasses	PPGG	---	---	---	---	5-10
Balsamroot	BALSA	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---
Other perennial forbs	PPFF	---	2-5	2-5	2-5	1-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---
Sickle saltbush	ATFA	---	---	---	---	50-65
Other shrubs	SSSS	2-10	5-15	5-15	5-15	---
Range site symbol		O24XO05N	O28BO10N	O28BO10N	O28BO10N	O24XO12N
Potential production (lb/acre):						
Favorable years		800	800	800	800	700
Normal years		600	600	600	600	400
Unfavorable years		400	400	400	400	200

636--McConnel-Defler-Rasille 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--		
		McConnel	Defler	Rasille	1	2	3
Thurber needlegrass	STTH2	20-50	---	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	---
Indian ricegrass	ORHY	---	10-20	20-30	10-20	20-30	5-15
Bottlebrush squirreltail	SIHY	---	2-10	5-10	2-10	5-10	5-15
Needleandthread	STCO4	---	---	10-20	---	10-20	1-3
Sandberg bluegrass	POSE	---	---	2-5	---	2-5	2-5
Balsamroot	BALSA	2-4	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---	---
Other perennial forbs	PPFF	---	2-8	2-5	2-8	2-5	2-8
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	---	15-20	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---	2-5
Winterfat	EULA5	---	60-70	---	60-70	---	2-5
Bud sagebrush	ARSP5	---	2-5	---	2-5	---	20-30
Shadscale	ATCO	---	---	---	---	---	30-40
Other shrubs	SSSS	2-10	---	5-15	---	5-15	2-5

Range site symbol		024X005N	024X004N	028B010N	024X004N	028B010N	024X002N
Potential production (lb/acre):							
	Favorable years	800	500	800	500	800	700
	Normal years	600	350	600	350	600	450
	Unfavorable years	400	200	400	200	400	300

637--McConnel-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--		
		McConnel	Orovada	McConnel, gravelly	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	20-30	15-25
Needleandthread	STCO4	10-20	10-20	10-20	5-10	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5	5-10	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5	---
Other perennial grasses	PPGG	---	---	---	5-10	---	5-10
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-20	---
Shadscale	ATCO	---	---	---	30-40	---	---
Bud sagebrush	ARSP5	---	---	---	5-10	---	---
Winterfat	EULA5	---	---	---	2-5	---	30-45
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO17N	O28BO10N	O28BO13N
Potential production (lb/acre):							
Favorable years		800	800	800	700	800	800
Normal years		600	600	600	500	600	550
Unfavorable years		400	400	400	250	400	300

638--McConnel-Wholan 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--
		McConnel	Wholan	1
Indian ricegrass	ORHY	20-30	15-25	20-30
Needleandthread	STCO4	10-20	---	10-20
Bottlebrush squirreltail	SIHY	5-10	2-5	5-10
Sandberg bluegrass	POSE	2-5	---	2-5
Other perennial grasses	PPGG	---	5-10	---
Perennial forbs	PPFF	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	15-20
Winterfat	EULA5	---	30-45	---
Other shrubs	SSSS	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO13N	O28BO10N
Potential production (lb/acre):				
Favorable years		800	800	800
Normal years		600	550	600
Unfavorable years		400	300	400

670--Filiran-Pineval-Kingingham 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--	
		Filiran	Pineval	Kingingham	1	2
Indian ricegrass	ORHY	20-30	20-30	5-15	20-30	20-30
Needleandthread	STCO4	10-20	10-20	1-3	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-15	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-8	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	15-20
Shadscale	ATCO	---	---	30-40	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---
Spiny hopsage	GRSP	---	---	2-5	---	---
Winterfat	EULA5	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	2-5	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O24XO02N	O28BO10N	O28BO10N
Potential production (lb/acre):						
Favorable years		800	800	700	800	800
Normal years		600	600	450	600	600
Unfavorable years		400	400	300	400	400

674--Filiran-Buffaran 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--		
		Filiran	Buffaran	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	5-15
Needleandthread	STCO4	10-20	10-20	10-20	10-20	1-3
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Shadscale	ATCO	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	20-30
Spiny hopsage	GRSP	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-5
Range site symbol		028B010N	028B010N	028B010N	028B010N	024X002N
Potential production (lb/acre):						
Favorable years		800	800	800	800	700
Normal years		600	600	600	600	450
Unfavorable years		400	400	400	400	300

675--Filiran-Buffaran-Orovada associaton

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Filiran	Buffaran	Orovada	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO10N	O28BO10N
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

680--Skullwak-Umberland-Wendane association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Skullwak	Umberland	Wendane	1	2	3
Inland saltgrass	DISPS2	10-25	5-10	5-10	---	---	---
Nuttall alkaligrass	PUAI	5-10	---	---	---	---	---
Baltic rush	JUBA	5-10	---	---	---	---	---
Basin wildrye	ELCI2	---	5-15	40-60	---	---	---
Alkali sacaton	SPAI	---	---	15-30	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	---	---	---	T-10	---
Cinquefoil	POTEN	5-10	---	---	---	---	---
Eriogonum	ERIOG	2-5	---	---	---	---	---
Other perennial forbs	PPFF	---	T-5	---	---	2-8	---
Alkali rabbitbrush	CHAL9	20-35	---	1-2	---	---	---
Black greasewood	SAVE4	T-5	60-75	5-15	---	15-30	---
Rubber rabbitbrush	CHNA2	T-5	---	1-2	---	---	---
Shadscale	ATCO	---	---	---	---	30-50	---
Bud sagebrush	ARSP5	---	---	---	---	5-15	---
Seepweed	SUAED	---	---	---	---	2-15	---
Range site symbol		024X044N	024X011N	024X007N	None	024X003N	None
Potential production (lb/acre):							
Favorable years		350	500	1,900	---	600	---
Normal years		225	350	1,400	---	450	---
Unfavorable years		150	200	800	---	300	---

683--Ocala-Sonoma-Paranat association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native 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	Paranat	1	2	3
Basin wildrye	ELCI2	40-60	2-5	2-5	50-60	T-5	5-20
Alkali sacaton	SPAI	15-30	15-40	15-40	---	40-70	---
Inland saltgrass	DISPS2	5-10	5-10	5-10	---	T-15	---
Alkali muhly	MUAS	---	10-20	10-20	---	---	---
Alkali bluegrass	POJU	---	5-15	5-15	---	---	---
Alkali cordgrass	SPGR	---	5-10	5-10	---	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5
Indian ricegrass	ORHY	---	---	---	---	---	2-5
Arrowgrass	TRIGL	---	1-3	1-3	---	---	---
Thelypody	THELY	---	---	---	---	---	2-4
Other perennial forbs	PPFF	---	---	---	2-8	2-8	---
Black greasewood	SAVE4	5-15	T-2	T-2	2-10	2-5	20-30
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	T-2	T-2	2-5	---	---
Silver buffaloberry	SHAR	---	T-2	T-2	---	---	---
Willow	SALIX	---	T-2	T-2	---	---	---
Woods rose	ROWO	---	T-2	T-2	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	5-15
Iodinebush	ALOC2	---	---	---	---	10-20	---
Saltbush	ATRIP	---	---	---	---	5-10	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	5-10
Spiny hopsage	GRSP	---	---	---	---	---	5-15

Range site symbol	024X007N	024X009N	024X009N	024X006N	024X010N	024X022N
Potential production (lb/acre):						
Favorable years	1,900	1,500	1,500	1,500	450	800
Normal years	1,400	1,000	1,000	1,100	300	600
Unfavorable years	800	700	700	600	150	350

700--Orovada-Rasille-Wholan 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	Rasille	Wholan	1	2	3	4
Indian ricegrass	ORHY	20-30	20-30	10-20	5-15	---	20-30	---
Needleandthread	STCO4	10-20	10-20	---	1-3	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	2-10	5-15	---	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	---	2-6	---
Basin wildrye	ELCI2	---	---	---	---	50-60	---	30-50
Western wheatgrass	AGSM	---	---	---	---	5-15	---	2-5
Nevada bluegrass	PONE3	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-8	2-8	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	---	15-20	---
Winterfat	EULA5	---	---	60-70	2-5	---	---	---
Bud sagebrush	ARSP5	---	---	2-5	20-30	---	---	---
Shadscale	ATCO	---	---	---	30-40	---	---	---
Spiny hopsage	GRSP	---	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-20	---	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	---	2-5	---	5-15	5-10

Range site symbol	O28BO10N	O28BO10N	O24XO04N	O24XO02N	O24XO06N	O28BO10N	O28BO03N
Potential production (lb/acre):							
Favorable years	800	800	500	700	1,500	800	2,600
Normal years	600	600	350	450	1,100	600	1,250
Unfavorable years	400	400	200	300	600	400	800

701--Orovada fine sandy loam, 2 to 4 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native 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	1	2	3
Indian ricegrass	ORHY	20-30	5-15	5-15	10-20
Needleandthread	STCO4	10-20	1-3	1-3	20-30
Bottlebrush squirreltail	SIHY	5-10	5-15	5-15	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Thickspike wheatgrass	AGDA	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	2-5
Perennial forbs	PPFF	2-5	2-8	2-8	10-20
Wyoming big sagebrush	ARTRW*	15-20	---	---	---
Shadscale	ATCO	---	30-40	30-40	---
Bud sagebrush	ARSP5	---	20-30	20-30	---
Spiny hopsage	GRSP	---	2-5	2-5	T-5
Winterfat	EULA5	---	2-5	2-5	---
Big sagebrush	ARTR2	---	---	---	10-20
Other shrubs	SSSS	5-15	2-5	2-5	2-10
Range site symbol		028B010N	024X002N	024X002N	024X017N
Potential production (lb/acre):					
Favorable years		800	700	700	900
Normal years		600	450	450	700
Unfavorable years		400	300	300	500

702--Orovada-Creemon association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native 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	Creemon	1	2	3
Indian ricegrass	ORHY	20-30	---	---	5-15	5-15
Needleandthread	STCO4	10-20	---	---	5-10	1-3
Bottlebrush squirreltail	SIHY	5-10	5-10	---	2-5	5-15
Sandberg bluegrass	POSE	2-5	---	---	---	2-5
Basin wildrye	ELCI2	---	---	50-60	---	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Sand dropseed	SPCR	---	---	---	2-5	---
Other perennial grasses	PPGG	---	T-10	---	5-10	---
Perennial forbs	PPFF	2-5	2-8	2-8	5-15	2-8
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---
Shadscale	ATCO	---	30-50	---	---	30-40
Black greasewood	SAVE4	---	15-30	2-10	---	---
Bud sagebrush	ARSP5	---	5-15	---	2-5	20-30
Seepweed	SUAED	---	2-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	15-20	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Fourwing saltbush	ATCA2	---	---	---	10-20	---
Winterfat	EULA5	---	---	---	10-15	2-5
Nevada ephedra	EPNE	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	---	2-5
Other shrubs	SSSS	5-15	---	---	10-15	2-5

Range site symbol	028B010N	024X003N	024X006N	028B014N	024X002N
Potential production (lb/acre):					
Favorable years	800	600	1,500	450	700
Normal years	600	450	1,100	300	450
Unfavorable years	400	300	600	125	300

703--Orovada fine 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 on major soils and inclusions			
		Soil name	Inclusion number--		
		Orovada	1	2	3
Indian ricegrass	ORHY	20-30	15-25	2-5	---
Needleandthread	STCO4	10-20	---	2-5	---
Bottlebrush squirreltail	SIHY	5-10	2-5	2-5	---
Sandberg bluegrass	POSE	2-5	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	---
Basin wildrye	ELCI2	---	---	10-20	50-60
Western wheatgrass	AGSM	---	---	---	5-15
Other perennial grasses	PPGG	---	---	5-10	---
Scarlet globemallow	SPCO	---	2-5	---	---
Other perennial forbs	PPFF	2-5	---	5-10	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-25	---	---
Spiny hopsage	GRSP	---	20-30	---	---
Bud sagebrush	ARSP5	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	10-15	15-20
Greene rabbitbrush	CHGR6	---	---	2-5	---
Nevada ephedra	EPNE	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	2-5
Other shrubs	SSSS	5-15	5-10	5-10	---

Range site symbol	028B010N	028B052N	028B009N	024X006N
Potential production (lb/acre):				
Favorable years	800	600	700	1,500
Normal years	600	400	400	1,100
Unfavorable years	400	300	300	600

704--Orovada-McConnel 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	McConnel	1	2	3
Indian ricegrass	ORHY	20-30	---	10-20	20-30	---
Needleandthread	STCO4	10-20	---	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	---	2-10	5-10	---
Sandberg bluegrass	POSE	2-5	---	---	2-5	---
Thurber needlegrass	STTH2	---	20-50	---	---	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---
Other perennial forbs	PPFF	2-5	---	2-8	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---
Winterfat	EULA5	---	---	60-70	---	---
Bud sagebrush	ARSP5	---	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	2-10	---	5-15	5-10

Range site symbol	O28BO10N	O24XO05N	O24XO04N	O28BO10N	O28BO03N
Potential production (lb/acre):					
Favorable years	800	800	500	800	2,600
Normal years	600	600	350	600	1,250
Unfavorable years	400	400	200	400	800

705--Orovada-Valmy 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	Valmy	1	2	3
Indian ricegrass	ORHY	20-30	2-5	---	20-30	20-30
Needleandthread	STCO4	10-20	---	---	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	2-5	---	5-10	5-10
Sandberg bluegrass	POSE	2-5	---	---	2-5	2-5
Basin wildrye	ELCI2	---	5-20	50-60	---	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Thelypody	THELY	---	2-4	---	---	---
Other perennial forbs	PPFF	2-5	---	2-8	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	5-10	---	15-20	15-20
Black greasewood	SAVE4	---	20-30	2-10	---	---
Basin big sagebrush	ARTRT*	---	5-15	15-20	---	---
Spiny hopsage	GRSP	---	5-15	---	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Other shrubs	SSSS	5-15	---	---	5-15	5-15
Range site symbol		028B010N	024X022N	024X006N	028B010N	028B010N
Potential production (lb/acre):						
Favorable years		800	800	1,500	800	800
Normal years		600	600	1,100	600	600
Unfavorable years		400	350	600	400	400

751--Poorcal-Lopwash association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Poorcal	Lopwash	1	2	3
Indian ricegrass	ORHY	20-30	5-15	---	20-30	15-25
Needleandthread	STCO4	10-20	5-10	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	2-5	5-10	5-10	2-5
Sandberg bluegrass	POSE	2-5	---	---	2-5	---
Other perennial grasses	PPGG	---	5-10	T-10	---	5-10
Perennial forbs	PPFF	2-5	5-10	2-8	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	---	---	15-20	---
Shadscale	ATCO	---	30-40	30-50	---	---
Bud sagebrush	ARSP5	---	5-10	5-15	---	---
Winterfat	EULA5	---	2-5	---	---	30-45
Fourwing saltbush	ATCA2	---	2-5	---	---	---
Black greasewood	SAVE4	---	---	15-30	---	---
Seepweed	SUAED	---	---	2-15	---	---
Other shrubs	SSSS	5-15	5-15	---	5-15	5-15
Range site symbol		028B010N	028B017N	024X003N	028B010N	028B013N
Potential production (lb/acre):						
Favorable years		800	700	600	800	800
Normal years		600	500	450	600	550
Unfavorable years		400	250	300	400	300

811--Ravenswood-Itca-Walti 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--		
		Ravenswood	Itca	Walti	1	2	3
Idaho fescue	FEID	X	X	25-50	---	---	10-20
Bluebunch wheatgrass	AGSP	X	X	15-30	---	15-20	---
Bluegrass	POA++	X	X	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-10	---	15-20	---
Spike fescue	LEKI2	---	---	2-10	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	5-10
Sandberg bluegrass	POSE	---	---	---	---	5-8	2-5
Pine bluegrass	POSC	---	---	---	---	5-8	2-5
Cusick bluegrass	POCU3	---	---	---	---	5-8	2-5
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10
Other perennial grasses	PPGG	X	X	---	---	---	---
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---
Balsamroot	BALSA	---	---	2-5	---	2-5	---
Eriogonum	ERIOG	---	---	---	---	1-3	---
Phlox	PHLOX	---	---	---	---	1-3	2-5
Goldenweed	HAPLO2	---	---	---	---	---	2-5
Other perennial forbs	PPFF	X	X	---	---	---	---
Big sagebrush	ARTR2	X	X	---	---	---	---
Low sagebrush	ARAR8	---	---	10-20	---	20-30	5-15
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15
Mountain big sagebrush	ARVA2	---	---	---	---	---	1-5
Other shrubs	SSSS	X	X	---	---	---	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Range site symbol		---	---	024X027N	None	024X018N	024X016N
Woodland site symbol		025X061N	025X061N	---	None	---	---
Potential production (lb/acre):							
Favorable years		500	500	1,200	---	700	350
Normal years		375	375	800	---	500	250
Unfavorable years		250	250	600	---	300	150

812--Ravenswood-Shagnasty-Walti 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--			
		Ravenswood	Shagnasty	Walti	1	2	3	4
Idaho fescue	FEID	X	X	25-50	---	---	---	---
Bluebunch wheatgrass	AGSP	X	X	15-30	---	10-20	---	---
Bluegrass	POA++	X	X	---	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-10	---	5-10	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	2-5	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Pine bluegrass	POSC	---	---	---	---	2-5	---	---
Other perennial grasses	PPGG	X	X	---	5-15	10-20	---	---
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	X	X	---	5-10	5-12	---	---
Big sagebrush	ARTR2	X	X	---	---	---	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Mountain big sagebrush	ARVA2	---	---	---	---	15-25	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	5-10	---	---
Utah serviceberry	AMUT	---	---	---	---	2-10	---	---
Other shrubs	SSSS	X	X	---	5-10	5-15	---	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---	---
Range site symbol		---	---	024X027N	028B024N	028B030N	None	None
Woodland site symbol		025X061N	025X061N	---	---	---	None	None
Potential production (lb/acre):								
Favorable years		500	500	1,200	2,800	1,000	---	---
Normal years		375	375	800	1,700	850	---	---
Unfavorable years		250	250	600	1,000	550	---	---

850--Relley silt loam, 0 to 2 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name	Inclusion number--			
		Relley	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-10	5-10
Indian ricegrass	ORHY	5-15	5-15	---	---	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	---
Needleandthread	STCO4	1-3	1-3	---	---	---
Other perennial grasses	PPGG	---	---	T-10	T-10	T-10
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	2-8
Shadscale	ATCO	30-40	30-40	30-50	30-50	30-50
Bud sagebrush	ARSP5	20-30	20-30	5-15	5-15	5-15
Spiny hopsage	GRSP	2-5	2-5	---	---	---
Winterfat	EULA5	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	15-30	15-30	15-30
Seepweed	SUAED	---	---	2-15	2-15	2-15
Other shrubs	SSSS	2-5	2-5	---	---	---
Range site symbol		024X002N	024X002N	024X003N	024X003N	024X003N
Potential production (lb/acre):						
Favorable years		700	700	600	600	600
Normal years		450	450	450	450	450
Unfavorable years		300	300	300	300	300

854--Relley silt loam, frequently flooded, 0 to 2 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Relley	1	2	3
Indian ricegrass	ORHY	10-30	---	5-15	5-15
Bottlebrush squirreltail	SIHY	5-10	---	5-15	5-15
Alkali sacaton	SPAI	T-5	---	---	---
Basin wildrye	ELCI2	---	50-60	---	---
Western wheatgrass	AGSM	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	2-5	2-5
Needleandthread	STCO4	---	---	1-3	1-3
Perennial forbs	PPFF	T-5	2-8	2-8	2-8
Sickle saltbush	ATFA	50-65	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	---	---
Black greasewood	SAVE4	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Shadscale	ATCO	---	---	30-40	30-40
Bud sagebrush	ARSP5	---	---	20-30	20-30
Spiny hopsage	GRSP	---	---	2-5	2-5
Winterfat	EULA5	---	---	2-5	2-5
Other shrubs	SSSS	---	---	2-5	2-5
Range site symbol		024X012N	024X006N	024X002N	024X002N
Potential production (lb/acre):					
Favorable years		700	1,500	700	700
Normal years		400	1,100	450	450
Unfavorable years		200	600	300	300

910--Rutab 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--	
		Rutab	1	2
Indian ricegrass	ORHY	20-30	---	20-30
Needleandthread	STCO4	10-20	---	10-20
Bottlebrush squirreltail	SIHY	5-10	---	5-10
Sandberg bluegrass	POSE	2-5	---	2-5
Basin wildrye	ELCI2	---	30-50	---
Nevada bluegrass	PONE3	---	2-5	---
Western wheatgrass	AGSM	---	2-5	---
Other perennial grasses	PPGG	---	15-25	---
Perennial forbs	PPFF	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	15-20
Basin big sagebrush	ARTRT*	---	5-10	---
Other shrubs	SSSS	5-15	5-10	5-15
Range site symbol		O28B010N	O28B003N	O28B010N
Potential production (lb/acre):				
Favorable years		800	2,600	800
Normal years		600	1,250	600
Unfavorable years		400	800	400

931--Shagnasty-Roca-Rock outcrop association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Shagnasty	Roca	Rock outcrop	1	2	3
Idaho fescue	FEID	X	---	---	---	10-15	---
Bluebunch wheatgrass	AGSP	X	40-60	---	5-15	5-10	---
Bluegrass	POA++	X	2-10	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	2-5	---	---
Basin wildrye	ELCI2	---	2-5	---	---	---	30-50
Pine bluegrass	POSC	---	---	---	5-10	5-10	---
Indian ricegrass	ORHY	---	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Nevada bluegrass	PONE3	---	---	---	---	---	5-10
Other perennial grasses	PPGG	X	---	---	10-15	10-15	5-15
Tapertip hawksbeard	CRAC2	X	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	X	2-5	---	---	---	---
Other perennial forbs	PPFF	X	---	---	10-15	5-10	5-10
Big sagebrush	ARTR2	X	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	T-5	---	---	---	---
Low sagebrush	ARAR8	---	---	---	25-30	5-15	---
Black sagebrush	ARARN	---	---	---	---	5-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	X	---	---	10-20	5-10	5-10
Singleleaf pinyon	PIMO	X	---	---	---	---	---
Range site symbol		---	024X028N	None	028B037N	028B038N	028B024N
Woodland site symbol		025X061N	---	None	---	---	---
Potential production (lb/acre):							
Favorable years		500	1,000	---	700	800	2,800
Normal years		375	700	---	500	600	1,700
Unfavorable years		250	500	---	300	400	1,000

932--Shagnasty-Softscrabble 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--			
		Shagnasty	Softscrabble	1	2	3	4
Idaho fescue	FEID	X	20-40	25-50	---	---	---
Bluebunch wheatgrass	AGSP	X	20-30	15-30	15-25	---	---
Bluegrass	POA++	X	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	---	30-50	---
Thurber needlegrass	STTH2	---	2-10	2-10	15-25	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---
Western wheatgrass	AGSM	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	X	---	---	10-20	5-15	2-10
Tapertip hawksbeard	CRAC2	X	1-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	X	1-5	---	2-5	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	X	---	---	2-10	5-10	10-20
Big sagebrush	ARTR2	X	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	5-10	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	2-5
Other shrubs	SSSS	X	---	---	2-10	5-10	2-5
Singleleaf pinyon	PIMO	X	---	---	---	---	---

Range site symbol	---	O24XO21N	O24XO27N	O24XO35N	O28BO24N	O25XOO5N
Woodland site symbol	O25XO61N	---	---	---	---	---
Potential production (lb/acre):						
Favorable years	500	1,400	1,200	500	2,800	2,000
Normal years	375	1,000	800	400	1,700	1,700
Unfavorable years	250	700	600	250	1,000	1,000

942--Shipley silt loam, occasionally flooded, 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--	
		Shipley	1	2
Indian ricegrass	ORHY	15-25	2-5	20-30
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10
Basin wildrye	ELCI2	---	10-20	---
Needleandthread	STCO4	---	2-5	10-20
Sandberg bluegrass	POSE	---	---	2-5
Other perennial grasses	PPGG	5-10	5-10	---
Perennial forbs	PPFF	5-10	5-10	2-5
Winterfat	EULA5	30-45	---	---
Basin big sagebrush	ARTRT*	---	10-15	---
Greene rabbitbrush	CHGR6	---	2-5	---
Nevada ephedra	EPNE	---	2-5	---
Fourwing saltbush	ATCA2	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-20
Other shrubs	SSSS	5-15	5-10	5-15
Range site symbol		028B013N	028B009N	028B010N
Potential production (lb/acre):				
Favorable years		800	700	800
Normal years		550	400	600
Unfavorable years		300	300	400

950--Silverado 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 on major soils and inclusions			
		Soil name	Inclusion number--		
		Silverado	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	2-5
Needleandthread	STCO4	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	5-20
Thelypody	THELY	---	---	---	2-4
Other perennial forbs	PPFF	2-5	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	5-10
Black greasewood	SAVE4	---	---	---	20-30
Basin big sagebrush	ARTRT*	---	---	---	5-15
Spiny hopsage	GRSP	---	---	---	5-15
Other shrubs	SSSS	5-15	5-15	5-15	---
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O24XO22N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	350

990--Sonoma-Wendane 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	Wendane	1	2	3
Basin wildrye	ELCI2	50-60	40-60	50-60	5-20	---
Western wheatgrass	AGSM	5-15	---	---	---	---
Alkali sacaton	SPAI	---	15-30	---	---	---
Inland saltgrass	DISPS2	---	5-10	---	---	5-10
Nevada bluegrass	PONE3	---	---	5-15	---	5-10
Mat muhly	MURI	---	---	2-10	---	2-10
Sedge	CAREX	---	---	1-5	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---
Indian ricegrass	ORHY	---	---	---	2-5	---
Wildrye	ELYMU	---	---	---	---	30-60
Other perennial grasses	PPGG	---	---	15-20	---	5-15
Thelypody	THELY	---	---	---	2-4	---
Sierra clover	TRWO	---	---	---	---	2-5
Other perennial forbs	PPFF	2-8	---	5-10	---	5-10
Basin big sagebrush	ARTRT*	15-20	---	10-15	5-15	2-5
Black greasewood	SAVE4	2-10	5-15	---	20-30	---
Rubber rabbitbrush	CHNA2	2-5	1-2	---	---	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	5-10	---
Spiny hopsage	GRSP	---	---	---	5-15	---
Willow	SALIX	---	---	---	---	5-10
Silver sagebrush	ARCA13	---	---	---	---	2-5
Other shrubs	SSSS	---	---	2-5	---	2-8

Range site symbol	024X006N	024X007N	025X003N	024X022N	025X001N
Potential production (lb/acre):					
Favorable years	1,500	1,900	2,500	800	3,000
Normal years	1,100	1,400	1,900	600	2,500
Unfavorable years	600	800	1,200	350	1,800

998--Sonoma-Paranat 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	Paranat	Sonoma, occasionally flooded	1	2	3	4
Wildrye	ELYMU	30-60	30-60	---	---	---	---	---
Nevada bluegrass	PONE3	5-10	5-10	---	---	2-5	---	---
Inland saltgrass	DISPS2	5-10	5-10	---	5-10	---	5-10	---
Mat muhly	MURI	2-10	2-10	---	---	---	---	---
Basin wildrye	ELCI2	---	---	50-60	40-60	30-50	40-60	20-40
Western wheatgrass	AGSM	---	---	5-15	---	2-5	---	---
Alkali sacaton	SPAI	---	---	---	15-30	---	15-30	---
Other perennial grasses	PPGG	5-15	5-15	---	---	15-25	---	---
Sierra clover	TRWO	2-5	2-5	---	---	---	---	---
Other perennial forbs	PPFF	5-10	5-10	2-8	---	2-5	---	2-8
Willow	SALIX	5-10	5-10	---	---	---	---	---
Basin big sagebrush	ARTRT*	2-5	2-5	15-20	---	5-10	---	2-10
Silver sagebrush	ARCA13	2-5	2-5	---	---	---	---	---
Black greasewood	SAVE4	---	---	2-10	5-15	---	5-15	5-15
Rubber rabbitbrush	CHNA2	---	---	2-5	1-2	---	1-2	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---	1-2	---
Torrey quailbush	ATTO	---	---	---	---	---	---	30-50
Other shrubs	SSSS	2-8	2-8	---	---	5-10	---	---

Range site symbol	O25X001N	O25X001N	O24X006N	O24X007N	O28B003N	O24X007N	O24X015N
Potential production (lb/acre):							
Favorable years	3,000	3,000	1,500	1,900	2,600	1,900	1,500
Normal years	2,500	2,500	1,100	1,400	1,250	1,400	1,200
Unfavorable years	1,800	1,800	600	800	800	800	800

999-Sonoma-Wendane-Paranat association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native 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	Wendane	Paranat	1	2	3
Basin wildrye	ELCI2	50-60	40-60	---	---	30-50	5-15
Western wheatgrass	AGSM	5-15	---	---	---	2-5	---
Alkali sacaton	SPAI	---	15-30	---	---	---	---
Inland saltgrass	DISPS2	---	5-10	5-10	5-10	---	5-10
Wildrye	ELYMU	---	---	30-60	30-60	---	---
Nevada bluegrass	PONE3	---	---	5-10	5-10	2-5	---
Mat muhly	MURI	---	---	2-10	2-10	---	---
Other perennial grasses	PPGG	---	---	5-15	5-15	15-25	---
Sierra clover	TRWO	---	---	2-5	2-5	---	---
Other perennial forbs	PPFF	2-8	---	5-10	5-10	2-5	T-5
Basin big sagebrush	ARTRT*	15-20	---	2-5	2-5	5-10	---
Black greasewood	SAVE4	2-10	5-15	---	---	---	60-75
Rubber rabbitbrush	CHNA2	2-5	1-2	---	---	---	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---	---
Willow	SALIX	---	---	5-10	5-10	---	---
Silver sagebrush	ARCA13	---	---	2-5	2-5	---	---
Other shrubs	SSSS	---	---	2-8	2-8	5-10	---

Range site symbol	024X006N	024X007N	025X001N	025X001N	028B003N	024X011N
Potential production (lb/acre):						
Favorable years	1,500	1,900	3,000	3,000	2,600	500
Normal years	1,100	1,400	2,500	2,500	1,250	350
Unfavorable years	600	800	1,800	1,800	800	200

1011--Stampede-Handy-Caniwe 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	Handy	Caniwe	1	2
Bluebunch wheatgrass	AGSP	20-30	5-10	5-10	---	---
Thurber needlegrass	STTH2	15-25	20-30	20-30	---	---
Nevada bluegrass	PONE3	2-10	---	---	---	2-5
Indian ricegrass	ORHY	---	5-10	5-10	20-30	---
Pine bluegrass	POSC	---	2-5	2-5	---	---
Needleandthread	STCO4	---	2-5	2-5	10-20	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	10-15	5-10	5-10	---	15-25
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---
Other perennial forbs	PPFF	2-5	5-10	5-10	2-5	2-5
Big sagebrush	ARTR2	10-15	---	---	---	---
Antelope bitterbrush	PUTR2	0-10	1-10	1-10	---	---
Wyoming big sagebrush	ARTRW*	---	10-15	10-15	15-20	---
Rabbitbrush	CHRYS9	---	2-5	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-10	---	---	5-15	5-10

Range site symbol	O25XO14N	O28BO07N	O28BO07N	O28BO10N	O28BO03N
Potential production (lb/acre):					
Favorable years	1,000	1,000	1,000	800	2,600
Normal years	800	750	750	600	1,250
Unfavorable years	600	600	600	400	800

1041--Tenabo-Orovada-Buffaran 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--		
		Tenabo	Orovada	Buffaran	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-10	5-15	5-15	2-5
Indian ricegrass	ORHY	5-15	20-30	20-30	5-15	5-15	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	---
Needleandthread	STCO4	1-3	10-20	10-20	1-3	1-3	---
Basin wildrye	ELCI2	---	---	---	---	---	5-20
Thelypody	THELY	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	2-5	2-5	2-8	2-8	---
Shadscale	ATCO	30-40	---	---	30-40	30-40	---
Bud sagebrush	ARSP5	20-30	---	---	20-30	20-30	---
Spiny hopsage	GRSP	2-5	---	---	2-5	2-5	5-15
Winterfat	EULA5	2-5	---	---	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---	5-10
Black greasewood	SAVE4	---	---	---	---	---	20-30
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-15
Other shrubs	SSSS	2-5	5-15	5-15	2-5	2-5	---
Range site symbol		024X002N	028B010N	028B010N	024X002N	024X002N	024X022N
Potential production (lb/acre):							
Favorable years		700	800	800	700	700	800
Normal years		450	600	600	450	450	600
Unfavorable years		300	400	400	300	300	350

1042--Tenabo-Ricert-Desatoya 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--		
		Tenabo	Ricert	Desatoya	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	---	2-10	---
Indian ricegrass	ORHY	5-15	5-15	10-15	---	5-15	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	2-10	---
Needleandthread	STCO4	1-3	1-3	---	---	---	---
Thurber needlegrass	STTH2	---	---	10-15	20-50	10-20	20-50
Bluegrass	POA++	---	---	2-10	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---	5-10
Other perennial grasses	PPGG	---	---	5-20	---	---	---
Globemallow	SPHAE	---	---	2-5	---	1-2	---
Balsamroot	BALSA	---	---	---	2-4	---	2-4
Tapertip hawksbeard	CRAC2	---	---	---	2-4	1-2	2-4
Phlox	PHLOX	---	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	---	---	---	---
Shadscale	ATCO	30-40	30-40	---	---	---	---
Bud sagebrush	ARSP5	20-30	20-30	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	25-35	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	30-35	15-20
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	2-5
Other shrubs	SSSS	2-5	2-5	5-35	2-10	---	2-10

Range site symbol	O24XO02N	O24XO02N	O24XO30N	O24XO05N	O24XO20N	O24XO05N
Potential production (lb/acre):						
Favorable years	700	700	500	800	700	800
Normal years	450	450	350	600	450	600
Unfavorable years	300	300	250	400	300	400

1092--Tulase-Bubus-McConnel association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tulase	Bubus	McConnel	1	2	3
Thurber needlegrass	STTH2	20-50	---	20-50	---	20-50	20-50
Bluebunch wheatgrass	AGSP	5-10	---	5-10	---	5-10	5-10
Bottlebrush squirreltail	SIHY	---	5-15	---	5-10	---	---
Indian ricegrass	ORHY	---	5-15	---	---	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	---	---
Needleandthread	STCO4	---	1-3	---	---	---	---
Other perennial grasses	PPGG	---	---	---	T-10	---	---
Balsamroot	BALSA	2-4	---	2-4	---	2-4	2-4
Tapertip hawksbeard	CRAC2	2-4	---	2-4	---	2-4	2-4
Other perennial forbs	PPFF	---	2-8	---	2-8	---	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	---	15-20	15-20
Downy rabbitbrush	CHVIP	2-5	---	2-5	---	2-5	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5	---	2-5	2-5
Shadscale	ATCO	---	30-40	---	30-50	---	---
Bud sagebrush	ARSP5	---	20-30	---	5-15	---	---
Winterfat	EULA5	---	2-5	---	---	---	---
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Other shrubs	SSSS	2-10	2-5	2-10	---	2-10	2-10
Range site symbol		024X005N	024X002N	024X005N	024X003N	024X005N	024X005N
Potential production (lb/acre):							
Favorable years		800	700	800	600	800	800
Normal years		600	450	600	450	600	600
Unfavorable years		400	300	400	300	400	400

1131--Fortank gravelly loam, 4 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--		
		Fortank	1	2	3
Indian ricegrass	ORHY	20-30	15-25	20-30	20-30
Needleandthread	STCO4	10-20	5-10	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	---	5-10	5-10
Sandberg bluegrass	POSE	2-5	---	2-5	2-5
Basin wildrye	ELCI2	---	2-5	---	---
Bluebunch wheatgrass	AGSP	---	2-5	---	---
Perennial forbs	PPFF	2-5	5-10	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	15-20
Black sagebrush	ARARN	---	20-30	---	---
Winterfat	EULA5	---	5-10	---	---
Bud sagebrush	ARSP5	---	2-5	---	---
Small rabbitbrush	CHVIS	---	2-5	---	---
Other shrubs	SSSS	5-15	---	5-15	5-15
Range site symbol		028B010N	028B011N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years		800	950	800	800
Normal years		600	700	600	600
Unfavorable years		400	400	400	400

1140--Wendane silt loam, frequently flooded

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Wendane	1	2	3
Basin wildrye	ELCI2	40-60	---	5-15	50-60
Alkali sacaton	SPAI	15-30	---	---	---
Inland saltgrass	DISPS2	5-10	---	5-10	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---
Western wheatgrass	AGSM	---	---	---	5-15
Other perennial grasses	PPGG	---	T-10	---	---
Perennial forbs	PPFF	---	2-8	T-5	2-8
Black greasewood	SAVE4	5-15	15-30	60-75	2-10
Alkali rabbitbrush	CHAL9	1-2	---	---	---
Rubber rabbitbrush	CHNA2	1-2	---	---	2-5
Shadscale	ATCO	---	30-50	---	---
Bud sagebrush	ARSP5	---	5-15	---	---
Seepweed	SUAED	---	2-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20
Range site symbol		024X007N	024X003N	024X011N	024X006N
Potential production (lb/acre):					
Favorable years		1,900	600	500	1,500
Normal years		1,400	450	350	1,100
Unfavorable years		800	300	200	600

1141--Wendane-Umberland association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wendane, strongly sodic	Wendane, frequently flooded	Umberland	1	2	3
Basin wildrye	ELCI2	15-25	40-60	T-5	50-60	5-15	---
Alkali sacaton	SPAI	5-10	15-30	40-70	---	---	---
Inland saltgrass	DISPS2	2-5	5-10	T-15	---	5-10	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Other perennial grasses	PPGG	2-5	---	---	---	---	---
Perennial forbs	PPFF	2-5	---	2-8	2-8	T-5	---
Silver buffaloberry	SHAR	10-20	---	---	---	---	---
Black greasewood	SAVE4	5-15	5-15	2-5	2-10	60-75	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---	---
Rubber rabbitbrush	CHNA2	---	1-2	---	2-5	---	---
Iodinebush	ALOC2	---	---	10-20	---	---	---
Saltbush	ATRIP	---	---	5-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	---
Other shrubs	SSSS	5-15	---	---	---	---	---

Range site symbol	028B057N	024X007N	024X010N	024X006N	024X011N	None
Potential production (lb/acre):						
Favorable years	1,500	1,900	450	1,500	500	---
Normal years	1,000	1,400	300	1,100	350	---
Unfavorable years	600	800	150	600	200	---

1142--Wendane-Gund association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Wendane	Gund	Gund, drained	1	2
Basin wildrye	ELCI2	40-60	50-60	15-20	5-15	T-5
Alkali sacaton	SPAI	15-30	---	---	---	40-70
Inland saltgrass	DISPS2	5-10	---	2-10	5-10	T-15
Western wheatgrass	AGSM	---	5-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-10	---	---
Perennial forbs	PPFF	---	2-8	2-8	T-5	2-8
Black greasewood	SAVE4	5-15	2-10	40-60	60-75	2-5
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	---	---	---
Iodinebush	ALOC2	---	---	---	---	10-20
Saltbush	ATRIP	---	---	---	---	5-10

Range site symbol	024X007N	024X006N	024X008N	024X011N	024X010N
Potential production (lb/acre):					
Favorable years	1,900	1,500	800	500	450
Normal years	1,400	1,100	600	350	300
Unfavorable years	800	600	400	200	150

1143--Wendane silt loam, occasionally flooded

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Wendane	1	2	3
Basin wildrye	ELCI2	5-15	40-60	40-60	40-60
Inland saltgrass	DISPS2	5-10	5-10	5-10	5-10
Alkali sacaton	SPAI	---	15-30	15-30	15-30
Perennial forbs	PPFF	T-5	---	---	---
Black greasewood	SAVE4	60-75	5-15	5-15	5-15
Alkali rabbitbrush	CHAL9	---	1-2	1-2	1-2
Rubber rabbitbrush	CHNA2	---	1-2	1-2	1-2
Range site symbol		024X011N	024X007N	024X007N	024X007N
Potential production (lb/acre):					
Favorable years		500	1,900	1,900	1,900
Normal years		350	1,400	1,400	1,400
Unfavorable years		200	800	800	800

1145--Wendane-Playas association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wendane	Playas	1	2	3
Basin wildrye	ELCI2	5-15	---	T-5	40-60	---
Inland saltgrass	DISPS2	5-10	---	T-15	5-10	---
Alkali sacaton	SPAI	---	---	40-70	15-30	---
Idaho fescue	FEID	---	---	---	---	10-20
Webber ricegrass	STWE	---	---	---	---	5-10
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10
Cusick bluegrass	POCU3	---	---	---	---	2-5
Sandberg bluegrass	POSE	---	---	---	---	2-5
Pine bluegrass	POSC	---	---	---	---	2-5
Goldenweed	HAPLO2	---	---	---	---	2-5
Phlox	PHLOX	---	---	---	---	2-5
Other perennial forbs	PPFF	T-5	---	2-8	---	---
Black greasewood	SAVE4	60-75	---	2-5	5-15	---
Iodinebush	ALOC2	---	---	10-20	---	---
Saltbush	ATRIP	---	---	5-10	---	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---
Rubber rabbitbrush	CHNA2	---	---	---	1-2	---
Low sagebrush	ARAR8	---	---	---	---	5-15
Black sagebrush	ARARN	---	---	---	---	5-15
Mountain big sagebrush	ARVA2	---	---	---	---	1-5
Range site symbol		024X011N	None	024X010N	024X007N	024X016N
Potential production (lb/acre):						
Favorable years		500	---	450	1,900	350
Normal years		350	---	300	1,400	250
Unfavorable years		200	---	150	800	150

1146--Wendane-Sonoma-Valmy association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wendane	Sonoma	Valmy	1	2	3
Basin wildrye	ELCI2	40-60	50-60	5-20	---	20-40	---
Alkali sacaton	SPAI	15-30	---	---	---	---	---
Inland saltgrass	DISPS2	5-10	---	---	5-10	---	---
Western wheatgrass	AGSM	---	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	5-10
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Wildrye	ELYMU	---	---	---	30-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	---	5-15	---	T-10
Thelypody	THELY	---	---	2-4	---	---	---
Sierra clover	TRWO	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-8	---	5-10	2-8	2-8
Black greasewood	SAVE4	5-15	2-10	20-30	---	5-15	15-30
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	5-15	2-5	2-10	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	---	---
Spiny hopsage	GRSP	---	---	5-15	---	---	---
Willow	SALIX	---	---	---	5-10	---	---
Silver sagebrush	ARCA13	---	---	---	2-5	---	---
Torrey quailbush	ATTO	---	---	---	---	30-50	---
Shadscale	ATCO	---	---	---	---	---	30-50
Bud sagebrush	ARSP5	---	---	---	---	---	5-15
Seepweed	SUAED	---	---	---	---	---	2-15
Other shrubs	SSSS	---	---	---	2-8	---	---

Range site symbol	024X007N	024X006N	024X022N	025X001N	024X015N	024X003N
Potential production (lb/acre):						
Favorable years	1,900	1,500	800	3,000	1,500	600
Normal years	1,400	1,100	600	2,500	1,200	450
Unfavorable years	800	600	350	1,800	800	300

1148--Wendane-Bubus association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wendane	Bubus	1	2	3
Basin wildrye	ELCI2	40-60	---	50-60	---	---
Alkali sacaton	SPAI	15-30	---	---	---	---
Inland saltgrass	DISPS2	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	5-15
Western wheatgrass	AGSM	---	---	5-15	---	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Sandberg bluegrass	POSE	---	---	---	---	2-5
Needleandthread	STCO4	---	---	---	---	1-3
Other perennial grasses	PPGG	---	T-10	---	T-10	---
Perennial forbs	PPFF	---	2-8	2-8	2-8	2-8
Black greasewood	SAVE4	5-15	15-30	2-10	15-30	---
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	---	2-5	---	---
Shadscale	ATCO	---	30-50	---	30-50	30-40
Bud sagebrush	ARSP5	---	5-15	---	5-15	20-30
Seepweed	SUAED	---	2-15	---	2-15	---
Basin big sagebrush	ARTRT*	---	---	15-20	---	---
Spiny hopsage	GRSP	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	2-5

Range site symbol	024X007N	024X003N	024X006N	024X003N	024X002N
Potential production (lb/acre):					
Favorable years	1,900	600	1,500	600	700
Normal years	1,400	450	1,100	450	450
Unfavorable years	800	300	600	300	300

1169--Whirlo-Broyles 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--	
		Whirlo	Broyles	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	2-10
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10
Needleandthread	STCO4	1-3	1-3	10-20	---
Thurber needlegrass	STTH2	---	---	---	10-20
Tapertip hawksbeard	CRAC2	---	---	---	1-2
Globemallow	SPHAE	---	---	---	1-2
Phlox	PHLOX	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	2-5	---
Shadscale	ATCO	30-40	30-40	---	---
Bud sagebrush	ARSP5	20-30	20-30	---	---
Spiny hopsage	GRSP	2-5	2-5	---	5-15
Winterfat	EULA5	2-5	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	30-35
Other shrubs	SSSS	2-5	2-5	5-15	---
Range site symbol		O24XO02N	O24XO02N	O28BO10N	O24XO20N
Potential production (lb/acre):					
Favorable years		700	700	800	700
Normal years		450	450	600	450
Unfavorable years		300	300	400	300

1173--Wholan silt loam, alkaline

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Wholan	1	2
Indian ricegrass	ORHY	10-30	5-15	20-30
Bottlebrush squirreltail	SIHY	5-10	5-15	5-10
Alkali sacaton	SPAI	T-5	---	---
Sandberg bluegrass	POSE	---	2-5	2-5
Needleandthread	STCO4	---	1-3	10-20
Perennial forbs	PPFF	T-5	2-8	2-5
Sickle saltbush	ATFA	50-65	---	---
Shadscale	ATCO	---	30-40	---
Bud sagebrush	ARSP5	---	20-30	---
Spiny hopsage	GRSP	---	2-5	---
Winterfat	EULA5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-20
Other shrubs	SSSS	---	2-5	5-15
Range site symbol		024X012N	024X002N	028B010N
Potential production (lb/acre):				
Favorable years		700	700	800
Normal years		400	450	600
Unfavorable years		200	300	400

1177--Wholan-Rasille association, alkaline

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wholan	Rasille	1	2	3
Indian ricegrass	ORHY	10-30	---	---	5-15	5-15
Bottlebrush squirreltail	SIHY	5-10	---	---	2-10	5-15
Alkali sacaton	SPAI	T-5	---	---	---	---
Thurber needlegrass	STTH2	---	20-50	---	10-20	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Basin wildrye	ELCI2	---	---	50-60	---	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	---	2-10	2-5
Needleandthread	STCO4	---	---	---	---	1-3
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	T-5	---	2-8	---	2-8
Sickle saltbush	ATFA	50-65	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	30-35	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---
Spiny hopsage	GRSP	---	2-5	---	5-15	2-5
Basin big sagebrush	ARTRT*	---	---	15-20	---	---
Black greasewood	SAVE4	---	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Shadscale	ATCO	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	20-30
Winterfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	---	2-10	---	---	2-5

Range site symbol	O24XO12N	O24XO05N	O24XO06N	O24XO20N	O24XO02N
Potential production (lb/acre):					
Favorable years	700	800	1,500	700	700
Normal years	400	600	1,100	450	450
Unfavorable years	200	400	600	300	300

1178--Wholan-Rasille association, nonalkaline

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wholan	Rasille	1	2	3
Indian ricegrass	ORHY	10-20	20-30	10-30	5-15	20-30
Bottlebrush squirreltail	SIHY	2-10	5-10	5-10	5-15	5-10
Needleandthread	STCO4	---	10-20	---	1-3	10-20
Sandberg bluegrass	POSE	---	2-5	---	2-5	2-5
Alkali sacaton	SPAI	---	---	T-5	---	---
Perennial forbs	PPFF	2-8	2-5	T-5	2-8	2-5
Winterfat	EULA5	60-70	---	---	2-5	---
Bud sagebrush	ARSP5	2-5	---	---	20-30	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	15-20
Sickle saltbush	ATFA	---	---	50-65	---	---
Shadscale	ATCO	---	---	---	30-40	---
Spiny hopsage	GRSP	---	---	---	2-5	---
Other shrubs	SSSS	---	5-15	---	2-5	5-15
Range site symbol		024X004N	028B010N	024X012N	024X002N	028B010N
Potential production (lb/acre):						
Favorable years		500	800	700	700	800
Normal years		350	600	400	450	600
Unfavorable years		200	400	200	300	400

1281--Ricert-Whirlo-Pineval 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--		
		Ricert	Whirlo	Pineval	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15	2-10	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	2-5
Needleandthread	STCO4	1-3	1-3	10-20	1-3	---	1-3
Webber ricegrass	STWE	---	---	---	---	2-10	---
Thurber needlegrass	STTH2	---	---	---	---	2-5	---
Desert needlegrass	STSP3	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	2-5	---
Eriogonum	ERIOG	---	---	---	---	1-2	---
Hawksbeard	CREPI	---	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-5	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	---	30-40	10-25	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	20-30	2-5	20-30
Spiny hopsage	GRSP	2-5	2-5	---	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	10-25	---
Downy rabbitbrush	CHVIP	---	---	---	---	2-5	---
Other shrubs	SSSS	2-5	2-5	5-15	2-5	---	2-5
Range site symbol		024X002N	024X002N	028B010N	024X002N	024X026N	024X002N
Potential production (lb/acre):							
Favorable years		700	700	800	700	400	700
Normal years		450	450	600	450	300	450
Unfavorable years		300	300	400	300	200	300

1282--Ricert-Broyles 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--		
		Ricert	Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	1-3	---	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	30-35	---
Other shrubs	SSSS	2-5	2-5	2-5	---	2-5
Range site symbol		024X002N	024X002N	024X002N	024X020N	024X002N
Potential production (lb/acre):						
Favorable years		700	700	700	700	700
Normal years		450	450	450	450	450
Unfavorable years		300	300	300	300	300

1284--Ricert-Zineb-Pineval 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--		
		Ricert	Zineb	Pineval	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-10	2-5	2-5	5-10
Indian ricegrass	ORHY	5-15	20-30	20-30	5-15	2-5	20-30
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---	2-5
Needleandthread	STCO4	1-3	10-20	10-20	5-10	---	10-20
Basin wildrye	ELCI2	---	---	---	---	5-20	---
Other perennial grasses	PPGG	---	---	---	5-10	---	---
Thelypody	THELY	---	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	2-5	2-5	5-10	---	2-5
Shadscale	ATCO	30-40	---	---	30-40	---	---
Bud sagebrush	ARSP5	20-30	---	---	5-10	---	---
Spiny hopsage	GRSP	2-5	---	---	---	5-15	---
Winterfat	EULA5	2-5	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	5-10	15-20
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Black greasewood	SAVE4	---	---	---	---	20-30	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-15	---
Other shrubs	SSSS	2-5	5-15	5-15	5-15	---	5-15

Range site symbol	O24XO02N	O28BO10N	O28BO10N	O28BO17N	O24XO22N	O28BO10N
Potential production (lb/acre):						
Favorable years	700	800	800	700	800	800
Normal years	450	600	600	500	600	600
Unfavorable years	300	400	400	250	350	400

1285--Ricert-Bubus-Broyles association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Ricert	Bubus	Broyles	1	2
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	5-10	2-5
Indian ricegrass	ORHY	5-15	---	5-15	20-30	2-5
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---
Needleandthread	STCO4	1-3	---	1-3	10-20	---
Basin wildrye	ELCI2	---	---	---	---	5-20
Other perennial grasses	PPGG	---	T-10	---	---	---
Thelypody	THELY	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	2-8	2-8	2-5	---
Shadscale	ATCO	30-40	30-50	30-40	---	---
Bud sagebrush	ARSP5	20-30	5-15	20-30	---	---
Spiny hopsage	GRSP	2-5	---	2-5	---	5-15
Winterfat	EULA5	2-5	---	2-5	---	---
Black greasewood	SAVE4	---	15-30	---	---	20-30
Seepweed	SUAED	---	2-15	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	5-10
Basin big sagebrush	ARTRT*	---	---	---	---	5-15
Other shrubs	SSSS	2-5	---	2-5	5-15	---

Range site symbol	024X002N	024X003N	024X002N	028B010N	024X022N
Potential production (lb/acre):					
Favorable years	700	600	700	800	800
Normal years	450	450	450	600	600
Unfavorable years	300	300	300	400	350

1286--Ricert-Tenabo-Broyles 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--		
		Ricert	Tenabo	Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-10	5-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	20-30	20-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	2-5
Needleandthread	STCO4	1-3	1-3	1-3	10-20	10-20	1-3
Perennial forbs	PPFF	2-8	2-8	2-8	2-5	2-5	2-8
Shadscale	ATCO	30-40	30-40	30-40	---	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	---	---	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	15-20	---
Other shrubs	SSSS	2-5	2-5	2-5	5-15	5-15	2-5
Range site symbol		O24XO02N	O24XO02N	O24XO02N	O28BO10N	O28BO10N	O24XO02N
Potential production (lb/acre):							
Favorable years		700	700	700	800	800	700
Normal years		450	450	450	600	600	450
Unfavorable years		300	300	300	400	400	300

1287--Ricert-Orovada-Broyles 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--		
		Ricert	Orovada	Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	---	5-10	5-15
Indian ricegrass	ORHY	5-15	20-30	5-15	10-15	20-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5	2-5
Needleandthread	STCO4	1-3	10-20	1-3	---	10-20	1-3
Thurber needlegrass	STTH2	---	---	---	10-15	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	---	5-20	---	---
Globemallow	SPHAE	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-8	2-5	2-8	---	2-5	2-8
Shadscale	ATCO	30-40	---	30-40	---	---	30-40
Bud sagebrush	ARSP5	20-30	---	20-30	---	---	20-30
Spiny hopsage	GRSP	2-5	---	2-5	---	---	2-5
Winterfat	EULA5	2-5	---	2-5	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	15-20	---
Black sagebrush	ARARN	---	---	---	25-35	---	---
Other shrubs	SSSS	2-5	5-15	2-5	5-35	5-15	2-5
Range site symbol		O24XO02N	O28BO10N	O24XO02N	O24XO30N	O28BO10N	O24XO02N
Potential production (lb/acre):							
Favorable years		700	800	700	500	800	700
Normal years		450	600	450	350	600	450
Unfavorable years		300	400	300	250	400	300

1288--Ricert-Orovada-Tenabo 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--		
		Ricert	Orovada	Tenabo	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	2-10	5-15	5-15
Indian ricegrass	ORHY	5-15	20-30	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5	2-5
Needleandthread	STCO4	1-3	10-20	1-3	---	1-3	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---	---
Globemallow	SPHAE	---	---	---	1-2	---	---
Phlox	PHLOX	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	2-5	2-8	---	2-8	2-8
Shadscale	ATCO	30-40	---	30-40	---	30-40	30-40
Bud sagebrush	ARSP5	20-30	---	20-30	---	20-30	20-30
Spiny hopsage	GRSP	2-5	---	2-5	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	2-5	---	2-5	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	---	30-35	---	---
Other shrubs	SSSS	2-5	5-15	2-5	---	2-5	2-5
Range site symbol		024X002N	028B010N	024X002N	024X020N	024X002N	024X002N
Potential production (lb/acre):							
Favorable years		700	800	700	700	700	700
Normal years		450	600	450	450	450	450
Unfavorable years		300	400	300	300	300	300

1289--Ricert-Blackhawk-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Ricert	Blackhawk	Orovada	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-15	5-10	5-10	---
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15	20-30	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	---	---
Needleandthread	STCO4	1-3	1-3	10-20	1-3	10-20	---	---
Basin wildrye	ELCI2	---	---	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	---	---	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	2-5	2-8	2-5	2-8	2-8
Shadscale	ATCO	30-40	30-40	---	30-40	---	30-50	---
Bud sagebrush	ARSP5	20-30	20-30	---	20-30	---	5-15	---
Spiny hopsage	GRSP	2-5	2-5	---	2-5	---	---	---
Winterfat	EULA5	2-5	2-5	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-20	---	---
Black greasewood	SAVE4	---	---	---	---	---	15-30	2-10
Seepweed	SUAED	---	---	---	---	---	2-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	15-20
Rubber rabbitbrush	CHNA2	---	---	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	5-15	2-5	5-15	---	---

Range site symbol	O24XO02N	O24XO02N	O28BO10N	O24XO02N	O28BO10N	O24XO03N	O24XO06N
Potential production (lb/acre):							
Favorable years	700	700	800	700	800	600	1,500
Normal years	450	450	600	450	600	450	1,100
Unfavorable years	300	300	400	300	400	300	600

1371--Chad-Gando-Softscrabble 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--			
		Chad	Gando	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	10-15	10-20	5-15	---	10-15	---
Basin wildrye	ELCI2	5-10	---	2-5	---	---	---	---
Mountain brome	BRCA5	2-15	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	2-5	5-10	2-5	---	2-5	---
Bottlebrush squirreltail	SIHY	2-5	---	---	2-5	---	---	---
Idaho fescue	FEID	1-10	2-5	---	---	---	2-5	---
Indian ricegrass	ORHY	---	5-10	---	2-5	---	5-10	---
Pine bluegrass	POSC	---	---	2-5	5-10	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-10
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	5-10	10-20	10-15	---	5-10	2-10
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	5-10	5-12	10-15	---	5-10	10-20
Mountain big sagebrush	ARVA2	5-15	---	15-25	---	---	---	---
Low sagebrush	ARAR8	---	10-15	---	25-30	---	10-15	---
Black sagebrush	ARARN	---	10-15	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	5-10	---	---	---	---
Utah serviceberry	AMUT	---	---	2-10	---	---	---	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	5-10	5-15	10-20	---	5-10	2-5

Range site symbol	O24XO29N	O28BO34N	O28BO30N	O28BO37N	None	O28BO34N	O25XO05N
Potential production (lb/acre):							
Favorable years	1,500	600	1,100	700	---	600	2,000
Normal years	1,100	400	850	500	---	400	1,700
Unfavorable years	800	250	550	300	---	250	1,000

1450--Atlow-Stingdorn 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--		
		Atlow, steep	Atlow, strongly sloping	Stingdorn	1	2	3
Indian ricegrass	ORHY	10-15	10-15	5-15	---	10-15	5-15
Thurber needlegrass	STTH2	10-15	10-15	---	20-50	10-15	10-20
Bluegrass	POA++	2-10	2-10	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	5-15	---	---	2-10
Sandberg bluegrass	POSE	---	---	2-5	---	---	2-10
Needleandthread	STCO4	---	---	1-3	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---	---
Other perennial grasses	PPGG	5-20	5-20	---	---	5-20	---
Globemallow	SPHAE	2-5	2-5	---	---	2-5	1-2
Balsamroot	BALSA	---	---	---	2-4	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-4	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	2-8	---	---	---
Black sagebrush	ARARN	25-35	25-35	---	---	25-35	---
Shadscale	ATCO	---	---	30-40	---	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---	---
Spiny hopsage	GRSP	---	---	2-5	2-5	---	5-15
Winterfat	EULA5	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	30-35
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	---
Other shrubs	SSSS	5-35	5-35	2-5	2-10	5-35	---

Range site symbol	O24XO3ON	O24XO3ON	O24XOO2N	O24XOO5N	O24XO3ON	O24XO2ON
Potential production (lb/acre):						
Favorable years	500	500	700	800	500	700
Normal years	350	350	450	600	350	450
Unfavorable years	250	250	300	400	250	300

1670--Wieland-Allor 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	Allor	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	20-50	---	10-20
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	2-10
Sandberg bluegrass	POSE	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	15-20	---
Balsamroot	BALSA	2-4	2-4	2-4	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	5-10	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	30-35
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	2-10	2-10	2-10	2-5	---
Range site symbol		024X005N	024X005N	024X005N	025X003N	024X020N
Potential production (lb/acre):						
Favorable years		800	800	800	2,500	700
Normal years		600	600	600	1,900	450
Unfavorable years		400	400	400	1,200	300

1680--Zineb 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--	
		Zineb	1	2
Thurber needlegrass	STTH2	20-50	---	20-50
Bluebunch wheatgrass	AGSP	5-10	---	5-10
Bottlebrush squirreltail	SIHY	---	5-15	---
Indian ricegrass	ORHY	---	5-15	---
Sandberg bluegrass	POSE	---	2-5	---
Needleandthread	STCO4	---	1-3	---
Balsamroot	BALSA	2-4	---	2-4
Tapertip hawksbeard	CRAC2	2-4	---	2-4
Other perennial forbs	PPFF	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20
Downy rabbitbrush	CHVIP	2-5	---	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5
Shadscale	ATCO	---	30-40	---
Bud sagebrush	ARSP5	---	20-30	---
Winterfat	EULA5	---	2-5	---
Other shrubs	SSSS	2-10	2-5	2-10
Range site symbol		024X005N	024X002N	024X005N
Potential production (lb/acre):				
Favorable years		800	700	800
Normal years		600	450	600
Unfavorable years		400	300	400

1681--Zineb-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--	
		Zineb	Chiara	Wieland	1	2
Thurber needlegrass	STTH2	20-50	20-50	20-50	---	10-20
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	2-10
Sandberg bluegrass	POSE	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	15-20	---
Balsamroot	BALSA	2-4	2-4	2-4	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	5-10	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	30-35
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	2-10	2-10	2-10	2-5	---
Range site symbol		024X005N	024X005N	024X005N	025X003N	024X020N
Potential production (lb/acre):						
Favorable years		800	800	800	2,500	700
Normal years		600	600	600	1,900	450
Unfavorable years		400	400	400	1,200	300

1682--Zineb-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--		
		Zineb	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	---	20-30	20-30
Needleandthread	STCO4	10-20	10-20	---	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	---	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-5
Basin wildrye	ELCI2	---	---	30-50	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	2-5	---	---
Other perennial grasses	PPGG	---	---	15-25	---	---
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	15-20
Basin big sagebrush	ARTRT*	---	---	5-10	---	---
Other shrubs	SSSS	5-15	5-15	5-10	5-15	5-15
Range site symbol		028B010N	028B010N	028B003N	028B010N	028B010N
Potential production (lb/acre):						
Favorable years		800	800	2,600	800	800
Normal years		600	600	1,250	600	600
Unfavorable years		400	400	800	400	400

2003--Unius-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--		
		Unius	Orovada	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	2-5	5-15
Needleandthread	STCO4	5-10	10-20	10-20	2-5	5-10
Basin wildrye	ELCI2	2-5	---	---	10-20	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	2-5	2-5
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Other perennial grasses	PPGG	---	---	---	5-10	5-10
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	5-10
Black sagebrush	ARARN	20-30	---	---	---	---
Winterfat	EULA5	5-10	---	---	---	2-5
Bud sagebrush	ARSP5	2-5	---	---	---	5-10
Small rabbitbrush	CHVIS	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	2-5
Shadscale	ATCO	---	---	---	---	30-40
Other shrubs	SSSS	---	5-15	5-15	5-10	5-15
Range site symbol		O28BO11N	O28BO10N	O28BO10N	O28BO09N	O28BO17N
Potential production (lb/acre):						
Favorable years		950	800	800	700	700
Normal years		700	600	600	400	500
Unfavorable years		400	400	400	300	250

2010--Glyphs-Silverado 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--		
		Glyphs	Silverado	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	2-5
Needleandthread	STCO4	10-20	10-20	10-20	10-20	2-5
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	10-20
Other perennial grasses	PPGG	---	---	---	---	5-10
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	0-15
Greene rabbitbrush	CHGR6	---	---	---	---	2-5
Nevada ephedra	EPNE	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO10N	O28BO09N
Potential production (lb/acre):						
Favorable years		800	800	800	800	700
Normal years		600	600	600	600	400
Unfavorable years		400	400	400	400	300

2011--Glyphs-Muni 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--			
		Glyphs	Muni	1	2	3	4
Indian ricegrass	ORHY	20-30	20-30	20-30	---	15-25	---
Needleandthread	STCO4	10-20	10-20	10-20	---	5-10	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	2-5	2-5
Nevada bluegrass	PONE3	---	---	---	2-5	---	20-30
Western wheatgrass	AGSM	---	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	---	---	---	---	2-5	---
Baltic rush	JUBA	---	---	---	---	---	10-15
Sedge	CAREX	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	---	15-25	---	10-20
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Black sagebrush	ARARN	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	5-10	---
Bud sagebrush	ARSP5	---	---	---	---	2-5	---
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	---	---
Range site symbol		O28B010N	O28B010N	O28B010N	O28B003N	O28B011N	O28B001N
Potential production (lb/acre):							
Favorable years		800	800	800	2,600	950	4,000
Normal years		600	600	600	1,250	700	2,000
Unfavorable years		400	400	400	800	400	1,200

2012--Glyphs-Muni-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Glyphs	Muni	Orovada	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	10-30	---
Needleandthread	STCO4	10-20	10-20	10-20	---	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	10-20	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	5-15	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	10-25	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	5-15	---
Purple sage	SADOC2	---	---	---	T-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	2-4	5-10
Range site symbol		028B010N	028B010N	028B010N	025X025N	028B003N
Potential production (lb/acre):						
Favorable years		800	800	800	200	2,600
Normal years		600	600	600	150	1,250
Unfavorable years		400	400	400	100	800

2015--Glyphs-Enko association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Glyphs, gently sloping	Glyphs, moderately steep	Enko	1	2	3
Indian ricegrass	ORHY	20-30	20-30	10-20	20-30	20-30	5-15
Needleandthread	STCO4	10-20	10-20	20-30	10-20	10-20	5-15
Bottlebrush squirreltail	SIHY	5-10	5-10	2-5	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-5	---
Thickspike wheatgrass	AGDA	---	---	2-10	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	5-10
Sand dropseed	SPCR	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	2-5	---	---	10-15
Perennial forbs	PPFF	2-5	2-5	10-20	2-5	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	15-20	5-15
Big sagebrush	ARTR2	---	---	10-20	---	---	---
Spiny hopsage	GRSP	---	---	T-5	---	---	5-10
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	2-10	5-15	5-15	---
Range site symbol		O28BO10N	O28BO10N	O24XO17N	O28BO10N	O28BO10N	O28BO05N
Potential production (lb/acre):							
Favorable years		800	800	900	800	800	800
Normal years		600	600	700	600	600	600
Unfavorable years		400	400	500	400	400	400

2021--Rotinom-Wholan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Rotinom	Wholan	Wholan, alkaline	1	2	3
Indian ricegrass	ORHY	5-15	15-25	10-30	---	2-5	20-30
Needleandthread	STCO4	5-10	---	---	---	2-5	10-20
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	---	2-5	5-10
Alkali sacaton	SPAI	---	---	T-5	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	10-20	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	5-10	---	15-25	5-10	---
Perennial forbs	PPFF	5-10	5-10	T-5	2-5	5-10	2-5
Shadscale	ATCO	30-40	---	---	---	---	---
Bud sagebrush	ARSP5	5-10	---	---	---	---	---
Winterfat	EULA5	2-5	30-45	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	2-5	---
Sickle saltbush	ATFA	---	---	50-65	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	15-20
Other shrubs	SSSS	5-15	5-15	---	5-10	5-10	5-15

Range site symbol	O28B017N	O28B013N	O24XO12N	O28B003N	O28B009N	O28B010N
Potential production (lb/acre):						
Favorable years	700	800	700	2,600	700	800
Normal years	500	550	400	1,250	400	600
Unfavorable years	250	300	200	800	300	400

2022--Rotinom-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--		
		Rotinom	Orovada	1	2	3
Indian ricegrass	ORHY	5-15	20-30	20-30	2-5	20-30
Needleandthread	STCO4	5-10	10-20	10-20	2-5	10-20
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	2-5	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	10-20	---
Other perennial grasses	PPGG	5-10	---	---	5-10	---
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	2-5
Shadscale	ATCO	30-40	---	---	---	---
Bud sagebrush	ARSP5	5-10	---	---	---	---
Winterfat	EULA5	2-5	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	15-20
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15
Range site symbol		O28B017N	O28B010N	O28B010N	O28B009N	O28B010N
Potential production (lb/acre):						
Favorable years		700	800	800	700	800
Normal years		500	600	600	400	600
Unfavorable years		250	400	400	300	400

2031--Muni-Orovada-Unius 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--		
		Muni	Orovada	Unius	1	2	3
Indian ricegrass	ORHY	20-30	20-30	15-25	15-25	15-30	5-15
Needleandthread	STCO4	10-20	10-20	5-10	---	---	5-15
Bottlebrush squirreltail	SIHY	5-10	5-10	---	2-5	---	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	2-5	---	---	5-10
Bluebunch wheatgrass	AGSP	---	---	2-5	---	---	---
Thurber needlegrass	STTH2	---	---	---	---	5-10	---
Sand dropseed	SPCR	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	5-10	5-15	10-15
Globemallow	SPHAE	---	---	---	---	2-4	---
Other perennial forbs	PPFF	2-5	2-5	5-10	5-10	---	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	15-30	5-15
Black sagebrush	ARARN	---	---	20-30	---	---	---
Winterfat	EULA5	---	---	5-10	30-45	---	2-5
Bud sagebrush	ARSP5	---	---	2-5	---	---	---
Small rabbitbrush	CHVIS	---	---	2-5	---	---	---
Spiny hopsage	GRSP	---	---	---	---	2-5	5-10
Shadscale	ATCO	---	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	---	5-15	2-5	---

Range site symbol	O28BO10N	O28BO10N	O28BO11N	O28BO13N	O24XO45N	O28BO05N
Potential production (lb/acre):						
Favorable years	800	800	950	800	350	800
Normal years	600	600	700	550	200	600
Unfavorable years	400	400	400	300	100	400

2060--Oxcorel-Beoska-Whirlo association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Oxcorel	Beoska	Whirlo	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10	5-10	---
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	---	---
Needleandthread	STCO4	1-3	1-3	1-3	---	---	---
Thurber needlegrass	STTH2	---	---	---	10-20	---	20-50
Bluebunch wheatgrass	AGSP	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	T-10	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---	2-4
Globemallow	SPHAE	---	---	---	1-2	---	---
Phlox	PHLOX	---	---	---	1-2	---	---
Balsamroot	BALSA	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	2-8	2-8	---	2-8	---
Shadscale	ATCO	30-40	30-40	30-40	---	30-50	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	5-15	---
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	---	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	30-35	---	15-20
Black greasewood	SAVE4	---	---	---	---	15-30	---
Seepweed	SUAED	---	---	---	---	2-15	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	2-5	---	---	2-10
Range site symbol		024X002N	024X002N	024X002N	024X020N	024X003N	024X005N
Potential production (lb/acre):							
Favorable years		700	700	700	700	600	800
Normal years		450	450	450	450	450	600
Unfavorable years		300	300	300	300	300	400

2061--Oxcorel-Zaidy-Grassval 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--		
		Oxcorel	Zaidy	Grassval	1	2	3
Indian ricegrass	ORHY	5-15	15-25	15-25	20-30	15-25	20-30
Needleandthread	STCO4	5-10	5-10	5-10	10-20	---	10-20
Bottlebrush squirreltail	SIHY	2-5	---	---	5-10	2-5	5-10
Basin wildrye	ELCI2	---	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	2-5	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	2-5
Thurber needlegrass	STTH2	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	---	---	---	---	---
Scarlet globemallow	SPCO	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-10	5-10	5-10	2-5	---	2-5
Shadscale	ATCO	30-40	---	---	---	---	---
Bud sagebrush	ARSP5	5-10	2-5	2-5	---	5-10	---
Winterfat	EULA5	2-5	5-10	5-10	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Black sagebrush	ARARN	---	20-30	20-30	---	---	---
Small rabbitbrush	CHVIS	---	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	15-25	15-20
Spiny hopsage	GRSP	---	---	---	---	20-30	---
Other shrubs	SSSS	5-15	---	---	5-15	5-10	5-15
Range site symbol		028B017N	028B011N	028B011N	028B010N	028B052N	028B010N
Potential production (lb/acre):							
Favorable years		700	950	950	800	600	800
Normal years		500	700	700	600	400	600
Unfavorable years		250	400	400	400	300	400

2063--Oxcorel-Pineval 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--			
		Oxcorel	Pineval, moderately steep	Pineval, strongly sloping	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-10	5-10	---	2-10	---	---
Indian ricegrass	ORHY	5-15	20-30	20-30	---	5-15	15-30	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-10	---	---
Needleandthread	STCO4	1-3	10-20	10-20	---	---	---	---
Thurber needlegrass	STTH2	---	---	---	20-50	10-20	5-10	20-50
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	---	5-15	---
Balsamroot	BALSA	---	---	---	2-4	---	---	2-4
Tapertip hawksbeard	CRAC2	---	---	---	2-4	1-2	---	2-4
Globemallow	SPHAE	---	---	---	---	1-2	2-4	---
Phlox	PHLOX	---	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	2-5	2-5	---	---	---	---
Shadscale	ATCO	30-40	---	---	---	---	2-5	---
Bud sagebrush	ARSP5	20-30	---	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	2-5	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-20	30-35	15-30	15-20
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	---	2-5
Other shrubs	SSSS	2-5	5-15	5-15	2-10	---	2-5	2-10

Range site symbol	O24XO02N	O28BO10N	O28BO10N	O24XO05N	O24XO20N	O24XO45N	O24XO05N
Potential production (lb/acre):							
Favorable years	700	800	800	800	700	350	800
Normal years	450	600	600	600	450	200	600
Unfavorable years	300	400	400	400	300	100	400

2069--Oxcorel-Wieland-Spasprey 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--		
		Oxcorel	Wieland	Spasprey	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	---	2-10	5-15	5-15
Indian ricegrass	ORHY	5-15	---	---	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	---	---	2-10	2-5	2-5
Needleandthread	STCO4	1-3	---	---	---	1-3	1-3
Thurber needlegrass	STTH2	---	20-50	20-50	10-20	---	---
Bluebunch wheatgrass	AGSP	---	5-10	5-10	---	---	---
Balsamroot	BALSA	---	2-4	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	2-4	1-2	---	---
Globemallow	SPHAE	---	---	---	1-2	---	---
Phlox	PHLOX	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	---	---	---	2-8	2-8
Shadscale	ATCO	30-40	---	---	---	30-40	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	2-5	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	30-35	---	---
Downy rabbitbrush	CHVIP	---	2-5	2-5	---	---	---
Other shrubs	SSSS	2-5	2-10	2-10	---	2-5	2-5

Range site symbol	O24XO02N	O24XO05N	O24XO05N	O24XO20N	O24XO02N	O24XO02N
Potential production (lb/acre):						
Favorable years	700	800	800	700	700	700
Normal years	450	600	600	450	450	450
Unfavorable years	300	400	400	300	300	300

2081--Fenster-Jesse Camp association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Fenster	Jesse Camp	1	2	3
Indian ricegrass	ORHY	5-15	2-5	20-30	---	---
Needleandthread	STCO4	5-10	2-5	10-20	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	5-10	---
Basin wildrye	ELCI2	---	10-20	---	---	5-15
Sandberg bluegrass	POSE	---	---	2-5	---	---
Alkali sacaton	SPAI	---	---	---	---	20-30
Inland saltgrass	DISPS2	---	---	---	---	5-10
Other perennial grasses	PPGG	5-10	5-10	---	T-10	10-20
Perennial forbs	PPFF	5-10	5-10	2-5	2-8	5-10
Shadscale	ATCO	30-40	---	---	30-50	---
Bud sagebrush	ARSP5	5-10	---	---	5-15	---
Winterfat	EULA5	2-5	---	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	2-5
Basin big sagebrush	ARTRT*	---	10-15	---	---	2-5
Greene rabbitbrush	CHGR6	---	2-5	---	---	---
Nevada ephedra	EPNE	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	---
Black greasewood	SAVE4	---	---	---	15-30	5-10
Seepweed	SUAED	---	---	---	2-15	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-10	5-15	---	2-5

Range site symbol	O28B017N	O28B009N	O28B010N	O24X003N	O28B004N
Potential production (lb/acre):					
Favorable years	700	700	800	600	2,000
Normal years	500	400	600	450	1,000
Unfavorable years	250	300	400	300	500

2088--Punchbowl-Jung-Teguro 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--			
		Punchbowl	Jung	Teguro	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	---	10-15	5-15	---	---
Needleandthread	STCO4	5-15	5-15	---	---	1-3	---	---
Pine bluegrass	POSC	2-5	2-5	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	1-3	1-3	X	---	---	---	---
Basin wildrye	ELCI2	---	---	X	---	---	---	---
Thurber needlegrass	STTH2	---	---	X	10-15	---	---	---
Nevada bluegrass	PONE3	---	---	X	---	---	---	---
Idaho fescue	FEID	---	---	X	---	---	10-20	---
Bluegrass	POA++	---	---	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-15	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	2-5	---
Webber ricegrass	STWE	---	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	---	5-20	---	---	---
Tapertip hawksbeard	CRAC2	---	---	X	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---	---
Globemallow	SPHAE	---	---	---	2-5	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-15	5-15	---	---	2-8	---	---
Black sagebrush	ARARN	20-25	20-25	---	25-35	---	5-15	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	---	---	20-30	---	---
Big sagebrush	ARTR2	---	---	X	---	---	---	---
Snowberry	SYMPH	---	---	X	---	---	---	---
Currant	RIBES	---	---	X	---	---	---	---
Shadscale	ATCO	---	---	---	---	30-40	---	---
Spiny hopsage	GRSP	---	---	---	---	2-5	---	---
Winterfat	EULA5	---	---	---	---	2-5	---	---
Low sagebrush	ARAR8	---	---	---	---	---	5-15	---
Mountain big sagebrush	ARVA2	---	---	---	---	---	1-5	---
Other shrubs	SSSS	10-20	10-20	---	5-35	2-5	---	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---	---
Utah juniper	JUOS	---	---	X	---	---	---	---
Range site symbol		028B016N	028B016N	---	024X030N	024X002N	024X016N	None
Woodland site symbol		---	---	025X062N	---	---	---	None
Potential production (lb/acre):								
Favorable years		500	500	500	500	700	350	---
Normal years		250	250	350	350	450	250	---
Unfavorable years		150	150	200	250	300	150	---

2089--Punchbowl-Jung-Locane 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--		
		Punchbowl	Jung	Locane	1	2	3
Indian ricegrass	ORHY	5-15	5-15	20-30	---	20-30	5-15
Needleandthread	STCO4	5-15	5-15	10-20	---	10-20	5-10
Pine bluegrass	POSC	2-5	2-5	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	5-10	2-5
Sandberg bluegrass	POSE	---	---	2-5	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	---	---	---	5-10
Perennial forbs	PPFF	5-15	5-15	2-5	---	2-5	5-10
Black sagebrush	ARARN	20-25	20-25	---	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---	2-5
Bud sagebrush	ARSP5	2-5	2-5	---	---	---	5-10
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-20	---
Shadscale	ATCO	---	---	---	---	---	30-40
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	10-20	10-20	5-15	---	5-15	5-15
Range site symbol		028B016N	028B016N	028B010N	None	028B010N	028B017N
Potential production (lb/acre):							
Favorable years		500	500	800	---	800	700
Normal years		250	250	600	---	600	500
Unfavorable years		150	150	400	---	400	250

2090--Punchbowl gravelly loam, 4 to 15 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--		
		Punchbowl	1	2	3
Indian ricegrass	ORHY	5-15	---	5-10	---
Needleandthread	STCO4	5-15	---	---	---
Pine bluegrass	POSC	2-5	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	10-20	2-5	---
Thurber needlegrass	STTH2	---	5-10	5-15	---
Basin wildrye	ELCI2	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---
Other perennial grasses	PPGG	5-10	10-20	---	---
Perennial forbs	PPFF	5-15	5-12	5-10	---
Black sagebrush	ARARN	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---
Mountain big sagebrush	ARVA2	---	15-25	---	---
Antelope bitterbrush	PUTR2	---	5-10	---	---
Utah serviceberry	AMUT	---	2-10	---	---
Low sagebrush	ARAR8	---	---	25-30	---
Other shrubs	SSSS	10-20	5-15	10-15	---
Range site symbol		028B016N	028B030N	028B045N	None
Potential production (lb/acre):					
Favorable years		500	1,100	800	---
Normal years		250	850	600	---
Unfavorable years		150	550	400	---

2091--Punchbowl-Teguro-Sumine 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--		
		Punchbowl	Teguro	Sumine	1	2	3
Indian ricegrass	ORHY	10-15	---	---	---	---	---
Thurber needlegrass	STTH2	10-15	X	2-5	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	X	20-50	---	5-10	---
Basin wildrye	ELCI2	---	X	5-10	---	---	30-50
Nevada bluegrass	PONE3	---	X	---	---	---	2-5
Idaho fescue	FEID	---	X	1-10	---	30-60	---
Mountain brome	BRCA5	---	---	2-15	---	2-5	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-20	---	---	---	---	15-25
Globemallow	SPHAE	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	X	2-5	---	1-3	---
Arrowleaf balsamroot	BASA3	---	X	2-5	---	---	---
Lupine	LUPIN	---	---	---	---	1-2	---
Other perennial forbs	PPFF	---	---	---	---	---	2-5
Black sagebrush	ARARN	25-35	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	---
Snowberry	SYMPH	---	X	---	---	2-5	---
Currant	RIBES	---	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	5-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Other shrubs	SSSS	5-35	---	---	---	---	5-10
Singleleaf pinyon	PIMO	---	X	---	---	---	---
Utah juniper	JUOS	---	X	---	---	---	---
Range site symbol		024X030N	---	024X029N	None	024X023N	028B003N
Woodland site symbol		---	025X062N	---	None	---	---
Potential production (lb/acre):							
Favorable years		500	500	1,500	---	1,500	2,600
Normal years		350	350	1,100	---	1,200	1,250
Unfavorable years		250	200	800	---	900	800

2092--Punchbowl-Belate-Reluctan 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--			
		Punchbowl	Belate	Reluctan	1	2	3	4
Indian ricegrass	ORHY	5-15	---	---	---	5-15	---	---
Needleandthread	STCO4	5-15	---	---	---	5-15	---	---
Pine bluegrass	POSC	2-5	---	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	15-30	20-30	---	1-3	---	---
Idaho fescue	FEID	---	25-50	20-40	---	---	---	---
Thurber needlegrass	STTH2	---	2-10	2-10	---	---	---	---
Spike fescue	LEKI2	---	2-10	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-15	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	---	---	---	5-10	15-25	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	---	---	---	---
Other perennial forbs	PPFF	5-15	---	---	---	5-15	2-5	---
Black sagebrush	ARARN	20-25	---	---	---	20-25	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	2-5	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	2-5	---	---
Low sagebrush	ARAR8	---	10-20	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Other shrubs	SSSS	10-20	---	---	---	10-20	5-10	---
Range site symbol		028B016N	024X027N	024X021N	None	028B016N	028B003N	None
Potential production (lb/acre):								
Favorable years		500	1,200	1,400	---	500	2,600	---
Normal years		250	800	1,000	---	250	1,250	---
Unfavorable years		150	600	700	---	150	800	---

2093--Punchbowl-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--		
		Punchbowl	Rock outcrop	1	2	3
Indian ricegrass	ORHY	5-15	---	---	5-15	20-30
Needleandthread	STCO4	5-15	---	---	5-15	10-20
Pine bluegrass	POSC	2-5	---	---	2-5	---
Bluebunch wheatgrass	AGSP	1-3	---	X	1-3	---
Basin wildrye	ELCI2	---	---	X	---	---
Thurber needlegrass	STTH2	---	---	X	---	---
Nevada bluegrass	PONE3	---	---	X	---	---
Idaho fescue	FEID	---	---	X	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10
Sandberg bluegrass	POSE	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	---	---	5-10	---
Tapertip hawksbeard	CRAC2	---	---	X	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---
Other perennial forbs	PPFF	5-15	---	---	5-15	2-5
Black sagebrush	ARARN	20-25	---	---	20-25	---
Fourwing saltbush	ATCA2	2-5	---	---	2-5	---
Bud sagebrush	ARSP5	2-5	---	---	2-5	---
Big sagebrush	ARTR2	---	---	X	---	---
Snowberry	SYMPH	---	---	X	---	---
Currant	RIBES	---	---	X	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20
Other shrubs	SSSS	10-20	---	---	10-20	5-15
Singleleaf pinyon	PIMO	---	---	X	---	---
Utah juniper	JUOS	---	---	X	---	---
Range site symbol		028B016N	None	---	028B016N	028B010N
Woodland site symbol		---	None	025X062N	---	---
Potential production (lb/acre):						
Favorable years		500	---	500	500	800
Normal years		250	---	350	250	600
Unfavorable years		150	---	200	150	400

2094--Punchbowl-Simpark-Akerue 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--		
		Punchbowl	Simpark	Akerue	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	20-30	---	5-15
Needleandthread	STCO4	5-15	5-15	5-15	10-20	---	1-3
Pine bluegrass	POSC	2-5	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	1-3	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	5-15
Sandberg bluegrass	POSE	---	---	---	2-5	---	2-5
Other perennial grasses	PPGG	5-10	5-10	5-10	---	---	---
Perennial forbs	PPFF	5-15	5-15	5-15	2-5	---	2-8
Black sagebrush	ARARN	20-25	20-25	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	2-5	---	---	20-30
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	---
Shadscale	ATCO	---	---	---	---	---	30-40
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	10-20	10-20	10-20	5-15	---	2-5
Range site symbol		028B016N	028B016N	028B016N	028B010N	None	024X002N
Potential production (lb/acre):							
Favorable years		500	500	500	800	---	700
Normal years		250	250	250	600	---	450
Unfavorable years		150	150	150	400	---	300

2095--Punchbowl-Robson-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--		
		Punchbowl	Robson	Rock outcrop	1	2	3
Indian ricegrass	ORHY	5-15	5-10	---	---	5-10	2-5
Needleandthread	STCO4	5-15	---	---	---	2-5	---
Pine bluegrass	POSC	2-5	---	---	---	2-5	5-10
Bluebunch wheatgrass	AGSP	1-3	2-5	---	---	5-10	5-15
Thurber needlegrass	STTH2	---	5-15	---	---	20-30	2-5
Sandberg bluegrass	POSE	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	2-5
Basin wildrye	ELCI2	---	---	---	30-50	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-10	---	---	15-25	5-10	10-15
Perennial forbs	PPFF	5-15	5-10	---	2-5	5-10	10-15
Black sagebrush	ARARN	20-25	---	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	25-30	---	---	---	25-30
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-15	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10	---
Other shrubs	SSSS	10-20	10-15	---	5-10	---	10-20
Range site symbol		O28B016N	O28B045N	None	O28B003N	O28B007N	O28B037N
Potential production (lb/acre):							
Favorable years		500	800	---	2,600	1,000	700
Normal years		250	600	---	1,250	750	500
Unfavorable years		150	400	---	800	600	300

2096--Punchbowl-Locane-Nobuck 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--		
		Punchbowl	Locane	Nobuck	1	2	3
Indian ricegrass	ORHY	5-15	---	5-15	5-15	5-10	---
Needleandthread	STCO4	5-15	---	5-15	5-15	2-5	---
Pine bluegrass	POSC	2-5	---	2-5	2-5	2-5	---
Bluebunch wheatgrass	AGSP	1-3	5-10	1-3	1-3	5-10	---
Thurber needlegrass	STTH2	---	20-50	---	---	20-30	---
Other perennial grasses	PPGG	5-10	---	5-10	5-10	5-10	---
Balsamroot	BALSA	---	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---	---
Other perennial forbs	PPFF	5-15	---	5-15	5-15	5-10	---
Black sagebrush	ARARN	20-25	---	20-25	20-25	---	---
Fourwing saltbush	ATCA2	2-5	---	2-5	2-5	---	---
Bud sagebrush	ARSP5	2-5	---	2-5	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	10-15	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10	---
Other shrubs	SSSS	10-20	2-10	10-20	10-20	---	---
Range site symbol		028B016N	024X005N	028B016N	028B016N	028B007N	None
Potential production (lb/acre):							
Favorable years		500	800	500	500	1,000	---
Normal years		250	600	250	250	750	---
Unfavorable years		150	400	150	150	600	---

2097--Punchbowl-Itca 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--		
		Punchbowl	Itca	1	2	3
Indian ricegrass	ORHY	5-15	---	---	X	5-10
Needleandthread	STCO4	5-15	---	---	---	2-5
Pine bluegrass	POSC	2-5	---	---	---	2-5
Bluebunch wheatgrass	AGSP	1-3	X	---	X	5-10
Idaho fescue	FEID	---	X	---	---	---
Bluegrass	POA++	---	X	---	X	---
Thurber needlegrass	STTH2	---	---	---	X	20-30
Other perennial grasses	PPGG	5-10	X	---	X	5-10
Tapertip hawksbeard	CRAC2	---	X	---	X	---
Arrowleaf balsamroot	BASA3	---	X	---	X	---
Other perennial forbs	PPFF	5-15	X	---	X	5-10
Black sagebrush	ARARN	20-25	---	---	X	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	X	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-15
Rabbitbrush	CHRYS9	---	---	---	---	2-5
Antelope bitterbrush	PUTR2	---	---	---	---	1-10
Other shrubs	SSSS	10-20	X	---	X	---
Singleleaf pinyon	PIMO	---	X	---	X	---
Utah juniper	JUOS	---	---	---	X	---
Range site symbol		028B016N	---	None	---	028B007N
Woodland site symbol		---	025X061N	None	025X063N	---
Potential production (lb/acre):						
Favorable years		500	500	---	400	1,000
Normal years		250	375	---	275	750
Unfavorable years		150	250	---	150	600

2099--Punchbowl-Roca-Rock outcrop association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Punchbowl	Roca	Rock outcrop	1	2	3
Indian ricegrass	ORHY	5-15	---	---	5-15	---	---
Needleandthread	STCO4	5-15	---	---	5-15	---	---
Pine bluegrass	POSC	2-5	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	40-60	---	1-3	20-30	20-30
Thurber needlegrass	STTH2	---	5-10	---	---	15-25	2-10
Bluegrass	POA++	---	2-10	---	---	---	---
Basin wildrye	ELCI2	---	2-5	---	---	---	2-15
Nevada bluegrass	PONE3	---	---	---	---	2-10	---
Idaho fescue	FEID	---	---	---	---	---	20-40
Other perennial grasses	PPGG	5-10	---	---	5-10	10-15	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	2-5	1-5
Arrowleaf balsamroot	BASA3	---	2-5	---	---	2-5	1-5
Other perennial forbs	PPFF	5-15	---	---	5-15	2-5	---
Black sagebrush	ARARN	20-25	---	---	20-25	---	---
Fourwing saltbush	ATCA2	2-5	---	---	2-5	---	---
Bud sagebrush	ARSP5	2-5	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	T-5	---	---	---	5-15
Big sagebrush	ARTR2	---	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	---	---	0-10	---
Other shrubs	SSSS	10-20	---	---	10-20	5-10	---
Range site symbol		028B016N	024X028N	None	028B016N	025X014N	024X021N
Potential production (lb/acre):							
Favorable years		500	1,000	---	500	1,000	1,400
Normal years		250	700	---	250	800	1,000
Unfavorable years		150	500	---	150	600	700

2100--Grassval-Grina-Unsel Variant association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Grassval	Grina	Unsel Variant	1	2	3	4
Indian ricegrass	ORHY	10-15	X	5-15	5-15	5-15	10-15	10-30
Thurber needlegrass	STTH2	10-15	X	---	---	10-20	10-15	---
Bluegrass	POA++	2-10	X	---	---	---	2-10	---
Bluebunch wheatgrass	AGSP	---	X	---	---	---	---	---
Basin wildrye	ELCI2	---	X	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-15	5-15	2-10	---	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-5	2-10	---	---
Needleandthread	STCO4	---	---	1-3	1-3	---	---	---
Other perennial grasses	PPGG	5-20	---	---	---	---	5-20	10-20
Globemallow	SPHAE	2-5	---	---	---	1-2	2-5	---
Tapertip hawksbeard	CRAC2	---	X	---	---	1-2	---	---
Arrowleaf balsamroot	BASA3	---	X	---	---	---	---	---
Phlox	PHLOX	---	---	---	---	1-2	---	---
Other perennial forbs	PPFF	---	---	2-8	2-8	---	---	5-15
Black sagebrush	ARARN	25-35	---	---	---	---	25-35	5-15
Big sagebrush	ARTR2	---	X	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	X	---	---	---	---	---
Shadscale	ATCO	---	---	30-40	30-40	---	---	---
Bud sagebrush	ARSP5	---	---	20-30	20-30	---	---	---
Spiny hopsage	GRSP	---	---	2-5	2-5	5-15	---	1-5
Winterfat	EULA5	---	---	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35	---	10-25
Downy rabbitbrush	CHVIP	---	---	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	---	---	---	1-5
Purple sage	SADOC2	---	---	---	---	---	---	T-5
Other shrubs	SSSS	5-35	---	2-5	2-5	---	5-35	2-4
Utah juniper	JUOS	---	X	---	---	---	---	---
Range site symbol		O24XO30N	---	O24XOO2N	O24XOO2N	O24XO20N	O24XO30N	O25XO25N
Woodland site symbol		---	O25XO59N	---	---	---	---	---
Potential production (lb/acre):								
Favorable years		500	500	700	700	700	500	200
Normal years		350	350	450	450	450	350	150
Unfavorable years		250	200	300	300	300	250	100

2101--Grassval-Oxcorel 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--		
		Grassval	Oxcorel, eroded	Oxcorel	1	2	3
Indian ricegrass	ORHY	15-25	15-30	5-15	20-30	2-5	15-30
Needleandthread	STCO4	5-10	---	5-10	10-20	---	---
Basin wildrye	ELCI2	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	---	---	5-10
Bottlebrush squirreltail	SIHY	---	---	2-5	5-10	2-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	1-3	---
Desert needlegrass	STSP3	---	---	---	---	2-10	---
Other perennial grasses	PPGG	---	5-15	5-10	---	---	5-15
Globemallow	SPHAE	---	2-4	---	---	---	2-4
Other perennial forbs	PPFF	5-10	---	5-10	2-5	2-8	---
Black sagebrush	ARARN	20-30	---	---	---	---	---
Winterfat	EULA5	5-10	---	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	---	5-10	---	15-30	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-30	---	15-20	---	15-30
Spiny hopsage	GRSP	---	2-5	---	---	---	2-5
Shadscale	ATCO	---	2-5	30-40	---	30-50	2-5
Fourwing saltbush	ATCA2	---	---	2-5	---	---	---
Other shrubs	SSSS	---	2-5	5-15	5-15	---	2-5

Range site symbol	028B011N	024X045N	028B017N	028B010N	024X025N	024X045N
Potential production (lb/acre):						
Favorable years	950	350	700	800	250	350
Normal years	700	200	500	600	150	200
Unfavorable years	400	100	250	400	75	100

2102--Grassval-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--	
		Grassval	Wieland	1	2
Indian ricegrass	ORHY	15-25	20-30	2-10	5-15
Needleandthread	STCO4	5-10	10-20	---	5-10
Basin wildrye	ELCI2	2-5	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-10	2-5
Sandberg bluegrass	POSE	---	2-5	2-5	---
Webber ricegrass	STWE	---	---	2-10	---
Thurber needlegrass	STTH2	---	---	2-5	---
Desert needlegrass	STSP3	---	---	2-5	---
Pine bluegrass	POSC	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	5-10
Eriogonum	ERIOG	---	---	1-2	---
Hawksbeard	CREPI	---	---	1-2	---
Other perennial forbs	PPFF	5-10	2-5	---	5-10
Black sagebrush	ARARN	20-30	---	---	---
Winterfat	EULA5	5-10	---	---	2-5
Bud sagebrush	ARSP5	2-5	---	2-5	5-10
Small rabbitbrush	CHVIS	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	10-25	---
Shadscale	ATCO	---	---	10-25	30-40
Spiny hopsage	GRSP	---	---	5-15	---
Downy rabbitbrush	CHVIP	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5
Other shrubs	SSSS	---	5-15	---	5-15

Range site symbol	O28BO11N	O28BO10N	O24XO26N	O28BO17N
Potential production (lb/acre):				
Favorable years	950	800	400	700
Normal years	700	600	300	500
Unfavorable years	400	400	200	250

2104--Grassval-Punchbowl 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--			
		Grassval	Punchbowl	1	2	3	4
Indian ricegrass	ORHY	15-25	5-15	15-30	---	---	20-30
Needleandthread	STCO4	5-10	5-15	---	---	---	10-20
Basin wildrye	ELCI2	2-5	---	---	---	30-50	---
Bluebunch wheatgrass	AGSP	2-5	1-3	---	---	---	---
Pine bluegrass	POSC	---	2-5	---	---	---	---
Thurber needlegrass	STTH2	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	5-10	5-15	---	15-25	---
Globemallow	SPHAE	---	---	2-4	---	---	---
Other perennial forbs	PPFF	5-10	5-15	---	---	2-5	2-5
Black sagebrush	ARARN	20-30	20-25	---	---	---	---
Winterfat	EULA5	5-10	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	---	---	---	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-30	---	---	15-20
Spiny hopsage	GRSP	---	---	2-5	---	---	---
Shadscale	ATCO	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Other shrubs	SSSS	---	10-20	2-5	---	5-10	5-15

Range site symbol	028B011N	028B016N	024X045N	None	028B003N	028B010N
Potential production (lb/acre):						
Favorable years	950	500	350	---	2,600	800
Normal years	700	250	200	---	1,250	600
Unfavorable years	400	150	100	---	800	400

2105--Grassval-Glyphs-Muni 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--		
		Grassval	Glyphs	Muni	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	20-30	15-25	---
Needleandthread	STCO4	5-10	10-20	10-20	10-20	5-10	---
Basin wildrye	ELCI2	2-5	---	---	---	2-5	30-50
Bluebunch wheatgrass	AGSP	2-5	---	---	---	2-5	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	5-10	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	2-5	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	15-25
Perennial forbs	PPFF	5-10	2-5	2-5	2-5	5-10	2-5
Black sagebrush	ARARN	20-30	---	---	---	20-30	---
Winterfat	EULA5	5-10	---	---	---	5-10	---
Bud sagebrush	ARSP5	2-5	---	---	---	2-5	---
Small rabbitbrush	CHVIS	2-5	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Other shrubs	SSSS	---	5-15	5-15	5-15	---	5-10
Range site symbol		O28B011N	O28B010N	O28B010N	O28B010N	O28B011N	O28B003N
Potential production (lb/acre):							
Favorable years		950	800	800	800	950	2,600
Normal years		700	600	600	600	700	1,250
Unfavorable years		400	400	400	400	400	800

2110--Isolde-Davey association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Isolde	Davey	1	2	3
Indian ricegrass	ORHY	10-20	10-20	20-30	5-15	20-30
Needleandthread	STCO4	10-15	20-30	10-20	1-3	10-20
Thickspike wheatgrass	AGDA	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	5-10	5-15	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-5	2-5
Other perennial grasses	PPGG	---	2-5	---	---	---
Perennial forbs	PPFF	2-5	10-20	2-5	2-8	2-5
Hairy horsebrush	TECO2	30-40	---	---	---	---
Fourwing saltbush	ATCA2	10-20	---	---	---	---
Nevada dalea	PSPO	5-10	---	---	---	---
Littleleaf horsebrush	TEGL	5-10	---	---	---	---
Big sagebrush	ARTR2	---	10-20	---	---	---
Spiny hopsage	GRSP	---	T-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-20
Shadscale	ATCO	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	2-5	---
Other shrubs	SSSS	---	2-10	5-15	2-5	5-15

Range site symbol	027X023N	024X017N	028B010N	024X002N	028B010N
Potential production (lb/acre):					
Favorable years	300	900	800	700	800
Normal years	200	700	600	450	600
Unfavorable years	100	500	400	300	400

2540--Buffaran-Wieland association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Buffaran	Wieland	1	2
Thurber needlegrass	STTH2	20-50	20-50	20-50	20-50
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	5-10
Balsamroot	BALSA	2-4	2-4	2-4	2-4
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	2-4
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5	2-5
Other shrubs	SSSS	2-10	2-10	2-10	2-10
Range site symbol		O24XO05N	O24XO05N	O24XO05N	O24XO05N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

2541--Buffaran-Zoesta 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--		
		Buffaran	Zoesta	1	2	3
Thurber needlegrass	STTH2	20-50	15-20	15-25	---	15-25
Bluebunch wheatgrass	AGSP	5-10	15-20	15-25	---	20-30
Webber ricegrass	STWE	---	5-10	---	---	---
Sandberg bluegrass	POSE	---	5-8	---	---	---
Pine bluegrass	POSC	---	5-8	---	---	---
Cusick bluegrass	POCU3	---	5-8	---	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	5-15	2-10
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Other perennial grasses	PPGG	---	---	10-20	15-20	10-15
Balsamroot	BALSA	2-4	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	2-5	---	2-5
Eriogonum	ERIOG	---	1-3	---	---	---
Phlox	PHLOX	---	1-3	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	2-5
Other perennial forbs	PPFF	---	---	2-10	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	5-10	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---
Low sagebrush	ARAR8	---	20-30	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Big sagebrush	ARTR2	---	---	---	---	10-15
Antelope bitterbrush	PUTR2	---	---	---	---	0-10
Other shrubs	SSSS	2-10	---	2-10	2-5	5-10

Range site symbol	024X005N	024X018N	024X035N	025X003N	025X014N
Potential production (lb/acre):					
Favorable years	800	700	500	250	1,000
Normal years	600	500	400	190	800
Unfavorable years	400	300	250	120	600

2542--Buffaran-Chiara association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Buffaran, gravelly	Buffaran, very gravelly	Chiara	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO10N	O28BO10N
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

2543--Buffaran-Spasprey-Allor 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--		
		Buffaran	Spasprey	Allor	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	5-15	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	5-10	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	2-5	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---	2-5
Other perennial grasses	PPGG	---	---	---	---	5-10	---
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---	15-20
Shadscale	ATCO	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B017N	028B010N
Potential production (lb/acre):							
Favorable years		800	800	800	800	700	800
Normal years		600	600	600	600	500	600
Unfavorable years		400	400	400	400	250	400

2545--Buffaran-Pineval 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--		
		Buffaran	Pineval	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10
Range site symbol		O28B010N	O28B010N	O28B010N	O28B010N	O28B003N
Potential production (lb/acre):						
Favorable years		800	800	800	800	2,600
Normal years		600	600	600	600	1,250
Unfavorable years		400	400	400	400	800

2546--Buffaran-Spasprey-Locane 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--	
		Buffaran	Spasprey	Locane	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B003N
Potential production (lb/acre):						
Favorable years		800	800	800	800	2,600
Normal years		600	600	600	600	1,250
Unfavorable years		400	400	400	400	800

2547--Buffaran-Desatoya 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--		
		Buffaran	Desatoya	1	2	3
Pine bluegrass	POSC	5-15	---	5-15	5-15	---
Indian ricegrass	ORHY	5-15	---	5-15	5-15	---
Bottlebrush squirreltail	SIHY	5-10	---	5-10	5-10	---
Bluegrass	POA++	---	10-40	---	---	10-40
Thurber needlegrass	STTH2	---	2-10	---	---	2-10
Other perennial grasses	PPGG	5-10	5-10	5-10	5-10	5-10
Perennial forbs	PPFF	5-10	5-10	5-10	5-10	5-10
Wyoming big sagebrush	ARTRW*	10-20	---	10-20	10-20	---
Spiny hopsage	GRSP	10-20	---	10-20	10-20	---
Nevada ephedra	EPNE	5-10	---	5-10	5-10	---
Black sagebrush	ARARN	---	20-30	---	---	20-30
Shadscale	ATCO	---	5-10	---	---	5-10
Other shrubs	SSSS	---	5-10	---	---	5-10
Range site symbol		027X008N	027X032N	027X008N	027X008N	027X032N
Potential production (lb/acre):						
Favorable years		700	600	700	700	600
Normal years		500	400	500	500	400
Unfavorable years		300	200	300	300	200

2548--Buffaran-Tenabo-Pineval 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--		
		Buffaran	Tenabo	Pineval	1	2	3
Indian ricegrass	ORHY	20-30	5-15	20-30	10-15	20-30	10-15
Needleandthread	STCO4	10-20	1-3	10-20	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-15	5-10	---	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5	---
Thurber needlegrass	STTH2	---	---	---	10-15	---	10-15
Bluegrass	POA++	---	---	---	2-10	---	2-10
Other perennial grasses	PPGG	---	---	---	5-20	---	5-20
Globemallow	SPHAE	---	---	---	2-5	---	2-5
Other perennial forbs	PPFF	2-5	2-8	2-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	---	15-20	---
Shadscale	ATCO	---	30-40	---	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Winterfat	EULA5	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	25-35	---	25-35
Other shrubs	SSSS	5-15	2-5	5-15	5-35	5-15	5-35

Range site symbol	028B010N	024X002N	028B010N	024X030N	028B010N	024X030N
Potential production (lb/acre):						
Favorable years	800	700	800	500	800	500
Normal years	600	450	600	350	600	350
Unfavorable years	400	300	400	250	400	250

2554--Laped-Hooplite-Osoll 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--	
		Laped	Hooplite	Osoll	1	2
Bottlebrush squirreltail	SIHY	5-15	---	5-15	---	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15
Sandberg bluegrass	POSE	2-5	---	2-5	---	2-5
Needleandthread	STCO4	1-3	5-15	1-3	---	1-3
Pine bluegrass	POSC	---	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	1-3	---	---	---
Other perennial grasses	PPGG	---	5-10	---	---	---
Perennial forbs	PPFF	2-8	5-15	2-8	---	2-8
Shadscale	ATCO	30-40	---	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	2-5	20-30	---	20-30
Spiny hopsage	GRSP	2-5	---	2-5	---	2-5
Winterfat	EULA5	2-5	---	2-5	---	2-5
Black sagebrush	ARARN	---	20-25	---	---	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---
Other shrubs	SSSS	2-5	10-20	2-5	---	2-5
Range site symbol		024X002N	028B016N	024X002N	None	024X002N
Potential production (lb/acre):						
Favorable years		700	500	700	---	700
Normal years		450	250	450	---	450
Unfavorable years		300	150	300	---	300

2555--Laped-Colbar 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--		
		Laped	Colbar	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	5-15	2-10	---
Indian ricegrass	ORHY	5-15	---	5-15	2-10	15-30
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---
Needleandthread	STCO4	1-3	---	1-3	---	---
Thurber needlegrass	STTH2	---	20-50	---	2-5	5-10
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Webber ricegrass	STWE	---	---	---	2-10	---
Desert needlegrass	STSP3	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	---	5-15
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---
Eriogonum	ERIOG	---	---	---	1-2	---
Hawksbeard	CREPI	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	---	2-8	---	---
Shadscale	ATCO	30-40	---	30-40	10-25	2-5
Bud sagebrush	ARSP5	20-30	---	20-30	2-5	---
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	10-25	15-30
Downy rabbitbrush	CHVIP	---	2-5	---	2-5	---
Other shrubs	SSSS	2-5	2-10	2-5	---	2-5
Range site symbol		024X002N	024X005N	024X002N	024X026N	024X045N
Potential production (lb/acre):						
Favorable years		700	800	700	400	350
Normal years		450	600	450	300	200
Unfavorable years		300	400	300	200	100

2570--Colbar-Atlow-Burrita 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--			
		Colbar	Atlow	Burrita	1	2	3	4
Thurber needlegrass	STTH2	20-50	10-15	20-50	20-50	---	---	X
Bluebunch wheatgrass	AGSP	5-10	---	5-10	5-10	---	---	X
Indian ricegrass	ORHY	---	10-15	---	---	---	5-15	---
Bluegrass	POA++	---	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-15	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5	---
Needleandthread	STCO4	---	---	---	---	---	1-3	---
Basin wildrye	ELCI2	---	---	---	---	---	---	X
Nevada bluegrass	PONE3	---	---	---	---	---	---	X
Idaho fescue	FEID	---	---	---	---	---	---	X
Other perennial grasses	PPGG	---	5-20	---	---	---	---	---
Balsamroot	BALSA	2-4	---	2-4	2-4	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	2-4	2-4	---	---	X
Globemallow	SPHAE	---	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	---	---	X
Other perennial forbs	PPFF	---	---	---	---	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	15-20	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	2-5	2-5	---	---	---
Spiny hopsage	GRSP	2-5	---	2-5	2-5	---	2-5	---
Black sagebrush	ARARN	---	25-35	---	---	---	---	---
Shadscale	ATCO	---	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	---	---	X
Snowberry	SYMPH	---	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	---	X
Other shrubs	SSSS	2-10	5-35	2-10	2-10	---	2-5	---
Singleleaf pinyon	PIMO	---	---	---	---	---	---	X
Utah juniper	JUOS	---	---	---	---	---	---	X
Range site symbol		024X005N	024X030N	024X005N	024X005N	None	024X002N	---
Woodland site symbol		---	---	---	---	None	---	025X062N
Potential production (lb/acre):								
Favorable years		800	500	800	800	---	700	500
Normal years		600	350	600	600	---	450	350
Unfavorable years		400	250	400	400	---	300	200

2603--Grina-Genaw 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	Genaw	1	2	3
Bluebunch wheatgrass	AGSP	X	---	---	---	15-25
Thurber needlegrass	STTH2	X	---	---	---	15-25
Indian ricegrass	ORHY	X	20-30	20-30	---	---
Bluegrass	POA++	X	---	---	---	---
Basin wildrye	ELCI2	X	---	---	30-50	---
Needleandthread	STCO4	---	10-20	10-20	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	15-25	10-20
Tapertip hawksbeard	CRAC2	X	---	---	---	2-5
Arrowleaf balsamroot	BASA3	X	---	---	---	2-5
Other perennial forbs	PPFF	---	2-5	2-5	2-5	2-10
Big sagebrush	ARTR2	X	---	---	---	---
Douglas rabbitbrush	CHVI8	X	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	5-10
Basin big sagebrush	ARTRT*	---	---	---	5-10	---
Mountain big sagebrush	ARVA2	---	---	---	---	5-10
Other shrubs	SSSS	---	5-15	5-15	5-10	2-10
Utah juniper	JUOS	X	---	---	---	---
Range site symbol		---	028B010N	028B010N	028B003N	024X035N
Woodland site symbol		025X059N	---	---	---	---
Potential production (lb/acre):						
Favorable years		500	800	800	2,600	500
Normal years		350	600	600	1,250	400
Unfavorable years		200	400	400	800	250

2640--Rasille-Kelk association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Rasille	Kelk	1	2	3
Indian ricegrass	ORHY	20-30	---	---	5-15	---
Needleandthread	STCO4	10-20	---	---	1-3	---
Bottlebrush squirreltail	SIHY	5-10	---	5-10	5-15	---
Sandberg bluegrass	POSE	2-5	---	---	2-5	---
Basin wildrye	ELCI2	---	50-60	---	---	40-60
Western wheatgrass	AGSM	---	5-15	---	---	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Inland saltgrass	DISPS2	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	T-10	---	---
Perennial forbs	PPFF	2-5	2-8	2-8	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	---	---	---
Black greasewood	SAVE4	---	2-10	15-30	---	5-15
Rubber rabbitbrush	CHNA2	---	2-5	---	---	1-2
Shadscale	ATCO	---	---	30-50	30-40	---
Bud sagebrush	ARSP5	---	---	5-15	20-30	---
Seepweed	SUAED	---	---	2-15	---	---
Spiny hopsage	GRSP	---	---	---	2-5	---
Winterfat	EULA5	---	---	---	2-5	---
Alkali rabbitbrush	CHAL9	---	---	---	---	1-2
Other shrubs	SSSS	5-15	---	---	2-5	---

Range site symbol	028B010N	024X006N	024X003N	024X002N	024X007N
Potential production (lb/acre):					
Favorable years	800	1,500	600	700	1,900
Normal years	600	1,100	450	450	1,400
Unfavorable years	400	600	300	300	800

2672--Zoesta Variant-Jung-Trunk 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--		
		Zoesta Variant	Jung	Trunk	1	2	3
Indian ricegrass	ORHY	10-15	10-15	---	---	15-30	---
Thurber needlegrass	STTH2	10-15	10-15	20-50	X	5-10	---
Bluegrass	POA++	2-10	2-10	---	---	---	---
Bluebunch wheatgrass	AGSP	---	---	5-10	X	---	---
Basin wildrye	ELCI2	---	---	---	X	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---
Idaho fescue	FEID	---	---	---	X	---	---
Other perennial grasses	PPGG	5-20	5-20	---	---	5-15	---
Globemallow	SPHAE	2-5	2-5	---	---	2-4	---
Balsamroot	BALSA	---	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-4	X	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---
Black sagebrush	ARARN	25-35	25-35	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-30	---
Downy rabbitbrush	CHVIP	---	---	2-5	---	---	---
Spiny hopsage	GRSP	---	---	2-5	---	2-5	---
Big sagebrush	ARTR2	---	---	---	X	---	---
Snowberry	SYMPH	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Shadscale	ATCO	---	---	---	---	2-5	---
Other shrubs	SSSS	5-35	5-35	2-10	---	2-5	---
Singleleaf pinyon	PIMO	---	---	---	X	---	---
Utah juniper	JUOS	---	---	---	X	---	---
Range site symbol		024X030N	024X030N	024X005N	---	024X045N	None
Woodland site symbol		---	---	---	025X062N	---	None
Potential production (lb/acre):							
Favorable years		500	500	800	500	350	---
Normal years		350	350	600	350	200	---
Unfavorable years		250	250	400	200	100	---

2681--Tessfive-Puett-Grina association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tessfive	Puett	Grina	1	2	3
Indian ricegrass	ORHY	10-15	10-30	X	20-30	5-15	5-15
Thurber needlegrass	STTH2	10-15	---	X	---	---	10-20
Bluegrass	POA++	2-10	---	X	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	5-15	2-10
Bluebunch wheatgrass	AGSP	---	---	X	---	---	---
Basin wildrye	ELCI2	---	---	X	---	---	---
Needleandthread	STCO4	---	---	---	10-20	1-3	---
Sandberg bluegrass	POSE	---	---	---	2-5	2-5	2-10
Other perennial grasses	PPGG	5-20	10-20	---	---	---	---
Globemallow	SPHAE	2-5	---	---	---	---	1-2
Tapertip hawksbeard	CRAC2	---	---	X	---	---	1-2
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	---	5-15	---	2-5	2-8	---
Black sagebrush	ARARN	25-35	5-15	---	---	---	---
Downy rabbitbrush	CHVIP	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	1-5	---	---	2-5	5-15
Antelope bitterbrush	PUTR2	---	1-5	---	---	---	---
Purple sage	SADOC2	---	T-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	15-20	---	30-35
Big sagebrush	ARTR2	---	---	X	---	---	---
Douglas rabbitbrush	CHVI8	---	---	X	---	---	---
Shadscale	ATCO	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	2-5	---
Other shrubs	SSSS	5-35	2-4	---	5-15	2-5	---
Utah juniper	JUOS	---	---	X	---	---	---
Range site symbol		024X030N	025X025N	---	028B010N	024X002N	024X020N
Woodland site symbol		---	---	025X059N	---	---	---
Potential production (lb/acre):							
Favorable years		500	200	500	800	700	700
Normal years		350	150	350	600	450	450
Unfavorable years		250	100	200	400	300	300

2683--Tessfive-Genaw-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tessfive	Genaw	Orovada	1	2	3
Indian ricegrass	ORHY	10-15	20-30	20-30	15-25	10-30	5-15
Thurber needlegrass	STTH2	10-15	---	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Needleandthread	STCO4	---	10-20	10-20	5-10	---	5-10
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	5-10	2-5
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-20	---	---	---	10-20	5-10
Globemallow	SPHAE	2-5	---	---	---	---	---
Other perennial forbs	PPFF	---	2-5	2-5	5-10	5-15	5-10
Black sagebrush	ARARN	25-35	---	---	20-30	5-15	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	10-25	---
Winterfat	EULA5	---	---	---	5-10	---	2-5
Bud sagebrush	ARSP5	---	---	---	2-5	---	5-10
Small rabbitbrush	CHVIS	---	---	---	2-5	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-5	---
Purple sage	SADOC2	---	---	---	---	T-5	---
Shadscale	ATCO	---	---	---	---	---	30-40
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Other shrubs	SSSS	5-35	5-15	5-15	---	2-4	5-15

Range site symbol	O24XO30N	O28BO10N	O28BO10N	O28BO11N	O25XO25N	O28BO17N
Potential production (lb/acre):						
Favorable years	500	800	800	950	200	700
Normal years	350	600	600	700	150	500
Unfavorable years	250	400	400	400	100	250

2684--Tessfive-Perlor-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tessfive	Perlor	Orovada	1	2	3
Indian ricegrass	ORHY	10-15	5-15	20-30	10-30	20-30	20-30
Thurber needlegrass	STTH2	10-15	---	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-15	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-5	2-5
Needleandthread	STCO4	---	1-3	10-20	---	10-20	10-20
Other perennial grasses	PPGG	5-20	---	---	10-20	---	---
Globemallow	SPHAE	2-5	---	---	---	---	---
Other perennial forbs	PPFF	---	2-8	2-5	5-15	2-5	2-5
Black sagebrush	ARARN	25-35	---	---	5-15	---	---
Shadscale	ATCO	---	30-40	---	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	1-5	---	---
Winterfat	EULA5	---	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	10-25	15-20	15-20
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---	---
Purple sage	SADOC2	---	---	---	T-5	---	---
Other shrubs	SSSS	5-35	2-5	5-15	2-4	5-15	5-15
Range site symbol		O24XO30N	O24XO02N	O28BO10N	O25XO25N	O28BO10N	O28BO10N
Potential production (lb/acre):							
Favorable years		500	700	800	200	800	800
Normal years		350	450	600	150	600	600
Unfavorable years		250	300	400	100	400	400

2690--Itca Variant-Reluctan-Handy 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--		
		Itca Variant	Reluctan	Handy	1	2	3
Bluebunch wheatgrass	AGSP	X	20-30	20-30	X	15-20	20-30
Basin wildrye	ELCI2	X	2-15	---	X	---	2-15
Thurber needlegrass	STTH2	X	2-10	15-25	X	15-20	2-10
Nevada bluegrass	PONE3	X	---	2-10	X	---	---
Idaho fescue	FEID	X	20-40	---	X	---	20-40
Other perennial grasses	PPGG	---	---	10-15	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---
Pine bluegrass	POSC	---	---	---	---	5-8	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---
Tapertip hawksbeard	CRAC2	X	1-5	2-5	X	---	1-5
Arrowleaf balsamroot	BASA3	X	1-5	2-5	X	---	1-5
Balsamroot	BALSA	---	---	---	---	2-5	---
Eriogonum	ERIOG	---	---	---	---	1-3	---
Phlox	PHLOX	---	---	---	---	1-3	---
Other perennial forbs	PPFF	---	---	2-5	---	---	---
Big sagebrush	ARTR2	X	---	10-15	X	---	---
Snowberry	SYMPH	X	---	---	X	---	---
Currant	RIBES	X	---	---	X	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	---	---	5-15
Antelope bitterbrush	PUTR2	---	---	0-10	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---
Other shrubs	SSSS	---	---	5-10	---	---	---
Singleleaf pinyon	PIMO	X	---	---	X	---	---
Utah juniper	JUOS	X	---	---	X	---	---
Range site symbol		---	024X021N	025X014N	---	024X018N	024X021N
Woodland site symbol		025X062N	---	---	025X062N	---	---
Potential production (lb/acre):							
Favorable years		500	1,400	1,000	500	700	1,400
Normal years		350	1,000	800	350	500	1,000
Unfavorable years		200	700	600	200	300	700

2730--Pula-Spike-Buffaran 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--		
		Pula	Spike	Buffaran	1	2	3
Indian ricegrass	ORHY	20-30	15-30	20-30	10-15	---	5-15
Needleandthread	STCO4	10-20	---	10-20	---	---	5-15
Bottlebrush squirreltail	SIHY	5-10	---	5-10	---	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	10-15	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5
Bluebunch wheatgrass	AGSP	---	---	---	---	---	1-3
Other perennial grasses	PPGG	---	5-15	---	5-20	15-25	5-10
Globemallow	SPHAE	---	2-4	---	2-5	---	---
Other perennial forbs	PPFF	2-5	---	2-5	---	2-5	5-15
Wyoming big sagebrush	ARTRW*	15-20	15-30	15-20	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Shadscale	ATCO	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	25-35	---	20-25
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Bud sagebrush	ARSP5	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	2-5	5-15	5-35	5-10	10-20
Range site symbol		O28B010N	O24X045N	O28B010N	O24X030N	O28B003N	O28B016N
Potential production (lb/acre):							
Favorable years		800	350	800	500	2,600	500
Normal years		600	200	600	350	1,250	250
Unfavorable years		400	100	400	250	800	150

2731--Pula-Spike 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--			
		Pula	Spike	1	2	3	4
Indian ricegrass	ORHY	20-30	15-30	5-15	15-30	20-30	5-15
Needleandthread	STCO4	10-20	---	1-3	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	---	5-15	---	5-10	2-10
Sandberg bluegrass	POSE	2-5	---	2-5	---	2-5	2-10
Thurber needlegrass	STTH2	---	5-10	---	5-10	---	10-20
Other perennial grasses	PPGG	---	5-15	---	5-15	---	---
Globemallow	SPHAE	---	2-4	---	2-4	---	1-2
Tapertip hawksbeard	CRAC2	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	2-5	---	2-8	---	2-5	---
Wyoming big sagebrush	ARTRW*	15-20	15-30	---	15-30	15-20	30-35
Spiny hopsage	GRSP	---	2-5	2-5	2-5	---	5-15
Shadscale	ATCO	---	2-5	30-40	2-5	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---	---
Winterfat	EULA5	---	---	2-5	---	---	---
Other shrubs	SSSS	5-15	2-5	2-5	2-5	5-15	---
Range site symbol		028B010N	024X045N	024X002N	024X045N	028B010N	024X020N
Potential production (lb/acre):							
Favorable years		800	350	700	350	800	700
Normal years		600	200	450	200	600	450
Unfavorable years		400	100	300	100	400	300

2740--Spike-Desatoya Variant-Grassval 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--	
		Spike	Desatoya Variant	Grassval	1	2
Indian ricegrass	ORHY	15-30	10-15	10-15	20-30	5-15
Thurber needlegrass	STTH2	5-10	10-15	10-15	---	10-20
Bluegrass	POA++	---	2-10	2-10	---	---
Needleandthread	STCO4	---	---	---	10-20	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	2-10
Sandberg bluegrass	POSE	---	---	---	2-5	2-10
Other perennial grasses	PPGG	5-15	5-20	5-20	---	---
Globemallow	SPHAE	2-4	2-5	2-5	---	1-2
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	15-30	---	---	15-20	30-35
Spiny hopsage	GRSP	2-5	---	---	---	5-15
Shadscale	ATCO	2-5	---	---	---	---
Black sagebrush	ARARN	---	25-35	25-35	---	---
Other shrubs	SSSS	2-5	5-35	5-35	5-15	---

Range site symbol	O24XO45N	O24XO30N	O24XO30N	O28BO10N	O24XO20N
Potential production (lb/acre):					
Favorable years	350	500	500	800	700
Normal years	200	350	350	600	450
Unfavorable years	100	250	250	400	300

2771--Kram-Hopeka-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--		
		Kram	Hopeka	Rock outcrop	1	2	3
Bluebunch wheatgrass	AGSP	X	X	---	20-30	---	---
Indian ricegrass	ORHY	X	X	---	---	10-15	---
Thurber needlegrass	STTH2	X	X	---	2-10	10-15	---
Bluegrass	POA++	X	X	---	---	2-10	---
Idaho fescue	FEID	---	---	---	20-40	---	---
Basin wildrye	ELCI2	---	---	---	2-15	---	50-60
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	X	X	---	---	5-20	15-20
Tapertip hawksbeard	CRAC2	X	X	---	1-5	---	---
Arrowleaf balsamroot	BASA3	X	X	---	1-5	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	X	---	---	---	5-10
Black sagebrush	ARARN	X	X	---	---	25-35	---
Downy rabbitbrush	CHVIP	X	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	---	5-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	X	X	---	---	5-35	2-5
Utah juniper	JUOS	X	X	---	---	---	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Range site symbol		---	---	None	024X021N	024X030N	025X003N
Woodland site symbol		025X063N	025Z063N	None	---	---	---
Potential production (lb/acre):							
Favorable years		400	400	---	1,400	500	2,500
Normal years		275	275	---	1,000	350	1,900
Unfavorable years		150	150	---	700	250	1,200

2780--Desatoya-Tenabo-Pineval 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--		
		Desatoya	Tenabo	Pineval	1	2	3
Bluegrass	POA++	10-40	---	---	---	---	---
Thurber needlegrass	STTH2	2-10	---	---	---	---	---
Indian ricegrass	ORHY	---	5-15	20-30	20-30	15-25	20-30
Needleandthread	STCO4	---	5-10	10-20	10-20	5-10	10-20
Bottlebrush squirreltail	SIHY	---	2-5	5-10	5-10	---	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	---	---	---	---
Perennial forbs	PPFF	5-10	5-10	2-5	2-5	5-10	2-5
Black sagebrush	ARARN	20-30	---	---	---	20-30	---
Shadscale	ATCO	5-10	30-40	---	---	---	---
Bud sagebrush	ARSP5	---	5-10	---	---	2-5	---
Winterfat	EULA5	---	2-5	---	---	5-10	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	15-20	---	15-20
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Other shrubs	SSSS	5-10	5-15	5-15	5-15	---	5-15
Range site symbol		O27XO32N	O28BO17N	O28BO10N	O28BO10N	O28BO11N	O28BO10N
Potential production (lb/acre):							
Favorable years		600	700	800	800	950	800
Normal years		400	500	600	600	700	600
Unfavorable years		200	250	400	400	400	400

2781--Desatoya-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--		
		Desatoya	Orovada	1	2	3
Bluegrass	POA++	10-40	---	---	---	10-40
Thurber needlegrass	STTH2	2-10	---	---	---	2-10
Indian ricegrass	ORHY	---	20-30	20-30	5-15	---
Needleandthread	STCO4	---	10-20	10-20	5-10	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	2-5	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Other perennial grasses	PPGG	5-10	---	---	5-10	5-10
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	5-10
Black sagebrush	ARARN	20-30	---	---	---	20-30
Shadscale	ATCO	5-10	---	---	30-40	5-10
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---
Bud sagebrush	ARSP5	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-10	5-15	5-15	5-15	5-10

Range site symbol	027X032N	28B010N	028B010N	028B017N	027X032N
Potential production (lb/acre):					
Favorable years	600	800	800	700	600
Normal years	400	600	600	500	400
Unfavorable years	200	400	400	250	200

2782--Desatoya-Pineval-Grassval 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--		
		Desatoya	Pineval	Grassval	1	2	3
Indian ricegrass	ORHY	10-15	20-30	15-25	10-15	20-30	20-30
Thurber needlegrass	STTH2	10-15	---	---	10-15	---	---
Bluegrass	POA++	2-10	---	---	2-10	---	---
Needleandthread	STCO4	---	10-20	5-10	---	10-20	10-20
Bottlebrush squirreltail	SIHY	---	5-10	---	---	5-10	5-10
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	2-5
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	---	2-5	---	---	---
Other perennial grasses	PPGG	5-20	---	---	5-20	---	---
Globemallow	SPHAE	2-5	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-5	5-10	---	2-5	2-5
Black sagebrush	ARARN	25-35	---	20-30	25-35	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	15-20	15-20
Winterfat	EULA5	---	---	5-10	---	---	---
Bud sagebrush	ARSP5	---	---	2-5	---	---	---
Small rabbitbrush	CHVIS	---	---	2-5	---	---	---
Other shrubs	SSSS	5-35	5-15	---	5-35	5-15	5-15

Range site symbol	O24XO30N	O28BO10N	O28BO11N	O24XO30N	O28BO10N	O28BO10N
Potential production (lb/acre):						
Favorable years	500	800	950	500	800	800
Normal years	350	600	700	350	600	600
Unfavorable years	250	400	400	250	400	400

2783--Desatoya-Spike 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--		
		Desatoya, steep	Spike	Desatoya, strongly sloping	1	2	3
Indian ricegrass	ORHY	10-15	15-30	10-15	20-30	---	20-30
Thurber needlegrass	STTH2	10-15	5-10	10-15	---	---	---
Bluegrass	POA++	2-10	---	2-10	---	---	---
Needleandthread	STCO4	---	---	---	10-20	---	10-20
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	5-10
Sandberg bluegrass	POSE	---	---	---	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-20	5-15	5-20	---	15-25	---
Globemallow	SPHAE	2-5	2-4	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	2-5	2-5	2-5
Black sagebrush	ARARN	25-35	---	25-35	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-30	---	15-20	---	15-20
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Shadscale	ATCO	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Other shrubs	SSSS	5-35	2-5	5-35	5-15	5-10	5-15
Range site symbol		024X030N	024X045N	024X030N	028B010N	028B003N	028B010N
Potential production (lb/acre):							
Favorable years		500	350	500	800	2,600	800
Normal years		350	200	350	600	1,250	600
Unfavorable years		250	100	250	400	800	400

2791--Old Camp-Colbar-Rock outcrop association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Old Camp	Colbar	Rock outcrop	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	---	5-10	---	10-20
Bluebunch wheatgrass	AGSP	5-10	5-10	---	40-60	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Basin wildrye	ELCI2	---	---	---	2-5	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-15	2-10
Indian ricegrass	ORHY	---	---	---	---	5-15	5-15
Sandberg bluegrass	POSE	---	---	---	---	2-5	2-10
Needleandthread	STCO4	---	---	---	---	1-3	---
Balsamroot	BALSA	2-4	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	---	2-5	---	1-2
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Globemallow	SPHAE	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	5-10	---	30-35
Downy rabbitbrush	CHVIP	2-5	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	5-15
Mountain big sagebrush	ARVA2	---	---	---	T-5	---	---
Shadscale	ATCO	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	2-5	---
Other shrubs	SSSS	2-10	2-10	---	---	2-5	---
Range site symbol		024X005N	024X005N	None	024X028N	024X002N	024X020N
Potential production (lb/acre):							
Favorable years		800	800	---	1,000	700	700
Normal years		600	600	---	700	450	450
Unfavorable years		400	400	---	500	300	300

2792--Old Camp-Allor-Puett associaton

[The letter "T" means trace. 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--		
		Old Camp	Allor	Puett	1	2	3
Pine bluegrass	POSC	20-30	5-15	---	---	5-15	---
Thurber needlegrass	STTH2	5-10	---	---	X	---	2-10
Indian ricegrass	ORHY	---	5-15	10-30	---	5-15	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	5-10	---
Bluebunch wheatgrass	AGSP	---	---	---	X	---	---
Basin wildrye	ELCI2	---	---	---	X	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---
Idaho fescue	FEID	---	---	---	X	---	---
Bluegrass	POA++	---	---	---	---	---	10-40
Other perennial grasses	PPGG	5-15	5-10	10-20	---	5-10	5-10
Tapertip hawksbeard	CRAC2	---	---	---	X	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---
Other perennial forbs	PPFF	5-10	5-10	5-15	---	5-10	5-10
Wyoming big sagebrush	ARTRW*	10-20	10-20	10-25	---	10-20	---
Spiny hopsage	GRSP	5-15	10-20	1-5	---	10-20	---
Nevada ephedra	EPNE	5-10	5-10	---	---	5-10	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	20-30
Purple sage	SADOC2	---	---	T-5	---	---	---
Big sagebrush	ARTR2	---	---	---	X	---	---
Snowberry	SYMPH	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Shadscale	ATCO	---	---	---	---	---	5-10
Other shrubs	SSSS	5-10	---	2-4	---	---	5-10
Singleleaf pinyon	PIMO	---	---	---	X	---	---
Utah juniper	JUOS	---	---	---	X	---	---
Range site symbol		027X007N	027X008N	025X025N	---	027X008N	027X032N
Woodland site symbol		---	---	---	025X062N	---	---
Potential production (lb/acre):							
Favorable years		600	700	200	500	700	600
Normal years		450	500	150	350	500	400
Unfavorable years		300	300	100	200	300	200

2793--Old Camp-Laped 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--		
		Old Camp	Laped	1	2	3
Thurber needlegrass	STTH2	20-50	---	2-5	20-50	10-20
Bluebunch wheatgrass	AGSP	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	5-15	2-10	---	2-10
Indian ricegrass	ORHY	---	5-15	2-10	---	5-15
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-10
Needleandthread	STCO4	---	1-3	---	---	---
Webber ricegrass	STWE	---	---	2-10	---	---
Desert needlegrass	STSP3	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	2-5	---	---
Balsamroot	BALSA	2-4	---	---	2-4	---
Tapertip hawksbeard	CRAC2	2-4	---	---	2-4	1-2
Eriogonum	ERIOG	---	---	1-2	---	---
Hawksbeard	CREPI	---	---	1-2	---	---
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	2-8	---	---	---
Wyoming big sagebrush	ARTRW*	15-20	---	10-25	15-20	30-35
Downy rabbitbrush	CHVIP	2-5	---	2-5	2-5	---
Spiny hopsage	GRSP	2-5	2-5	5-15	2-5	5-15
Shadscale	ATCO	---	30-40	10-25	---	---
Bud sagebrush	ARSP5	---	20-30	2-5	---	---
Winterfat	EULA5	---	2-5	---	---	---
Other shrubs	SSSS	2-10	2-5	---	2-10	---

Range site symbol	O24XO05N	O24XO02N	O24XO26N	O24XO05N	O24XO20N
Potential production (lb/acre):					
Favorable years	800	700	400	800	700
Normal years	600	450	300	600	450
Unfavorable years	400	300	200	400	300

2797--Old Camp-Colbar 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--		
		Old Camp, steep	Colbar	Old Camp, strongly sloping	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	20-50	15-25	10-15	---
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	20-30	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	---	10-15	5-20	---
Indian ricegrass	ORHY	---	---	---	---	10-15	5-15
Bluegrass	POA++	---	---	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-15
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Needleandthread	STCO4	---	---	---	---	---	1-3
Balsamroot	BALSA	2-4	2-4	2-4	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	---	---	2-5	---	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	---	---
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	---	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	---	2-5
Big sagebrush	ARTR2	---	---	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	---	---	0-10	---	---
Black sagebrush	ARARN	---	---	---	---	25-35	---
Shadscale	ATCO	---	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	---	20-30
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	2-10	2-10	5-10	5-35	2-5
Range site symbol		024X005N	024X005N	024X005N	025X014N	024X030N	024X002N
Potential production (lb/acre):							
Favorable years		800	800	800	1,000	500	700
Normal years		600	600	600	800	350	450
Unfavorable years		400	400	400	600	250	300

2798--Old Camp-Atlow-Osoll 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--			
		Old Camp	Atlow	Osoll	1	2	3	4
Thurber needlegrass	STTH2	20-50	10-15	---	10-15	5-10	5-15	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	5-15	---
Indian ricegrass	ORHY	---	10-15	5-15	10-15	15-30	---	---
Bluegrass	POA++	---	2-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-15	---	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---	---
Needleandthread	STCO4	---	---	1-3	---	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	30-50	---
Other perennial grasses	PPGG	---	5-20	---	5-20	5-15	5-10	---
Balsamroot	BALSA	2-4	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---	---	---
Globemallow	SPHAE	---	2-5	---	2-5	2-4	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	---	2-8	---	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	15-30	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	2-5	---	2-5	2-4	---
Black sagebrush	ARARN	---	25-35	---	25-35	---	---	---
Shadscale	ATCO	---	---	30-40	---	2-5	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---	---	---
Winterfat	EULA5	---	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Other shrubs	SSSS	2-10	5-35	2-5	5-35	2-5	---	---

Range site symbol	O24XO05N	O24XO30N	O24XO02N	O24XO30N	O24XO45N	O25XO13N	None
Potential production (lb/acre):							
Favorable years	800	500	700	500	350	1,000	---
Normal years	600	350	450	350	200	800	---
Unfavorable years	400	250	300	250	100	500	---

3001--Barrier-Kobeh 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--		
		Barrier	Kobeh	1	2	3
Indian ricegrass	ORHY	15-25	20-30	15-25	15-25	5-15
Needleandthread	STCO4	5-10	10-20	5-10	5-10	5-10
Basin wildrye	ELCI2	2-5	---	2-5	2-5	---
Bluebunch wheatgrass	AGSP	2-5	---	2-5	2-5	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	2-5
Sandberg bluegrass	POSE	---	2-5	---	---	---
Other perennial grasses	PPGG	---	---	---	---	5-10
Perennial forbs	PPFF	5-10	2-5	5-10	5-10	5-10
Black sagebrush	ARARN	20-30	---	20-30	20-30	---
Winterfat	EULA5	5-10	---	5-10	5-10	2-5
Bud sagebrush	ARSP5	2-5	---	2-5	2-5	5-10
Small rabbitbrush	CHVIS	2-5	---	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	---
Shadscale	ATCO	---	---	---	---	30-40
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	---	5-15	---	---	5-15
Range site symbol		028B011N	028B010N	028B011N	028B011N	028B017N
Potential production (lb/acre):						
Favorable years		950	800	950	950	700
Normal years		700	600	700	700	500
Unfavorable years		400	400	400	400	250

3011--Defler-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--		
		Defler	Orovada	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	2-5	15-25
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	2-5	2-5
Needleandthread	STCO4	---	10-20	10-20	2-5	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	10-20	---
Other perennial grasses	PPGG	5-10	---	---	5-10	5-10
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	5-10
Winterfat	EULA5	30-45	---	---	---	30-45
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15
Range site symbol		O28B013N	O28B010N	O28B010N	O28B009N	O28B013N
Potential production (lb/acre):						
Favorable years		800	800	800	700	800
Normal years		550	600	600	400	550
Unfavorable years		300	400	400	300	300

3050--Novacan cobbly 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--		
		Novacan	1	2	3
Indian ricegrass	ORHY	15-25	20-30	15-25	5-15
Needleandthread	STCO4	5-10	10-20	5-10	5-10
Basin wildrye	ELCI2	2-5	---	2-5	---
Bluebunch wheatgrass	AGSP	2-5	---	2-5	---
Bottlebrush squirreltail	SIHY	---	5-10	---	2-5
Sandberg bluegrass	POSE	---	2-5	---	---
Other perennial grasses	PPGG	---	---	---	5-10
Perennial forbs	PPFF	5-10	2-5	5-10	5-10
Black sagebrush	ARARN	20-30	---	20-30	---
Winterfat	EULA5	5-10	---	5-10	2-5
Bud sagebrush	ARSP5	2-5	---	2-5	5-10
Small rabbitbrush	CHVIS	2-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---
Shadscale	ATCO	---	---	---	30-40
Fourwing saltbush	ATCA2	---	---	---	2-5
Other shrubs	SSSS	---	5-15	---	5-15

Range site symbol	O28BO11N	O28BO10N	O28BO11N	O28BO17N
Potential production (lb/acre):				
Favorable years	950	800	950	700
Normal years	700	600	700	500
Unfavorable years	400	400	400	250

3071--Allor-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--		
		Allor	Wieland	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	---	20-30
Needleandthread	STCO4	10-20	10-20	10-20	---	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	15-25	---
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-20
Basin big sagebrush	ARTRT*	---	---	---	5-10	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO03N	O28BO10N
Potential production (lb/acre):						
Favorable years		800	800	800	2,600	800
Normal years		600	600	600	1,250	600
Unfavorable years		400	400	400	800	400

3072--Allor-Orovada association, moderately sloping

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Allor	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	---	10-20
Thurber needlegrass	STTH2	---	---	---	---	5-10
Basin wildrye	ELCI2	---	---	---	---	2-5
Pine bluegrass	POSC	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	10-20
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-12
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Mountain big sagebrush	ARVA2	---	---	---	---	15-25
Antelope bitterbrush	PUTR2	---	---	---	---	5-10
Utah serviceberry	AMUT	---	---	---	---	2-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B030N
Potential production (lb/acre):						
Favorable years		800	800	800	800	1,100
Normal years		600	600	600	600	850
Unfavorable years		400	400	400	400	550

3073--Allor-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--	
		Allor	Kelk	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-10
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO03N
Potential production (lb/acre):					
Favorable years		800	800	800	2,600
Normal years		600	600	600	1,250
Unfavorable years		400	400	400	800

3074--Allor-Orovada association, nearly level

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Allor	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	5-15	2-5	10-20
Needleandthread	STCO4	10-20	10-20	1-3	---	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-15	2-5	2-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	5-20	---
Thelypody	THELY	---	---	---	2-4	---
Other perennial forbs	PPFF	2-5	2-5	2-8	---	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	5-10	---
Shadscale	ATCO	---	---	30-40	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	2-5
Spiny hopsage	GRSP	---	---	2-5	5-15	---
Winterfat	EULA5	---	---	2-5	---	60-70
Black greasewood	SAVE4	---	---	---	20-30	---
Basin big sagebrush	ARTRT*	---	---	---	5-15	---
Other shrubs	SSSS	5-15	5-15	2-5	---	---
Range site symbol		028B010N	028B010N	024X002N	024X022N	024X004N
Potential production (lb/acre):						
Favorable years		800	800	700	800	500
Normal years		600	600	450	600	350
Unfavorable years		400	400	300	350	200

3080--Zaidy-Ricert 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--			
		Zaidy	Ricert	1	2	3	4
Indian ricegrass	ORHY	15-25	5-15	5-15	20-30	5-15	20-30
Needleandthread	STCO4	5-10	1-3	5-15	10-20	5-15	10-20
Basin wildrye	ELCI2	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	1-3	---	1-3	---
Bottlebrush squirreltail	SIHY	---	5-15	---	5-10	---	5-10
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	2-5
Pine bluegrass	POSC	---	---	2-5	---	2-5	---
Other perennial grasses	PPGG	---	---	5-10	---	5-10	---
Perennial forbs	PPFF	5-10	2-8	5-15	2-5	5-15	2-5
Black sagebrush	ARARN	20-30	---	20-25	---	20-25	---
Winterfat	EULA5	5-10	2-5	---	---	---	---
Bud sagebrush	ARSP5	2-5	20-30	2-5	---	2-5	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---	---
Shadscale	ATCO	---	30-40	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Fourwing saltbush	ATCA2	---	---	2-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	15-20
Other shrubs	SSSS	---	2-5	10-20	5-15	10-20	5-15

Range site symbol	O28B011N	O24X002N	O28B016N	O28B010N	O28B016N	O28B010N
Potential production (lb/acre):						
Favorable years	950	700	500	800	500	800
Normal years	700	450	250	600	250	600
Unfavorable years	400	300	150	400	150	400

3081--Zaidy-Allor 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--		
		Zaidy	Allor	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	15-30	20-30
Needleandthread	STCO4	5-10	10-20	10-20	---	10-20
Basin wildrye	ELCI2	2-5	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-5
Thurber needlegrass	STTH2	---	---	---	5-10	---
Other perennial grasses	PPGG	---	---	---	5-15	---
Globemallow	SPHAE	---	---	---	2-4	---
Other perennial forbs	PPFF	5-10	2-5	2-5	---	2-5
Black sagebrush	ARARN	20-30	---	---	---	---
Winterfat	EULA5	5-10	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-30	15-20
Spiny hopsage	GRSP	---	---	---	2-5	---
Shadscale	ATCO	---	---	---	2-5	---
Other shrubs	SSSS	---	5-15	5-15	2-5	5-15

Range site symbol	028B011N	028B010N	028B010N	024X045N	028B010N
Potential production (lb/acre):					
Favorable years	950	800	800	350	800
Normal years	700	600	600	200	600
Unfavorable years	400	400	400	100	400

3091--Packer-Newlands 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--		
		Packer	Packer, cobbly	Newlands	1	2	3
Idaho fescue	FEID	10-20	10-20	10-15	25-50	10-20	---
Webber ricegrass	STWE	5-10	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	5-10	5-10	---	---	5-10	---
Cusick bluegrass	POCU3	2-5	2-5	---	---	2-5	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	2-5	---
Pine bluegrass	POSC	2-5	2-5	---	---	2-5	---
Mountain brome	BRCA5	---	---	15-20	---	---	---
Letterman needlegrass	STLE4	---	---	5-10	---	---	---
Spike fescue	LEKI2	---	---	5-10	2-10	---	---
Bluebunch wheatgrass	AGSP	---	---	---	15-30	---	---
Thurber needlegrass	STTH2	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	5-15	---	---	---
Goldenweed	HAPLO2	2-5	2-5	---	---	2-5	---
Phlox	PHLOX	2-5	2-5	---	---	2-5	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	---	5-10	---	---	---
Low sagebrush	ARAR8	5-15	5-15	---	10-20	5-15	---
Black sagebrush	ARARN	5-15	5-15	---	---	5-15	---
Mountain big sagebrush	ARVA2	1-5	1-5	10-20	---	1-5	---
Utah serviceberry	AMUT	---	---	5-10	---	---	---
Snowberry	SYMPH	---	---	5-10	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---
Range site symbol		O24XO16N	O24XO16N	O28BO29N	O24XO27N	O24XO16N	None
Potential production (lb/acre):							
Favorable years		350	350	1,500	1,200	350	---
Normal years		250	250	900	800	250	---
Unfavorable years		150	150	650	600	150	---

3092--Packer-Hapgood-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--		
		Packer	Hapgood	Rock outcrop	1	2	3
Idaho fescue	FEID	10-20	5-15	---	10-20	---	5-15
Webber ricegrass	STWE	5-10	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	5-10	---	---
Cusick bluegrass	POCU3	2-5	---	---	2-5	---	2-5
Sandberg bluegrass	POSE	2-5	---	---	2-5	---	---
Pine bluegrass	POSC	2-5	---	---	2-5	---	---
Mountain brome	BRCA5	---	10-15	---	---	---	5-10
Slender wheatgrass	AGTR	---	20-30	---	---	2-5	2-5
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---	5-15
Spike fescue	LEKI2	---	2-15	---	---	---	---
Bulbous oniongrass	MEBU	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	2-5
Letterman needlegrass	STLE4	---	---	---	---	60-70	2-5
Columbia needlegrass	STNE3	---	---	---	---	2-5	---
Basin wildrye	ELCI2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	2-5	---
Goldenweed	HAPLO2	2-5	---	---	2-5	---	---
Phlox	PHLOX	2-5	---	---	2-5	---	---
Geranium	GERAN	---	2-5	---	---	---	---
Groundsel	SENEC	---	2-5	---	---	---	---
Lupine	LUPIN	---	2-5	---	---	---	---
Tailcup lupine	LUCA	---	---	---	---	20-40	---
Other perennial forbs	PPFF	---	---	---	---	---	5-15
Low sagebrush	ARAR8	5-15	---	---	5-15	---	---
Black sagebrush	ARARN	5-15	---	---	5-15	---	---
Mountain big sagebrush	ARVA2	1-5	5-10	---	1-5	---	5-10
Serviceberry	AMELA	---	5-10	---	---	---	5-10
Snowberry	SYMPH	---	2-10	---	---	---	2-10
Oceanspray	HOLOD	---	---	---	---	---	5-10
Threetip sagebrush	ARTR4	---	---	---	---	---	2-10
Currant	RIBES	---	---	---	---	---	2-5
Range site symbol		024X016N	024X032N	None	024X016N	025X028N	024X034N
Potential production (lb/acre):							
Favorable years		350	2,200	---	350	1,000	1,600
Normal years		250	1,700	---	250	800	1,300
Unfavorable years		150	1,200	---	150	500	800

3093--Packer-Layview-Hapgood 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--			
		Packer	Layview	Hapgood	1	2	3	4
Idaho fescue	FEID	10-20	10-20	30-60	---	---	X	---
Webber ricegrass	STWE	5-10	5-10	---	---	---	---	5-10
Bottlebrush squirreltail	SIHY	5-10	5-10	---	---	---	---	---
Cusick bluegrass	POCU3	2-5	2-5	5-10	---	---	---	5-8
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---	5-8
Pine bluegrass	POSC	2-5	2-5	---	---	---	---	5-8
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	X	15-20
Mountain brome	BRCA5	---	---	2-5	---	---	---	---
Sedge	CAREX	---	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Bluegrass	POA++	---	---	---	---	---	X	---
Thurber needlegrass	STTH2	---	---	---	---	---	---	15-20
Other perennial grasses	PPGG	---	---	---	5-15	---	X	---
Goldenweed	HAPLO2	2-5	2-5	---	---	---	---	---
Phlox	PHLOX	2-5	2-5	---	---	---	---	1-3
Tapertip hawksbeard	CRAC2	---	---	1-3	---	---	X	---
Lupine	LUPIN	---	---	1-2	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	---	X	---
Balsamroot	BALSA	---	---	---	---	---	---	2-5
Eriogonum	ERIOG	---	---	---	---	---	---	1-3
Other perennial forbs	PPFF	---	---	---	5-10	---	X	---
Low sagebrush	ARAR8	5-15	5-15	---	---	---	---	20-30
Black sagebrush	ARARN	5-15	5-15	---	---	---	---	---
Mountain big sagebrush	ARVA2	1-5	1-5	5-15	---	---	---	---
Snowberry	SYMPH	---	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	X	---
Other shrubs	SSSS	---	---	---	5-10	---	X	---
Singleleaf pinyon	PIMO	---	---	---	---	---	X	---

Range site symbol	O24XO16N	O24XO16N	O24XO23N	O28BO24N	None	---	O24XO18N
Woodland site symbol	---	---	---	---	None	O25XO61N	---
Potential production (lb/acre):							
Favorable years	350	350	1,500	2,800	---	500	700
Normal years	250	250	1,200	1,700	---	375	500
Unfavorable years	150	150	900	1,000	---	250	300

3094--Packer-Hapgood-Torro 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--			
		Packer	Hapgood	Torro	1	2	3	4
Idaho fescue	FEID	10-20	5-15	1-10	10-15	10-20	---	---
Webber ricegrass	STWE	5-10	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	5-10	---	2-5	---	5-10	---	---
Cusick bluegrass	POCU3	2-5	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	2-5	---	---
Pine bluegrass	POSC	2-5	---	---	---	2-5	---	---
Mountain brome	BRCA5	---	10-15	2-15	5-20	---	---	---
Slender wheatgrass	AGTR	---	20-30	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	5-10	20-50	---	---	---	---
Spike fescue	LEKI2	---	2-15	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-5	---	---	---	---
Letterman needlegrass	STLE4	---	---	---	5-10	---	---	---
Other perennial grasses	PPGG	---	---	---	5-15	---	---	---
Goldenweed	HAPLO2	2-5	---	---	---	2-5	---	---
Phlox	PHLOX	2-5	---	---	---	2-5	---	---
Geranium	GERAN	---	2-5	---	---	---	---	---
Groundsel	SENEC	---	2-5	---	---	---	---	---
Lupine	LUPIN	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	5-10	---	---	---
Low sagebrush	ARAR8	5-15	---	---	---	5-15	---	---
Black sagebrush	ARARN	5-15	---	---	---	5-15	---	---
Mountain big sagebrush	ARVA2	1-5	5-10	5-15	10-20	1-5	---	---
Serviceberry	AMELA	---	5-10	---	---	---	---	---
Snowberry	SYMPH	---	2-10	---	5-10	---	---	---
Utah serviceberry	AMUT	---	---	---	5-10	---	---	---

Range site symbol	024X016N	024X032N	024X029N	028B029N	024X016N	None	None
Potential production (lb/acre):							
Favorable years	350	2,200	1,500	1,500	350	---	---
Normal years	250	1,700	1,100	900	250	---	---
Unfavorable years	150	1,200	800	650	150	---	---

3101--Hackwood-Newlands-Hapgood 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	Newlands	Hapgood	1	2	3
Mountain brome	BRCA5	X	15-20	10-15	---	---	---
Idaho fescue	FEID	X	10-15	5-15	---	10-20	---
Letterman needlegrass	STLE4	---	5-10	---	60-70	---	---
Spike fescue	LEKI2	---	5-10	2-15	---	---	---
Slender wheatgrass	AGTR	X	---	20-30	2-5	---	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	X	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	---
Columbia needlegrass	STNE3	---	---	---	2-5	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	2-5	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	2-5	---
Other perennial grasses	PPGG	X	5-15	---	2-5	---	---
Geranium	GERAN	X	---	2-5	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---
Lupine	LUPIN	X	---	2-5	---	---	---
Tailcup lupine	LUCA	---	---	---	20-40	---	---
Goldenweed	HAPLO2	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	10-20	5-10	---	1-5	---
Utah serviceberry	AMUT	---	5-10	---	---	---	---
Snowberry	SYMPH	X	5-10	2-10	---	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---
Low sagebrush	ARAR8	---	---	---	---	5-15	---
Black sagebrush	ARARN	---	---	---	---	5-15	---
Big sagebrush	ARTRT2	X	---	---	---	---	---
Currant	RIBES	X	---	---	---	---	---
Quaking aspen	POTR5	X	---	---	---	---	---

Range site symbol	---	O28BO29N	O24XO32N	O25XO28N	O24XO16N	None
Woodland site symbol	O25XO65N	---	---	---	---	None
Potential production (lb/acre):						
Favorable years	800	1,500	2,200	1,000	350	---
Normal years	600	900	1,700	800	250	---
Unfavorable years	400	650	1,200	500	150	---

3111--Ninemile-Zoesta-Itca 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--		
		Ninemile	Zoesta	Itca	1	2	3
Bluebunch wheatgrass	AGSP	5-15	2-5	X	---	---	1-3
Pine bluegrass	POSC	5-10	---	---	---	---	2-5
Thurber needlegrass	STTH2	2-5	5-15	---	---	---	---
Indian ricegrass	ORHY	2-5	5-10	---	---	---	5-15
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	5-10	---	---	---	---
Idaho fescue	FEID	---	---	X	---	---	---
Bluegrass	POA++	---	---	X	---	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Needleandthread	STCO4	---	---	---	---	---	5-15
Other perennial grasses	PPGG	10-15	---	X	---	15-25	5-10
Tapertip hawksbeard	CRAC2	---	---	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Other perennial forbs	PPFF	10-15	5-10	X	---	2-5	5-15
Low sagebrush	ARAR8	25-30	25-30	---	---	---	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Black sagebrush	ARARN	---	---	---	---	---	20-25
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Bud sagebrush	ARSP5	---	---	---	---	---	2-5
Other shrubs	SSSS	10-20	10-15	X	---	5-10	10-20
Singleleaf pinyon	PIMO	---	---	X	---	---	---
Range site symbol		028B037N	028B045N	---	None	028B003N	028B016N
Woodland site symbol		---	---	025X061N	None	---	---
Potential production (lb/acre):							
Favorable years		700	800	500	---	2,600	500
Normal years		500	600	375	---	1,250	250
Unfavorable years		300	400	250	---	800	150

3120--Walti-Softscrabble-Chad 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--		
		Walti	Softscrabble	Chad	1	2	3
Bluebunch wheatgrass	AGSP	5-15	20-30	20-50	5-10	---	---
Pine bluegrass	POSC	5-10	---	---	5-10	---	---
Thurber needlegrass	STTH2	2-5	2-10	2-5	---	---	---
Indian ricegrass	ORHY	2-5	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---
Idaho fescue	FEID	---	20-40	1-10	10-15	---	---
Basin wildrye	ELCI2	---	2-15	5-10	---	---	---
Mountain brome	BRCA5	---	---	2-15	---	---	---
Other perennial grasses	PPGG	10-15	---	---	10-15	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	1-5	2-5	---	---	---
Other perennial forbs	PPFF	10-15	---	---	5-10	---	---
Low sagebrush	ARAR8	25-30	---	---	5-15	---	---
Mountain big sagebrush	ARVA2	---	5-15	5-15	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Other shrubs	SSSS	10-20	---	---	5-10	---	---
Range site symbol		O28BO37N	O24XO21N	O24XO29N	O28BO38N	None	None
Potential production (lb/acre):							
Favorable years		700	1,400	1,500	800	---	---
Normal years		500	1,000	1,100	600	---	---
Unfavorable years		300	700	800	400	---	---

3121--Walti-Softscrabble-Bucan association

e letter "T" means trace. 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--			
		Walti	Softscrabble	Bucan	1	2	3	4
ıo fescue	FEID	25-50	20-40	---	---	---	X	---
ebunch wheatgrass	AGSP	15-30	20-30	40-60	---	---	---	---
ber needlegrass	STTH2	2-10	2-10	5-10	---	---	---	---
ke fescue	LEKI2	2-10	---	---	---	---	---	---
in wildrye	ELCI2	---	2-15	2-5	30-50	---	---	---
egrass	POA++	---	---	2-10	---	---	---	---
cern wheatgrass	AGSM	---	---	---	5-10	---	---	---
ada bluegrass	PONE3	---	---	---	5-10	---	---	5-10
ced hairgrass	DECA5	---	---	---	---	---	---	30-60
ine timothy	PHAL2	---	---	---	---	---	---	5-10
ge	CAREX	---	---	---	---	---	---	5-10
low barley	HOBR2	---	---	---	---	---	---	2-5
er perennial grasses	PPGG	---	---	---	5-15	---	X	2-10
samroot	BALSA	2-5	---	---	---	---	---	---
ertip hawksbeard	CRAC2	---	1-5	2-5	---	---	---	---
owleaf balsamroot	BASA3	---	1-5	2-5	---	---	---	---
ra clover	TRWO	---	---	---	---	---	---	---
quefoil	POTEN	---	---	---	---	---	---	2-5
er perennial forbs	PPFF	---	---	---	5-10	---	X	2-5
sagebrush	ARAR8	10-20	---	---	---	---	---	10-20
glas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
ıtain big sagebrush	ARVA2	---	5-15	T-5	---	---	---	---
ıing big sagebrush	ARTRW*	---	---	5-10	---	---	---	---
.n big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
ber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
.ow	SALIX	---	---	---	---	---	---	2-5
er shrubs	SSSS	---	---	---	5-10	---	X	2-5
:ing aspen	POTR5	---	---	---	---	---	X	---

e site symbol	O24XO27N	O24XO21N	O24XO28N	O28BO24N	None	---	O25XOO5N
land site symbol	---	---	---	---	None	O25XO65N	---
ntial production (lb/acre):							
orable years	1,200	1,400	1,000	2,800	---	800	2,000
mal years	800	1,000	700	1,700	---	600	1,700
avorable years	600	700	500	1,000	---	400	1,000

3122--Walti-Sumine-Softscrabble 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--			
		Walti	Sumine	Softscrabble	1	2	3	4
Idaho fescue	FEID	25-50	1-10	20-40	10-20	---	---	---
Bluebunch wheatgrass	AGSP	15-30	20-50	20-30	---	---	---	---
Thurber needlegrass	STTH2	2-10	2-5	2-10	---	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Basin wildrye	ELCI2	---	5-10	2-15	---	---	30-50	---
Mountain brome	BRCA5	---	2-15	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	5-10	---	---	---
Webber ricegrass	STWE	---	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	---	---	---	---	5-15	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	1-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	5-10	---
Low sagebrush	ARAR8	10-20	---	---	5-15	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	5-15	1-5	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	---	---	---	---	5-10	---

Range site symbol	O24XO27N	O24XO29N	O24XO21N	O24XO16N	None	O28BO24N	None
Potential production (lb/acre):							
Favorable years	1,200	1,500	1,400	350	---	2,800	---
Normal years	800	1,100	1,000	250	---	1,700	---
Unfavorable years	600	800	700	150	---	1,000	---

3123--Walti-Softscrabble-Itca 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--		
		Walti	Softscrabble	Itca	1	2	3
Idaho fescue	FEID	25-50	20-40	X	---	1-10	10-20
Bluebunch wheatgrass	AGSP	15-30	20-30	X	---	20-50	---
Thurber needlegrass	STTH2	2-10	2-10	---	---	2-5	---
Spike fescue	LEKI2	2-10	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	5-10	5-10	---
Bluegrass	POA++	---	---	X	---	---	---
Slender wheatgrass	AGTR	---	---	---	1-10	---	---
Nodding brome	BRAN	---	---	---	1-10	---	---
Slender hairgrass	DEEL	---	---	---	2-5	---	---
Mountain brome	BRCA5	---	---	---	---	2-15	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	5-10
Webber ricegrass	STWE	---	---	---	---	---	5-10
Cusick bluegrass	POCU3	---	---	---	---	---	2-5
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Pine bluegrass	POSC	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	X	5-10	---	---
Balsamroot	BALSA	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	X	---	2-5	---
Arrowleaf balsamroot	BASA3	---	1-5	X	---	2-5	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5
Phlox	PHLOX	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	X	10-20	---	---
Low sagebrush	ARAR8	10-20	---	---	---	---	5-15
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	---	5-15	1-5
Big sagebrush	ARTR2	---	---	X	---	---	---
Woods rose	ROWO	---	---	---	5-10	---	---
Common chokecherry	PRVI	---	---	---	5-10	---	---
Snowberry	SYMPH	---	---	---	2-5	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15
Other shrubs	SSSS	---	---	X	5-10	---	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---

Range site symbol	024X027N	024X021N	---	028B025N	024X029N	024X016N
Woodland site symbol	---	---	025X061N	---	---	---
Potential production (lb/acre):						
Favorable years	1,200	1,400	500	1,700	1,500	350
Normal years	800	1,000	375	1,300	1,100	250
Unfavorable years	600	700	250	900	800	150

3125--Walti-Softscrabble-Robson 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--			
		Walti	Softscrabble	Robson	1	2	3	4
Bluebunch wheatgrass	AGSP	5-15	20-30	2-5	---	5-10	---	---
Pine bluegrass	POSC	5-10	---	---	---	5-10	---	---
Thurber needlegrass	STTH2	2-5	2-10	5-15	---	---	---	---
Indian ricegrass	ORHY	2-5	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Idaho fescue	FEID	---	20-40	---	---	10-15	---	---
Basin wildrye	ELCI2	---	2-15	---	30-50	---	---	---
Sandberg bluegrass	POSE	---	---	5-10	---	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	--	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Other perennial grasses	PPGG	10-15	---	---	5-15	10-15	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	1-5	---	---	---	---	---
Other perennial forbs	PPFF	10-15	---	5-10	5-10	5-10	---	---
Low sagebrush	ARAR8	25-30	---	25-30	---	5-15	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Black sagebrush	ARARN	---	---	---	---	5-15	---	---
Other shrubs	SSSS	10-20	---	10-15	5-10	5-10	---	---
Range site symbol		O28B037N	O24X021N	O28B045N	O28B024N	O28B038N	None	None
Potential production (lb/acre):								
Favorable years		700	1,400	800	2,800	800	---	---
Normal years		500	1,000	600	1,700	600	---	---
Unfavorable years		300	700	400	1,000	400	---	---

3130--Itca-Clanalpine-Reluctan 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--		
		Itca	Clanalpine	Reluctan	1	2	3
Idaho fescue	FEID	X	X	20-40	---	---	---
Bluebunch wheatgrass	AGSP	X	X	20-30	15-20	---	10-20
Bluegrass	POA++	X	X	---	---	---	2-10
Basin wildrye	ELCI2	---	---	2-15	---	30-50	---
Thurber needlegrass	STTH2	---	---	2-10	15-20	---	5-15
Webber ricegrass	STWE	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	5-8	---	---
Pine bluegrass	POSC	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	5-8	---	---
Western wheatgrass	AGSM	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	---
Indian ricegrass	ORHY	---	---	---	---	---	2-10
Other perennial grasses	PPGG	X	X	---	---	5-15	---
Tapertip hawksbeard	CRAC2	X	X	1-5	---	---	2-5
Arrowleaf balsamroot	BASA3	X	X	1-5	---	---	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	1-3	---	---
Other perennial forbs	PPFF	X	X	---	---	5-10	5-15
Big sagebrush	ARTR2	X	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---
Low sagebrush	ARAR8	---	---	---	20-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Black sagebrush	ARARN	---	---	---	---	---	15-30
Other shrubs	SSSS	X	X	---	---	5-10	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Range site symbol		---	---	024X021N	024X018N	028B024N	024X031N
Woodland site symbol		025X061N	025X061N	---	---	---	---
Potential production (lb/acre):							
Favorable years		500	500	1,400	700	2,800	700
Normal years		375	375	1,000	500	1,700	500
Unfavorable years		250	250	700	300	1,000	300

3131--Itca-Ninemile-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--		
		Itca	Ninemile	Rock outcrop	1	2	3
Idaho fescue	FEID	X	---	---	---	---	---
Bluebunch wheatgrass	AGSP	X	5-15	---	15-20	10-15	---
Bluegrass	POA++	X	---	---	---	---	---
Pine bluegrass	POSC	---	5-10	---	5-8	---	---
Thurber needlegrass	STTH2	---	2-5	---	15-20	5-10	---
Indian ricegrass	ORHY	---	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---
Webber ricegrass	STWE	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	5-8	---	---
Basin wildrye	ELCI2	---	---	---	---	5-10	30-50
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Nevada bluegrass	PONE3	---	---	---	---	---	5-10
Other perennial grasses	PPGG	X	10-15	---	---	10-15	5-15
Tapertip hawksbeard	CRAC2	X	---	---	---	---	---
Arrowleaf balsamroot	BASA3	X	---	---	---	---	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	1-3	---	---
Other perennial forbs	PPFF	X	10-15	---	---	5-15	5-10
Big sagebrush	ARTR2	X	---	---	---	---	---
Low sagebrush	ARAR8	---	25-30	---	20-30	---	---
Mountain big sagebrush	ARVA2	---	---	---	---	15-25	---
Utah serviceberry	AMUT	---	---	---	---	3-10	---
Antelope bitterbrush	PUTR2	---	---	---	---	2-8	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	X	10-20	---	---	15-20	5-10
Singleleaf pinyon	PIMO	X	---	---	---	---	---
Range site symbol		---	028B037N	None	024X018N	028B027N	028B024N
Woodland site symbol		025X061N	---	None	---	---	---
Potential production (lb/acre):							
Favorable years		500	700	---	700	900	2,800
Normal years		375	500	---	500	600	1,700
Unfavorable years		250	300	---	300	300	1,000

3132--Itca-Softscrabble-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--		
		Itca	Softscrabble	Cleavage	1	2	3
Idaho fescue	FEID	X	20-40	10-20	X	25-50	---
Bluebunch wheatgrass	AGSP	X	20-30	---	X	15-30	---
Bluegrass	POA++	X	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	X	---	---
Thurber needlegrass	STTH2	---	2-10	---	X	2-10	---
Webber ricegrass	STWE	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---
Spike fescue	LEKI2	---	---	---	---	2-10	---
Other perennial grasses	PPGG	X	---	---	---	---	---
Tapertip hawksbeard	CRAC2	X	1-5	---	X	---	---
Arrowleaf balsamroot	BASA3	X	1-5	---	X	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	---	---	---	---	---
Big sagebrush	ARTR2	X	---	---	X	---	---
Mountain big sagebrush	ARVA2	---	5-15	1-5	---	---	---
Low sagebrush	ARAR8	---	---	5-15	---	10-20	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Snowberry	SYMPH	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Other shrubs	SSSS	X	---	---	---	---	---
Singleleaf pinyon	PIMO	X	---	---	X	---	---
Utah juniper	JUOS	---	---	---	X	---	---
Range site symbol		---	024X021N	024X016N	---	024X027N	None
Woodland site symbol		025X061N	---	---	025X062N	---	None
Potential production (lb/acre):							
Favorable years		500	1,400	350	500	1,200	---
Normal years		375	1,000	250	350	800	---
Unfavorable years		250	700	150	200	600	---

3134--Itca-Clanalpine-Torro 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--			
		Itca	Clanalpine	Torro	1	2	3	4
Idaho fescue	FEID	X	X	1-10	20-40	---	25-50	---
Bluebunch wheatgrass	AGSP	X	X	20-50	20-30	---	15-30	---
Bluegrass	POA++	---	X	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	2-15	---	---	5-10
Mountain brome	BRCA5	---	---	2-15	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-5	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Spike fescue	LEKI2	---	---	---	---	---	2-10	---
Slender wheatgrass	AGTR	---	---	---	---	---	---	1-10
Nodding brome	BRAN	---	---	---	---	---	---	1-10
Slender hairgrass	DEEL	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	X	X	---	---	---	---	5-10
Tapertip hawksbeard	CRAC2	X	X	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	X	X	2-5	1-5	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	X	---	---	---	---	10-20
Big sagebrush	ARTR2	X	X	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	5-15	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-20	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	2-5	---
Woods rose	ROWO	---	---	---	---	---	---	5-10
Common chokecherry	PRVI	---	---	---	---	---	---	5-10
Snowberry	SYMPH	---	---	---	---	---	---	2-5
Other shrubs	SSSS	X	X	---	---	---	---	5-10
Singleleaf pinyon	PIMO	X	X	---	---	---	---	---

Range site symbol	---	---	O24XO29N	O24XO21N	None	O24XO27N	O28BO25N
Woodland site symbol	O25XO61N	O25XO61N	---	---	None	---	---
Potential production (lb/acre):							
Favorable years	500	500	1,500	1,400	---	1,200	1,700
Normal years	375	375	1,100	1,000	---	800	1,300
Unfavorable years	250	250	800	700	---	600	900

3135--Itca-Clanalpine-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--		
		Itca	Clanalpine	Rock outcrop	1	2	3
Idaho fescue	FEID	X	X	---	10-20	---	---
Bluebunch wheatgrass	AGSP	X	X	---	---	1-3	---
Bluegrass	POA++	X	X	---	---	---	10-30
Webber ricegrass	STWE	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	---	2-5	2-5	---
Indian ricegrass	ORHY	---	---	---	---	5-15	---
Needleandthread	STCO4	---	---	---	---	5-15	---
Thurber needlegrass	STTH2	---	---	---	---	---	10-20
Other perennial grasses	PPGG	X	X	---	---	5-10	2-10
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	2-5	---	---
Other perennial forbs	PPFF	X	X	---	---	5-15	5-10
Big sagebrush	ARTR2	X	X	---	---	---	15-25
Low sagebrush	ARAR8	---	---	---	5-15	---	---
Black sagebrush	ARARN	---	---	---	5-15	20-25	---
Mountain big sagebrush	ARVA2	---	---	---	1-5	---	---
Fourwing saltbush	ATCA2	---	---	---	---	2-5	---
Bud sagebrush	ARSP5	---	---	---	---	2-5	---
Other shrubs	SSSS	X	X	---	---	10-20	5-15
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Range site symbol		---	---	None	024X016N	028B016N	027X054N
Woodland site symbol		025X061N	025X061N	None	---	---	---
Potential production (lb/acre):							
Favorable years		500	500	---	350	500	1,000
Normal years		375	375	---	250	250	800
Unfavorable years		250	250	---	150	150	600

3136--Itca-Roca-Reluctan association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Itca	Roca	Reluctan	1	2	3
Idaho fescue	FEID	X	---	20-40	---	---	---
Bluebunch wheatgrass	AGSP	X	40-60	20-30	---	---	---
Bluegrass	POA++	X	2-10	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	2-10	---	---	---
Basin wildrye	ELCI2	---	2-5	2-15	50-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Indian ricegrass	ORHY	---	---	---	---	20-30	---
Needleandthread	STCO4	---	---	---	---	10-20	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	---
Other perennial grasses	PPGG	X	---	---	15-20	---	---
Tapertip hawksbeard	CRAC2	X	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	X	2-5	1-5	---	---	---
Other perennial forbs	PPFF	X	---	---	5-10	2-5	---
Big sagebrush	ARTR2	X	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	15-20	---
Mountain big sagebrush	ARVA2	---	T-5	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	X	---	---	2-5	5-15	---
Singleleaf pinyon	PIMO	X	---	---	---	---	---
Range site symbol		---	O24XO28N	O24XO21N	O25XO03N	O28BO10N	None
Woodland site symbol		O25XO61N	---	---	---	---	None
Potential production (lb/acre):							
Favorable years		500	1,000	1,400	2,500	800	---
Normal years		375	700	1,000	1,900	600	---
Unfavorable years		250	500	700	1,200	400	---

3137--Itca-Reluctan-Walti 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--			
		Itca	Reluctan	Walti	1	2	3	4
Idaho fescue	FEID	X	20-40	25-50	1-10	---	10-20	---
Bluebunch wheatgrass	AGSP	X	20-30	15-30	20-50	---	---	---
Bluegrass	POA++	X	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	5-10	---	---	50-60
Thurber needlegrass	STTH2	---	2-10	2-10	2-5	---	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---	---
Mountain brome	BRCA5	---	---	---	2-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	5-10	---
Webber ricegrass	STWE	---	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	X	---	---	---	---	---	15-20
Tapertip hawksbeard	CRAC2	X	1-5	---	2-5	---	---	---
Arrowleaf balsamroot	BASA3	X	1-5	---	2-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	---	---	---	---	---	5-10
Big sagebrush	ARTR2	X	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	5-15	---	1-5	---
Low sagebrush	ARAR8	---	---	10-20	---	---	5-15	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	X	---	---	---	---	---	2-5
Singleleaf pinyon	PIMO	X	---	---	---	---	---	---
Range site symbol		---	024X021N	024X027N	024X029N	None	024X016N	025X003N
Woodland site symbol		025X061N	---	---	---	None	---	---
Potential production (lb/acre):								
Favorable years		500	1,400	1,200	1,500	---	350	2,500
Normal years		375	1,000	800	1,100	---	250	1,900
Unfavorable years		250	700	600	800	---	150	1,200

3140--Sodhouse-Tenabo-Desatoya 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--		
		Sodhouse	Tenabo	Desatoya Variant	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	5-10	5-15	---
Indian ricegrass	ORHY	5-15	5-15	10-15	20-30	5-15	10-15
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-5	---
Needleandthread	STCO4	1-3	1-3	---	10-20	1-3	---
Thurber needlegrass	STTH2	---	---	10-15	---	---	10-15
Bluegrass	POA++	---	---	2-10	---	---	2-10
Other perennial grasses	PPGG	---	---	5-20	---	---	5-20
Globemallow	SPHAE	---	---	2-5	---	---	2-5
Other perennial forbs	PPFF	2-8	2-8	---	2-5	2-8	---
Shadscale	ATCO	30-40	30-40	---	---	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	---	---	20-30	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	---
Winterfat	EULA5	2-5	2-5	---	---	2-5	---
Black sagebrush	ARARN	---	---	25-35	---	---	25-35
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	---
Other shrubs	SSSS	2-5	2-5	5-35	5-15	2-5	5-35
Range site symbol		O24XO02N	O24XO02N	O24XO30N	O28BO10N	O24XO02N	O24XO30N
Potential production (lb/acre):							
Favorable years		700	700	500	800	700	500
Normal years		450	450	350	600	450	350
Unfavorable years		300	300	250	400	300	250

3151--Robson-Ninemile-Ravenswood association

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--			
		Robson	Ninemile	Ravenswood	1	2	3	4
rber needlegrass	STTH2	5-15	2-5	---	---	5-10	---	---
ian ricegrass	ORHY	5-10	2-5	---	---	---	---	---
dberg bluegrass	POSE	5-10	---	---	---	---	---	---
ebunch wheatgrass	AGSP	2-5	5-15	X	---	10-15	---	---
tlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
e bluegrass	POSC	---	5-10	---	---	---	---	---
no fescue	FEID	---	---	X	---	---	---	---
egrass	POA++	---	---	X	---	---	---	---
in wildrye	ELCI2	---	---	---	---	5-10	30-50	---
ada bluegrass	PONE3	---	---	---	---	---	2-5	---
tern wheatgrass	AGSM	---	---	---	---	---	2-5	---
er perennial grasses	PPGG	---	10-15	X	---	10-15	15-25	---
ertip hawksbeard	CRAC2	---	---	X	---	---	---	---
owleaf balsamroot	BASA3	---	---	X	---	---	---	---
er perennial forbs	PPFF	5-10	10-15	X	---	5-15	2-5	---
sagebrush	ARAR8	25-30	25-30	---	---	---	---	---
sagebrush	ARTR2	---	---	X	---	---	---	---
tain big sagebrush	ARVA2	---	---	---	---	15-25	---	---
serviceberry	AMUT	---	---	---	---	3-10	---	---
lope bitterbrush	PUTR2	---	---	---	---	2-8	---	---
n big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
r shrubs	SSSS	10-15	10-20	X	---	15-20	5-10	---
leleaf pinyon	PIMO	---	---	X	---	---	---	---
e site symbol		028B045N	028B037N	---	None	028B027N	028B003N	None
land site symbol		---	---	025X061N	None	---	---	None
ntial production (lb/acre):								
orable years		800	700	500	---	900	2,600	---
mal years		600	500	375	---	600	2,250	---
avorable years		400	300	250	---	300	800	---

3153--Robson-Locane-Softscrabble 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--		
		Robson	Locane	Softscrabble	1	2	3
Bluebunch wheatgrass	AGSP	15-20	5-10	20-30	---	---	---
Thurber needlegrass	STTH2	15-20	20-50	2-10	---	---	---
Webber ricegrass	STWE	5-10	---	---	---	---	---
Sandberg bluegrass	POSE	5-8	---	---	---	---	---
Pine bluegrass	POSC	5-8	---	---	---	---	---
Cusick bluegrass	POCU3	5-8	---	---	---	---	---
Idaho fescue	FEID	---	---	20-40	---	---	---
Basin wildrye	ELCI2	---	---	2-15	30-50	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---
Other perennial grasses	PPGG	---	---	---	5-15	---	---
Balsamroot	BALSA	2-5	2-4	---	---	---	---
Eriogonum	ERIOG	1-3	---	---	---	---	---
Phlox	PHLOX	1-3	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	1-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	---	---	---
Other perennial forbs	PPFF	---	---	---	5-10	---	---
Low sagebrush	ARAR8	20-30	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	---	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Other shrubs	SSSS	---	2-10	---	5-10	---	---
Range site symbol		O24XO18N	O24XO05N	O24XO21N	O28BO24N	None	None
Potential production (lb/acre):							
Favorable years		700	800	1,400	2,800	---	---
Normal years		500	600	1,000	1,700	---	---
Unfavorable years		300	400	700	1,000	---	---

3154--Robson-Locane-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--		
		Robson	Locane	Rock outcrop	1	2	3
Bluebunch wheatgrass	AGSP	15-20	5-10	---	---	15-30	X
Thurber needlegrass	STTH2	15-20	20-50	---	---	2-10	---
Webber ricegrass	STWE	5-10	---	---	---	---	---
Sandberg bluegrass	POSE	5-8	---	---	---	---	---
Pine bluegrass	POSC	5-8	---	---	---	---	---
Cusick bluegrass	POCU3	5-8	---	---	---	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Idaho fescue	FEID	---	---	---	---	25-50	X
Spike fescue	LEKI2	---	---	---	---	2-10	---
Bluegrass	POA++	---	---	---	---	---	X
Other perennial grasses	PPGG	---	---	---	15-20	---	X
Balsamroot	BALSA	2-5	2-4	---	---	2-5	---
Eriogonum	ERIOG	1-3	---	---	---	---	---
Phlox	PHLOX	1-3	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---	X
Arrowleaf balsamroot	BASA3	---	---	---	---	---	X
Other perennial forbs	PPFF	---	---	---	5-10	---	X
Low sagebrush	ARAR8	20-30	---	---	---	10-20	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	---	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	---	X
Other shrubs	SSSS	---	2-10	---	2-5	---	X
Singleleaf pinyon	PIMO	---	---	---	---	---	X
Range site symbol		024X018N	024X005N	None	025X003N	024X027N	---
Woodland site symbol		---	---	None	---	---	025X061N
Potential production (lb/acre):							
Favorable years		700	800	---	2,500	1,200	500
Normal years		500	600	---	1,900	800	375
Unfavorable years		300	400	---	1,200	600	250

3155--Robson-Itca-Softscrabble 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--			
		Robson	Itca	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	15-20	X	20-30	20-30	---	---	X
Thurber needlegrass	STTH2	15-20	---	2-10	15-25	---	---	X
Webber ricegrass	STWE	5-10	---	---	---	---	---	---
Sandberg bluegrass	POSE	5-8	---	---	---	---	---	---
Pine bluegrass	POSC	5-8	---	---	---	---	---	---
Cusick bluegrass	POCU3	5-8	---	---	---	---	---	---
Idaho fescue	FEID	---	X	20-40	---	---	---	X
Bluegrass	POA++	---	X	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-15	---	---	30-50	X
Nevada bluegrass	PONE3	---	---	---	2-10	---	5-10	X
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	X	---	10-15	---	5-15	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Eriogonum	ERIOG	1-3	---	---	---	---	---	---
Phlox	PHLOX	1-3	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	X	1-5	2-5	---	---	X
Arrowleaf balsamroot	BASA3	---	X	1-5	2-5	---	---	X
Other perennial forbs	PPFF	---	X	---	2-5	---	5-10	---
Low sagebrush	ARAR8	20-30	---	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	10-15	---	---	X
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	0-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Snowberry	SYMPH	---	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	---	X
Other shrubs	SSSS	---	X	---	5-10	---	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---	X
Utah juniper	JUOS	---	---	---	---	---	---	X
Range site symbol		024X018N	---	024X021N	025X014N	None	028B024N	---
Woodland site symbol		---	025X061N	---	---	None	---	025X062N
Potential production (lb/acre):								
Favorable years		700	500	1,400	1,000	---	2,800	500
Normal years		500	375	1,000	800	---	1,700	350
Unfavorable years		300	250	700	600	---	1,000	200

3170--Teguro-Rubble land-Punchbowl 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--		
		Teguro	Rubble land	Punchbowl	1	2	3
Bluebunch wheatgrass	AGSP	X	---	---	---	X	---
Basin wildrye	ELCI2	X	---	---	---	X	---
Thurber needlegrass	STTH2	X	---	10-15	10-15	X	---
Nevada bluegrass	PONE3	X	---	---	---	X	---
Idaho fescue	FEID	X	---	---	---	X	---
Indian ricegrass	ORHY	---	---	10-15	10-15	---	---
Bluegrass	POA++	---	---	2-10	2-10	---	---
Other perennial grasses	PPGG	---	---	5-20	5-20	---	---
Tapertip hawksbeard	CRAC2	X	---	---	---	X	---
Arrowleaf balsamroot	BASA3	X	---	---	---	X	---
Globemallow	SPHAE	---	---	2-5	2-5	---	---
Big sagebrush	ARTR2	X	---	---	---	X	---
Snowberry	SYMPH	X	---	---	---	X	---
Currant	RIBES	X	---	---	---	X	---
Black sagebrush	ARARN	---	---	25-35	25-35	---	---
Other shrubs	SSSS	---	---	5-35	5-35	---	---
Singleleaf pinyon	PIMO	X	---	---	---	X	---
Utah juniper	JUOS	X	---	---	---	X	---
Range site symbol		---	None	024X030N	024X030N	---	None
Woodland site symbol		025X062N	None	---	---	025X062N	None
Potential production (lb/acre):							
Favorable years		500	---	500	500	500	---
Normal years		350	---	350	350	350	---
Unfavorable years		200	---	250	250	200	---

3181--Newlands-Packer-Hapgood association, moderately steep

[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--		
		Newlands	Packer	Hapgood	1	2	3
Mountain brome	BRCA5	15-20	---	10-15	---	---	---
Idaho fescue	FEID	10-15	10-20	5-15	10-20	---	X
Letterman needlegrass	STLE4	5-10	---	---	---	---	---
Spike fescue	LEKI2	5-10	---	2-15	---	---	---
Webber ricegrass	STWE	---	5-10	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	---	---
Cusick bluegrass	POCU3	---	2-5	---	2-5	---	---
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	---
Pine bluegrass	POSC	---	2-5	---	2-5	---	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	X
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	X
Nevada bluegrass	PONE3	---	---	2-5	---	---	---
Mountain brome	BRCA5	---	---	---	---	---	X
Other perennial grasses	PPGG	5-15	---	---	---	---	X
Goldenweed	HAPLO2	---	2-5	---	2-5	---	---
Phlox	PHLOX	---	2-5	---	2-5	---	---
Geranium	GERAN	---	---	2-5	---	---	X
Groundsel	SENEC	---	---	2-5	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	X
Horsemint	AGUR	---	---	---	---	---	X
Columbine	AQUIL	---	---	---	---	---	X
Meadowrue	THALI2	---	---	---	---	---	X
Sweet cicely	OSMOR	---	---	---	---	---	X
Other perennial forbs	PPFF	5-10	---	---	---	---	X
Mountain big sagebrush	ARVA2	10-20	1-5	5-10	1-5	---	---
Utah serviceberry	AMUT	5-10	---	---	---	---	---
Snowberry	SYMPH	5-10	---	2-10	---	---	X
Low sagebrush	ARAR8	---	5-15	---	5-15	---	---
Black sagebrush	ARARN	---	5-15	---	5-15	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	X
Other shrubs	SSSS	---	---	---	---	---	X
Quaking aspen	POTR5	---	---	---	---	---	X

Range site symbol	028B029N	024X016N	024X032N	024X016N	None	---
Woodland site symbol	---	---	---	---	None	025X065N
Potential production (lb/acre):						
Favorable years	1,500	350	2,200	350	---	800
Normal years	900	250	1,700	250	---	600
Unfavorable years	650	150	1,200	150	---	400

3182--Newlands-Packer-Hapgood association, strongly sloping

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Newlands	Packer	Hapgood	1	2	3
Mountain brome	BRCA5	15-20	---	10-15	---	---	---
Idaho fescue	FEID	10-15	10-20	5-15	---	10-20	---
Letterman needlegrass	STLE4	5-10	---	---	---	---	---
Spike fescue	LEKI2	5-10	---	2-15	---	---	---
Webber ricegrass	STWE	---	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	5-10	---
Cusick bluegrass	POCU3	---	2-5	---	---	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---
Pine bluegrass	POSC	---	2-5	---	---	2-5	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	---	---	---	---	2-10
Goldenweed	HAPLO2	---	2-5	---	---	2-5	---
Phlox	PHLOX	---	2-5	---	---	2-5	---
Geranium	GERAN	---	---	2-5	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	---	---	---	---	10-20
Mountain big sagebrush	ARVA2	10-20	1-5	5-10	---	1-5	---
Utah serviceberry	AMUT	5-10	---	---	---	---	---
Snowberry	SYMPH	5-10	---	2-10	---	---	---
Low sagebrush	ARAR8	---	5-15	---	---	5-15	---
Black sagebrush	ARARN	---	5-15	---	---	5-15	---
Serviceberry	AMELA	---	---	5-10	---	---	---
Willow	SALIX	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	2-5

Range site symbol	O28BO29N	O24XO16N	O24XO32N	None	O24XO16N	O25XO05N
Potential production (lb/acre):						
Favorable years	1,500	350	2,200	---	350	2,000
Normal years	900	250	1,700	---	250	1,700
Unfavorable years	650	150	1,200	---	150	1,000

3190--Softscrabble-Clanalpine-Walti 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--			
		Softscrabble	Clanalpine	Walti	1	2	3	4
Idaho fescue	FEID	20-40	X	25-50	X	---	10-20	---
Bluebunch wheatgrass	AGSP	20-30	X	15-30	X	---	---	---
Basin wildrye	ELCI2	2-15	---	---	X	20-40	---	---
Thurber needlegrass	STTH2	2-10	---	2-10	X	---	---	---
Bluegrass	POA++	---	X	---	---	---	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---	---
Webber ricegrass	STWE	---	---	---	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	---	X	---	---	---	---	---
Tapertip hawksbeard	CRAC2	1-5	X	---	X	---	---	---
Arrowleaf balsamroot	BASA3	1-5	X	---	X	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	X	---	---	2-8	---	---
Mountain big sagebrush	ARVA2	5-15	---	---	---	---	1-5	---
Big sagebrush	ARTR2	---	X	---	X	---	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	5-15	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---	---
Snowberry	SYMPH	---	---	---	X	---	---	---
Currant	RIBES	---	---	---	X	---	---	---
Torrey quailbush	ATTO	---	---	---	---	30-50	---	---
Black greasewood	SAVE4	---	---	---	---	5-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	2-10	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15	---
Other shrubs	SSSS	---	X	---	---	---	---	---
Singleleaf pinyon	PIMO	---	X	---	X	---	---	---
Utah juniper	JUOS	---	---	---	X	---	---	---

Range site symbol	024X021N	---	024X027N	---	024X015N	024X016N	None
Woodland site symbol	---	025X061N	---	025X027N	---	---	None
Potential production (lb/acre):							
Favorable years	1,400	500	1,200	500	1,500	350	---
Normal years	1,000	375	800	350	1,200	250	---
Unfavorable years	700	250	600	200	800	150	---

3192--Softscrabble-Walti-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--			
		Softscrabble	Walti	Cleavage	1	2	3	4
Idaho fescue	FEID	20-40	25-50	10-20	X	1-10	---	---
Bluebunch wheatgrass	AGSP	20-30	15-30	---	X	20-50	---	---
Basin wildrye	ELCI2	2-15	---	---	---	5-10	---	---
Thurber needlegrass	STTH2	2-10	2-10	---	---	2-5	---	---
Spike fescue	LEKI2	---	2-10	---	---	---	---	---
Webber ricegrass	STWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	2-5	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---	---
Bluegrass	POA++	---	---	---	X	---	---	---
Mountain brome	BRCA5	---	---	---	---	2-15	---	---
Other perennial grasses	PPGG	---	---	---	X	---	---	---
Tapertip hawksbeard	CRAC2	1-5	---	---	X	2-5	---	---
Arrowleaf balsamroot	BASA3	1-5	---	---	X	2-5	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	X	---	---	---
Mountain big sagebrush	ARVA2	5-15	---	1-5	---	5-15	---	---
Low sagebrush	ARAR8	---	10-20	5-15	---	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Big sagebrush	ARTR2	---	---	---	X	---	---	---
Other shrubs	SSSS	---	---	---	X	---	---	---
Singleleaf pinyon	PIMO	---	---	---	X	---	---	---
Range site symbol		024X021N	024X027N	024X016N	---	024X029N	None	None
Woodland site symbol		---	---	---	025X061N	---	None	None
Potential production (lb/acre):								
Favorable years		1,400	1,200	350	500	1,500	---	---
Normal years		1,000	800	250	375	1,100	---	---
Unfavorable years		700	600	150	250	800	---	---

3200--Dewar gravelly loam, 2 to 8 percent slopes

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Dewar	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO10N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

3210--Typic Argixerolls-Torripsammentic Haploxerolls-Glean 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--		
		Typic Argixerolls	Torripsammentic Haploxerolls	Glean	1	2	3
Idaho fescue	FEID	20-40	X	30-60	20-40	---	---
Bluebunch wheatgrass	AGSP	20-30	X	5-10	20-30	20-30	---
Basin wildrye	ELCI2	2-15	---	---	2-15	---	---
Thurber needlegrass	STTH2	2-10	---	---	2-10	15-25	---
Bluegrass	POA++	---	X	---	---	---	---
Cusick bluegrass	POCU3	---	---	5-10	---	---	---
Mountain brome	BRCA5	---	---	2-5	---	---	---
Sedge	CAREX	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-10	---
Other perennial grasses	PPGG	---	X	---	---	10-15	---
Tapertip hawksbeard	CRAC2	1-5	X	1-3	1-5	2-5	---
Arrowleaf balsamroot	BASA3	1-5	X	---	1-5	2-5	---
Lupine	LUPIN	---	---	1-2	---	---	---
Other perennial forbs	PPFF	---	X	---	---	2-5	---
Mountain big sagebrush	ARVA2	5-15	---	5-15	5-15	---	---
Big sagebrush	ARTR2	---	X	---	---	10-15	---
Snowberry	SYMPH	---	---	2-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	0-10	---
Other shrubs	SSSS	---	X	---	---	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---
Range site symbol		024X021N	---	024X023N	024X021N	025X014N	None
Woodland site symbol		---	025X061N	---	---	---	None
Potential production (lb/acre):							
Favorable years		1,400	500	1,500	1,400	1,000	---
Normal years		1,000	375	1,200	1,000	800	---
Unfavorable years		700	250	900	700	600	---

3231--Stingdorn-Hooplite 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--		
		Stingdorn, moderately steep	Stingdorn, moderately sloping	Hooplite	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15	---
Needleandthread	STCO4	5-10	5-10	5-15	---	5-15	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	1-3	---	1-3	---
Galleta	HIJA	---	---	---	5-20	---	---
Needlegrass	STIPA	---	---	---	5-10	---	---
Other perennial grasses	PPGG	5-10	5-10	5-10	5-10	5-10	---
Perennial forbs	PPFF	5-10	5-10	5-15	5-10	5-15	---
Shadscale	ATCO	30-40	30-40	---	15-25	---	---
Bud sagebrush	ARSP5	5-10	5-10	2-5	---	2-5	---
Winterfat	EULA5	2-5	2-5	---	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	2-5	---	2-5	---
Black sagebrush	ARARN	---	---	20-25	---	20-25	---
Bailey greasewood	SAVEB	---	---	---	5-15	---	---
Nevada ephedra	EPNE	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	10-20	10-20	10-20	---
Range site symbol		O28B017N	O28B017N	O28B016N	O29X022N	O28B016N	None
Potential production (lb/acre):							
Favorable years		700	700	500	300	500	---
Normal years		500	500	250	200	250	---
Unfavorable years		250	250	150	100	150	---

3251--Caphor-Tenabo-Spasprey 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--	
		Caphor	Tenabo	Spasprey	1	2
Indian ricegrass	ORHY	5-15	5-15	20-30	20-30	15-25
Needleandthread	STCO4	5-10	5-10	10-20	10-20	---
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	5-10	2-5
Sandberg bluegrass	POSE	---	---	2-5	2-5	---
Thurber needlegrass	STTH2	---	---	---	---	5-10
Other perennial grasses	PPGG	5-10	5-10	---	---	---
Scarlet globemallow	SPCO	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	5-10	2-5	2-5	---
Shadscale	ATCO	30-40	30-40	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	---	---	5-10
Winterfat	EULA5	2-5	2-5	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	15-20	15-25
Spiny hopsage	GRSP	---	---	---	---	20-30
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10
Range site symbol		028B017N	028B017N	028B010N	028B010N	028B052N
Potential production (lb/acre):						
Favorable years		700	700	800	800	600
Normal years		500	500	600	600	400
Unfavorable years		250	250	400	400	300

3252--Caphor-Batan-Unsel association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Caphor	Batan	Unsel	1	2
Bottlebrush squirreltail	SIHY	5-10	5-10	2-5	5-10	---
Galleta	HIJA	---	---	10-25	---	---
Indian ricegrass	ORHY	---	---	5-10	---	---
Desert needlegrass	STSP3	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	5-15
Other perennial grasses	PPGG	T-10	T-10	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	4-10	2-8	2-8
Shadscale	ATCO	30-50	30-50	10-25	30-50	---
Black greasewood	SAVE4	15-30	15-30	---	15-30	2-10
Bud sagebrush	ARSP5	5-15	5-15	5-10	5-15	---
Seepweed	SUAED	2-15	2-15	---	2-15	---
Bailey greasewood	SAVEB	---	---	5-15	---	---
Winterfat	EULA5	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-20
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5

Range site symbol	O24XO03N	O24XO03N	O29XO17N	O24XO03N	O24XO06N
Potential production (lb/acre):					
Favorable years	600	600	350	600	1,500
Normal years	450	450	250	450	1,100
Unfavorable years	300	300	100	300	600

3253--Caphor association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Caphor	Caphor, moderately saline	1	2
Indian ricegrass	ORHY	5-15	---	20-30	5-15
Needleandthread	STCO4	5-10	---	10-20	---
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	2-10
Sandberg bluegrass	POSE	---	---	2-5	2-5
Other perennial grasses	PPGG	5-10	T-10	---	---
Globemallow	SPHAE	---	---	---	1-4
Phlox	PHLOX	---	---	---	1-4
Other perennial forbs	PPFF	5-10	2-8	2-5	---
Shadscale	ATCO	30-40	30-50	---	2-5
Bud sagebrush	ARSP5	5-10	5-15	---	20-30
Winterfat	EULA5	2-5	---	---	20-40
Fourwing saltbush	ATCA2	2-5	---	---	---
Black greasewood	SAVE4	---	15-30	---	---
Seepweed	SUAED	---	2-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---
Other shrubs	SSSS	5-15	---	5-15	---

Range site symbol	028B017N	024X003N	028B010N	024X014N
Potential production (lb/acre):				
Favorable years	700	600	800	400
Normal years	500	450	600	300
Unfavorable years	250	300	400	200

3270--Koyen fine sandy loam, 2 to 4 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--
		Koyen	1
Galleta	HIJA	10-25	---
Indian ricegrass	ORHY	5-10	5-10
Bottlebrush squirreltail	SIHY	2-5	---
Desert needlegrass	STSP3	2-5	---
Other perennial grasses	PPGG	---	5-10
Perennial forbs	PPFF	4-10	2-6
Shadscale	ATCO	10-25	---
Bailey greasewood	SAVEB	5-15	2-10
Bud sagebrush	ARSP5	5-10	---
Winterfat	EULA5	5-10	---
Rubber rabbitbrush	CHNA2	---	10-25
Fourwing saltbush	ATCA2	---	5-15
Burrobrush	HYMEN3	---	5-10
Littleleaf horsebrush	TEGL	---	5-10
Other shrubs	SSSS	---	10-20
Range site symbol		O29XO17N	O29XO41N
Potential production (lb/acre):			
Favorable years		350	500
Normal years		250	300
Unfavorable years		100	100

3310--Spasprey-Allor 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--		
		Spasprey	Allor	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	10-20
Needleandthread	STCO4	10-20	10-20	10-20	---	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	2-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Pine bluegrass	POSC	---	---	---	5-15	---
Other perennial grasses	PPGG	---	---	---	5-10	---
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	10-20	---
Spiny hopsage	GRSP	---	---	---	10-20	---
Nevada ephedra	EPNE	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	---	60-70
Bud sagebrush	ARSP5	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	---	---
Range site symbol		028B010N	028B010N	028B010N	027X008N	024X004N
Potential production (lb/acre):						
Favorable years		800	800	800	700	500
Normal years		600	600	600	500	350
Unfavorable years		400	400	400	300	200

3312--Spasprey-Buffaran-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--		
		Spasprey	Buffaran	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	15-25	15-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	5-10	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	---	2-5	---
Thurber needlegrass	STTH2	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	---	5-15
Globemallow	SPHAE	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---	15-30
Black sagebrush	ARARN	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	5-10	---
Bud sagebrush	ARSP5	---	---	---	---	2-5	---
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Shadscale	ATCO	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	---	2-5
Range site symbol		O28BO10N	O28BO10N	O28BO10N	O28BO10N	O28BO11N	O24XO45N
Potential production (lb/acre):							
Favorable years		800	800	800	800	950	350
Normal years		600	600	600	600	700	200
Unfavorable years		400	400	400	400	400	100

3314--Spasprey-Allor-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--		
		Spasprey	Allor	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	20-30	5-15
Needleandthread	STCO4	10-20	10-20	10-20	10-20	10-20	1-3
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-10	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	15-20	---
Shadscale	ATCO	---	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	---	20-30
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	2-5
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B010N	024X002N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	700
Normal years		600	600	600	600	600	450
Unfavorable years		400	400	400	400	400	300

3341--Halacan-Hatur-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--	
		Halacan	Hatur	Rock outcrop	1	2
Idaho fescue	FEID	10-20	10-15	---	30-60	---
Webber ricegrass	STWE	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	5-10	---
Sandberg bluegrass	POSE	2-5	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---
Mountain brome	BRCA5	---	15-20	---	---	---
Letterman needlegrass	STLE4	---	5-10	---	---	---
Spike fescue	LEKI2	---	5-10	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	2-10	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Western wheatgrass	AGSM	---	---	---	---	5-10
Nevada bluegrass	PONE3	---	---	---	---	5-10
Other perennial grasses	PPGG	---	5-15	---	---	5-15
Goldenweed	HAPLO2	2-5	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-10	---	---	5-10
Low sagebrush	ARAR8	5-15	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	10-20	---
Mountain big sagebrush	ARVA2	1-5	10-20	---	---	---
Utah serviceberry	AMUT	---	5-10	---	---	---
Snowberry	SYMPH	---	5-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-10

Range site symbol	O24XO16N	O28BO29N	None	24XO42N	O28BO24N
Potential production (lb/acre):					
Favorable years	350	1,500	---	1,000	2,800
Normal years	250	900	---	800	1,700
Unfavorable years	150	650	---	500	1,000

3342--Halacan-Hapgood-Granzan 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--			
		Halacan	Hapgood	Granzan	1	2	3	4
Idaho fescue	FEID	10-20	5-15	---	30-60	---	---	---
Webber ricegrass	STWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	5-10	---	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---	---
Mountain brome	BRCA5	---	10-15	---	---	---	---	---
Slender wheatgrass	AGTR	---	20-30	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	5-10	10-15	2-10	---	---	---
Spike fescue	LEKI2	---	2-15	---	---	---	---	---
Bulbous oniongrass	MEBU	---	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	---	---	---	---
Letterman needlegrass	STLE4	---	---	---	---	---	60-70	---
Columbia needlegrass	STNE3	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	10-15	---	---	2-5	---
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Geranium	GERAN	---	2-5	---	---	---	---	---
Groundsel	SENEC	---	2-5	---	---	---	---	---
Lupine	LUPIN	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---	---
Tailcup lupine	LUCA	---	---	---	---	---	20-40	---
Other perennial forbs	PPFF	---	---	5-15	---	---	---	---
Low sagebrush	ARAR8	5-15	---	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	10-20	---	---	---
Mountain big sagebrush	ARVA2	1-5	5-10	15-25	---	---	---	---
Serviceberry	AMELA	---	5-10	---	---	---	---	---
Snowberry	SYMPH	---	2-10	---	---	---	---	---
Thurber needlegrass	STTH2	---	---	5-10	---	---	---	---
Utah serviceberry	AMUT	---	---	3-10	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	2-8	---	---	---	---
Other shrubs	SSSS	---	---	15-20	---	---	---	---

Range site symbol	024X016N	024X032N	028B027N	024X042N	None	025X028N	None
Potential production (lb/acre):							
Favorable years	350	2,200	900	1,000	---	1,000	---
Normal years	250	1,700	600	800	---	800	---
Unfavorable years	150	1,200	300	500	---	500	---

3411--Zoesta-Robson-Softscrabble 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--			
		Zoesta	Robson	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	15-20	15-20	20-30	---	15-30	---	---
Thurber needlegrass	STTH2	15-20	15-20	2-10	---	2-10	---	---
Webber ricegrass	STWE	5-10	5-10	---	---	---	---	5-10
Sandberg bluegrass	POSE	5-8	5-8	---	---	---	---	2-5
Pine bluegrass	POSC	5-8	5-8	---	---	---	---	2-5
Cusick bluegrass	POCU3	5-8	5-8	---	---	---	---	2-5
Idaho fescue	FEID	---	---	20-40	---	25-50	---	10-20
Basin wildrye	ELCI2	---	---	2-15	30-50	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Spike fescue	LEKI2	---	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	5-15	---	---	---
Balsamroot	BALSA	2-5	2-5	---	---	2-5	---	---
Eriogonum	ERIOG	1-3	1-3	---	---	---	---	---
Phlox	Phlox	1-3	1-3	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	---	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	5-10	---	---	---
Low sagebrush	ARAR8	20-30	20-30	---	---	10-20	---	5-15
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---	1-5
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---	---
Black sagebrush	ARARN	---	---	---	---	---	---	5-15
Other shrubs	SSSS	---	---	---	5-10	---	---	---

Range site symbol	024X018N	024X018N	024X021N	028B024N	024X027N	None	024X016N
Potential production (lb/acre):							
Favorable years	700	700	1,400	2,800	1,200	---	350
Normal years	500	500	1,000	1,700	800	---	250
Unfavorable years	300	300	700	1,000	600	---	150

3415--Zoesta-Handy 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--		
		Zoesta	Handy	1	2	3
Bluebunch wheatgrass	AGSP	15-20	20-30	20-30	---	15-20
Thurber needlegrass	STTH2	15-20	15-25	15-25	---	15-20
Webber ricegrass	STWE	5-10	---	---	---	5-10
Sandberg bluegrass	POSE	5-8	---	---	---	5-8
Pine bluegrass	POSC	5-8	---	---	---	5-8
Cusick bluegrass	POCU3	5-8	---	---	---	5-8
Nevada bluegrass	PONE3	---	2-10	2-10	5-15	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Balsamroot	BALSA	2-5	---	---	---	2-5
Other perennial grasses	PPGG	---	10-15	10-15	15-20	---
Eriogonum	ERIOG	1-3	---	---	---	1-3
Phlox	PHOLX	1-3	---	---	---	1-3
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	2-5	---	---
Other perennial forbs	PPFF	---	2-5	2-5	5-10	---
Low sagebrush	ARAR8	20-30	---	---	---	20-30
Big sagebrush	ARTR2	---	10-15	10-15	---	---
Antelope bitterbrush	PUTR2	---	0-10	0-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	---	5-10	5-10	2-5	---

Range site symbol	024X018N	025X014N	025X014N	025X003N	024X018N
Potential production (lb/acre):					
Favorable years	700	1,000	1,000	2,500	700
Normal years	500	800	800	1,900	500
Unfavorable years	300	600	600	1,200	300

3417--Zoesta-Roca-Softscrabble association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Zoesta	Roca	Softscrabble	1	2	3
Bluebunch wheatgrass	AGSP	15-20	40-60	20-30	---	20-30	15-20
Thurber needlegrass	STTH2	15-20	5-10	2-10	---	15-25	15-20
Webber ricegrass	STWE	5-10	---	---	---	---	5-10
Sandberg bluegrass	POSE	5-8	---	---	---	---	5-8
Pine bluegrass	POSC	5-8	---	---	---	---	5-8
Cusick bluegrass	POCU3	5-8	---	---	---	---	5-8
Bluegrass	POA++	---	2-10	---	---	---	---
Basin wildrye	ELCI2	---	2-5	2-15	30-50	---	---
Idaho fescue	FEID	---	---	20-40	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	2-10	---
Other perennial grasses	PPGG	---	---	---	5-15	10-15	---
Balsamroot	BALSA	2-5	---	---	---	---	2-5
Eriogonum	ERIOG	1-3	---	---	---	---	1-3
Phlox	PHLOX	1-3	---	---	---	---	1-3
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	1-5	---	2-5	---
Other perennial forbs	PPFF	---	---	---	5-10	2-5	---
Low sagebrush	ARAR8	20-30	---	---	---	---	20-30
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	T-5	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Big sagebrush	ARTR2	---	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	---	---	0-10	---
Other shrubs	SSSS	---	---	---	5-10	5-10	---

Range site symbol	O24XO18N	O24XO28N	O24XO21N	O28BO24N	O25XO14N	O24XO18N
Potential production (lb/acre):						
Favorable years	700	1,000	1,400	2,800	1,000	700
Normal years	500	700	1,000	1,700	800	500
Unfavorable years	300	500	700	1,000	600	300

3421--Belate-Softscrabble-Torro 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--			
		Belate	Softscrabble	Torro	1	2	3	4
Idaho fescue	FEID	25-50	20-40	1-10	10-20	---	---	---
Bluebunch wheatgrass	AGSP	15-30	20-30	20-50	---	---	---	---
Thurber needlegrass	STTH2	2-10	2-10	2-5	---	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	5-10	---	30-50	---	---
Mountain brome	BRCA5	---	---	2-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	5-10	---	---	---
Webber ricegrass	STWE	---	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---	---
Western wheatgrass	AGSM	---	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	5-15	---	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	1-5	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	---	5-10	---	10-20
Low sagebrush	ARAR8	10-20	---	---	5-15	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	5-15	1-5	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-10	---	2-5

Range site symbol	O24XO27N	O24XO21N	O24XO29N	O24XO16N	O28BO24N	None	O25XO05N
Potential production (lb/acre):							
Favorable years	1,200	1,400	1,500	350	2,800	---	2,000
Normal years	800	1,000	1,100	250	1,700	---	1,700
Unfavorable years	600	700	800	150	1,000	---	1,000

3422--Belate-Robson-Torro 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--			
		Belate	Robson	Torro	1	2	3	4
Idaho fescue	FEID	25-50	---	1-10	20-40	---	---	---
Bluebunch wheatgrass	AGSP	15-30	15-20	20-50	20-30	---	---	---
Thurber needlegrass	STTH2	2-10	15-20	2-5	2-10	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Webber ricegrass	STWE	---	5-10	---	---	---	---	---
Sandberg bluegrass	POSE	---	5-8	---	---	---	---	---
Pine bluegrass	POSC	---	5-8	---	---	---	---	---
Cusick bluegrass	POCU3	---	5-8	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	2-15	---	30-50	---
Mountain brome	BRCA5	---	---	2-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	5-15	2-10
Balsamroot	BALSA	2-5	2-5	---	---	---	---	---
Eriogonum	ERIOG	---	1-3	---	---	---	---	---
Phlox	PHLOX	---	1-3	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	1-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	---	---	5-10	10-20
Low sagebrush	ARAR8	10-20	20-30	---	---	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	5-10	2-5

Range site symbol	O24XO27N	O24XO18N	O24XO29N	O24XO21N	None	O28BO24N	O25XO05N
Potential production (lb/acre):							
Favorable years	1,200	700	1,500	1,400	---	2,800	2,000
Normal years	800	500	1,100	1,000	---	1,700	1,700
Unfavorable years	600	300	800	700	---	1,000	1,000

3423--Belate-Cleavage-Softscrabble 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--			
		Belate	Cleavage	Softscrabble	1	2	3	4
Idaho fescue	FEID	25-50	10-20	20-40	1-10	---	---	---
Bluebunch wheatgrass	AGSP	15-30	---	20-30	20-50	---	---	---
Thurber needlegrass	STTH2	2-10	---	2-10	2-5	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Webber ricegrass	STWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	2-5	---	---	---	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	---	---	---
Pine bluegrass	POSC	---	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-15	5-10	---	30-50	---
Mountain brome	BRCA5	---	---	---	2-15	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	5-15	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	2-5	---	---	---
Perennial forbs	PPFF	---	---	---	---	---	5-10	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	---	---	---	10-20
Low sagebrush	ARAR8	10-20	5-15	---	---	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	1-5	5-15	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	5-10	2-5

Range site symbol	024X027N	024X016N	024X021N	024X029N	None	028B024N	025X005N
Potential production (lb/acre):							
Favorable years	1,200	350	1,400	1,500	---	2,800	2,000
Normal years	800	250	1,000	1,100	---	1,700	1,700
Unfavorable years	600	150	700	800	---	1,000	1,000

3450--Reluctan-Robson-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--			
		Reluctan	Robson	Cleavage	1	2	3	4
Idaho fescue	FEID	20-40	---	10-20	---	---	---	---
Bluebunch wheatgrass	AGSP	20-30	15-20	---	---	---	---	10-20
Basin wildrye	ELCI2	2-15	---	---	---	---	30-50	---
Thurber needlegrass	STTH2	2-10	15-20	---	---	---	---	5-15
Webber ricegrass	STWE	---	5-10	5-10	---	---	---	---
Sandberg bluegrass	POSE	---	5-8	2-5	---	---	---	---
Pine bluegrass	POSC	---	5-8	2-5	---	---	---	---
Cusick bluegrass	POCU3	---	5-8	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Indian ricegrass	ORHY	---	---	---	---	---	---	2-10
Bluegrass	POA++	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	---	---	5-15	---
Tapertip hawksbeard	CRAC2	1-5	---	---	---	---	---	2-5
Arrowleaf balsamroot	BASA3	1-5	---	---	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Eriogonum	ERIOG	---	1-3	---	---	---	---	---
Phlox	PHLOX	---	1-3	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	5-10	5-15
Mountain big sagebrush	ARVA2	5-15	---	1-5	---	---	---	---
Low sagebrush	ARAR8	---	20-30	5-15	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	15-30
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	---	---	---	---	5-10	---
Range site symbol		024X021N	024X018N	024X016N	None	None	028B024N	024X031N
Potential production (lb/acre):								
Favorable years		1,400	700	350	---	---	2,800	700
Normal years		1,000	500	250	---	---	1,700	500
Unfavorable years		700	300	150	---	---	1,000	300

3453--Reluctan-Locane-Itca 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--			
		Reluctan	Locane	Itca	1	2	3	4
Idaho fescue	FEID	20-40	---	X	20-40	---	---	---
Bluebunch wheatgrass	AGSP	20-30	15-25	X	20-30	15-20	---	---
Basin wildrye	ELCI2	2-15	---	---	2-15	---	30-50	---
Thurber needlegrass	STTH2	2-10	15-25	---	2-10	15-20	---	---
Bluegrass	POA++	---	---	X	---	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---	---
Pine bluegrass	POSC	---	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	10-20	X	---	---	5-15	---
Tapertip hawksbeard	CRAC2	1-5	2-5	X	1-5	---	---	---
Arrowleaf balsamroot	BASA3	1-5	2-5	X	1-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	---	1-3	---	---
Other perennial forbs	PPFF	---	2-10	X	---	---	5-10	---
Mountain big sagebrush	ARVA2	5-15	5-10	---	5-15	---	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---	---
Big sagebrush	ARTR2	---	---	X	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	2-10	X	---	---	5-10	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---	---

Range site symbol	024X021N	024X035N	---	024X021N	024X018N	028B024N	None
Woodland site symbol	---	---	025X061N	---	---	---	---
Potential production (lb/acre):							
Favorable years	1,400	500	500	1,400	700	2,800	---
Normal years	1,000	400	375	1,000	500	1,700	---
Unfavorable years	700	250	250	700	300	1,000	---

3455--Reluctan-Roca-Colbar association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Reluctan	Roca	Colbar	1	2	3
Idaho fescue	FEID	20-40	---	---	---	20-40	---
Bluebunch wheatgrass	AGSP	20-30	40-60	5-10	---	20-30	2-10
Basin wildrye	ELCI2	2-15	2-5	---	---	2-15	---
Thurber needlegrass	STTH2	2-10	5-10	20-50	---	2-10	10-20
Bluegrass	POA++	---	2-10	---	---	---	---
Indian ricegrass	ORHY	---	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-10
Tapertip hawksbeard	CRAC2	1-5	2-5	2-4	---	1-5	---
Arrowleaf balsamroot	BASA3	1-5	2-5	---	---	1-5	---
Balsamroot	BALSA	---	---	2-4	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	2-8
Mountain big sagebrush	ARVA2	5-15	T-5	---	---	5-15	---
Wyoming big sagebrush	ARTRW*	---	5-10	15-20	---	---	15-25
Downy rabbitbrush	CHVIP	---	---	2-5	---	---	2-5
Spiny hopsage	GRSP	---	---	2-5	---	---	2-10
Ephedra	EPHED	---	---	---	---	---	2-10
Other shrubs	SSSS	---	---	2-10	---	---	---
Range site symbol		O24XO21N	O24XO28N	O24XO05N	None	O24XO21N	O24XO47N
Potential production (lb/acre):							
Favorable years		1,400	1,000	800	---	1,400	400
Normal years		1,000	700	600	---	1,000	300
Unfavorable years		700	500	400	---	700	150

3457--Reluctan-Clanalpine-Roca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Reluctan	Clanalpine	Roca	1	2	3
Idaho fescue	FEID	20-40	X	---	---	---	---
Bluebunch wheatgrass	AGSP	20-30	X	40-60	10-20	---	20-30
Basin wildrye	ELCI2	2-15	---	2-5	---	---	---
Thurber needlegrass	STTH2	2-10	---	5-10	5-15	---	15-25
Bluegrass	POA++	---	X	2-10	2-10	---	---
Indian ricegrass	ORHY	---	---	---	2-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-10
Other perennial grasses	PPGG	---	X	---	---	---	10-15
Tapertip hawksbeard	CRAC2	1-5	X	2-5	2-5	---	2-5
Arrowleaf balsamroot	BASA3	1-5	X	2-5	---	---	2-5
Other perennial forbs	PPFF	---	X	---	5-15	---	2-5
Mountain big sagebrush	ARVA2	5-15	---	T-5	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	10-15
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	---	---
Black sagebrush	ARARN	---	---	---	15-30	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	---	0-10
Other shrubs	SSSS	---	X	---	---	---	5-10
Singleleaf pinyon	PIMO	---	X	---	---	---	---
Range site symbol		024X021N	---	024X028N	024X031N	None	025X014N
Woodland site symbol		---	025X061N	---	---	None	---
Potential production (lb/acre):							
Favorable years		1,400	500	1,000	700	---	1,000
Normal years		1,000	375	700	500	---	800
Unfavorable years		700	250	500	300	---	600

3461--Torro-Rubble land-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--		
		Torro	Rubble land	Cleavage	1	2	3
Bluebunch wheatgrass	AGSP	20-50	---	---	20-30	---	5-15
Basin wildrye	ELCI2	5-10	---	---	2-15	---	2-5
Mountain brome	BRCA5	2-15	---	---	---	---	5-10
Thurber needlegrass	STTH2	2-5	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	5-10	---	---	---
Idaho fescue	FEID	1-10	---	10-20	20-40	---	5-15
Webber ricegrass	STWE	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	2-5
Sandberg bluegrass	POSE	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---
Slender wheatgrass	AGTR	---	---	---	---	---	2-5
Letterman needlegrass	STLE4	---	---	---	---	---	2-5
Nevada bluegrass	PONE3	---	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	2-5	---	---	1-5	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	1-5	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	5-15
Mountain big sagebrush	ARVA2	5-15	---	1-5	5-15	---	5-10
Low sagebrush	ARAR8	---	---	5-15	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Serviceberry	AMELA	---	---	---	---	---	5-10
Oceanspray	HOLOD	---	---	---	---	---	5-10
Snowberry	SYMPH	---	---	---	---	---	2-10
Threetip sagebrush	ARTR4	---	---	---	---	---	2-10
Currant	RIBES	---	---	---	---	---	2-5
Range site symbol		O24XO29N	None	O24XO16N	O24XO21N	None	O24XO34N
Potential production (lb/acre):							
Favorable years		1,500	---	350	1,400	---	1,600
Normal years		1,100	---	250	1,000	---	1,300
Unfavorable years		800	---	150	700	---	800

3462--Torro-Reluctan-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--			
		Torro	Reluctan	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	20-30	---	---	20-30	20-50	---
Basin wildrye	ELCI2	5-10	2-15	---	---	2-15	5-10	50-60
Mountain brome	BRCA5	2-15	---	---	---	---	2-15	---
Thurber needlegrass	STTH2	2-5	2-10	---	---	2-10	2-5	---
Bottlebrush squirreltail	SIHY	2-5	---	5-10	---	---	2-5	---
Idaho fescue	FEID	1-10	20-40	10-20	---	20-40	1-10	---
Webber ricegrass	STWE	---	---	5-10	---	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	---	---	---	---	---	---	15-20
Tapertip hawksbeard	CRAC2	2-5	1-5	---	---	1-5	2-5	---
Arrowleaf balsamroot	BASA3	2-5	1-5	---	---	1-5	2-5	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	---	5-10
Mountain big sagebrush	ARVA2	5-15	5-15	1-5	---	5-15	5-15	---
Low sagebrush	ARAR8	---	---	5-15	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	---	---	---	---	---	---	2-5

Range site symbol	024X029N	024X021N	024X016N	None	024X021N	024X029N	025X003N
Potential production (lb/acre):							
Favorable years	1,500	1,400	350	---	1,400	1,500	2,500
Normal years	1,100	1,000	250	---	1,000	1,100	1,900
Unfavorable years	800	700	150	---	700	800	1,200

3463--Torro-Clanalpine-Itca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Torro	Clanalpine	Itca	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	X	X	---	40-60	---	---
Basin wildrye	ELCI2	5-10	---	---	---	2-5	---	---
Mountain brome	BRCA5	2-15	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	5-10	---	---	---
Idaho fescue	FEID	1-10	X	X	---	---	---	---
Bluegrass	POA++	---	X	X	---	2-10	---	---
Indian ricegrass	ORHY	---	---	---	20-30	---	---	---
Needleandthread	STCO4	---	---	---	10-20	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---	---
Other perennial grasses	PPGG	---	X	X	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	X	X	---	2-5	---	---
Arrowleaf balsamroot	BASA3	2-5	X	X	---	2-5	---	---
Other perennial forbs	PPFF	---	X	X	2-5	---	---	---
Mountain big sagebrush	ARVA2	5-15	---	---	---	T-5	---	---
Big sagebrush	ARTR2	---	X	X	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	5-10	---	---
Other shrubs	SSSS	---	X	X	5-15	---	---	---
Singleleaf pinyon	PIMO	---	X	X	---	---	---	---
Range site symbol		024X029N	---	---	028B010N	024X028N	None	None
Woodland site symbol		---	025X061N	025X061N	---	---	None	None
Potential production (lb/acre):								
Favorable years		1,500	500	500	800	1,000	---	---
Normal years		1,100	375	375	600	700	---	---
Unfavorable years		800	250	250	400	500	---	---

3464--Torro-Itca-Softscrabble 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--			
		Torro	Itca	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	X	20-30	---	15-20	---	---
Basin wildrye	ELCI2	5-10	---	2-15	---	---	30-50	---
Mountain brome	BRCA5	2-15	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	---	2-10	---	15-20	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Idaho fescue	FEID	1-10	X	20-40	---	---	---	---
Bluegrass	POA++	---	X	---	---	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---	---
Pine bluegrass	POSC	---	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	X	---	---	---	5-15	---
Tapertip hawksbeard	CRAC2	2-5	X	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	X	1-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	---	1-3	---	---
Other perennial forbs	PPFF	---	X	---	---	---	5-10	---
Mountain big sagebrush	ARVA2	5-15	---	5-15	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	X	---	---	---	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---	---
Range site symbol		024X029N	---	024X021N	None	024X018N	028B024N	None
Woodland site symbol		---	025X061N	---	None	---	---	None
Potential production (lb/acre):								
Favorable years		1,500	500	1,400	---	700	2,800	---
Normal years		1,100	375	1,000	---	500	1,700	---
Unfavorable years		800	250	700	---	300	1,000	---

3465--Torro-Clanalpine-Softscrabble 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--		
		Torro	Clanalpine	Softscrabble	1	2	3
Bluebunch wheatgrass	AGSP	20-50	X	2-5	---	X	5-15
Basin wildrye	ELCI2	5-10	---	---	---	---	---
Mountain brome	BRCA5	2-15	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	---	---	---	---	2-5
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	2-5
Idaho fescue	FEID	1-10	X	50-65	---	X	---
Bluegrass	POA++	---	X	---	---	X	---
Pine bluegrass	POSC	---	---	10-15	---	---	5-10
Cusick bluegrass	POCU3	---	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	X	5-10	---	X	10-15
Tapertip hawksbeard	CRAC2	2-5	X	---	---	X	---
Arrowleaf balsamroot	BASA3	2-5	X	---	---	X	---
Other perennial forbs	PPFF	---	X	5-10	---	X	10-15
Mountain big sagebrush	ARVA2	5-15	---	5-10	---	---	---
Big sagebrush	ARTR2	---	X	---	---	X	---
Low sagebrush	ARAR8	---	---	---	---	---	25-30
Other shrubs	SSSS	---	X	2-5	---	X	10-20
Singleleaf pinyon	PIMO	---	X	---	---	X	---
Range site symbol		024X029N	---	028B049N	None	---	028B037N
Woodland site symbol		---	025X061N	---	None	025X061N	---
Potential production (lb/acre):							
Favorable years		1,500	500	1,200	---	500	700
Normal years		1,100	375	1,000	---	375	500
Unfavorable years		800	250	800	---	250	300

3562--Locane-Coztur-Punchbowl 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--		
		Locane	Coztur	Punchbowl	1	2	3
Thurber needlegrass	STTH2	20-50	15-25	---	15-25	15-20	---
Bluebunch wheatgrass	AGSP	5-10	20-30	1-3	20-30	15-20	---
Nevada bluegrass	PONE3	---	2-10	---	2-10	---	---
Indian ricegrass	ORHY	---	---	5-15	---	---	---
Needleandthread	STCO4	---	---	5-15	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	5-8	---
Webber ricegrass	STWE	---	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---
Other perennial grasses	PPGG	---	10-15	5-10	10-15	---	---
Balsamroot	BALSA	2-4	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	2-4	2-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	---	1-3	---
Phlox	PHLOX	---	---	---	---	1-3	---
Other perennial forbs	PPFF	---	2-5	5-15	2-5	---	---
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	0-10	---	0-10	---	---
Black sagebrush	ARARN	---	---	20-25	---	---	---
Fourwing saltbush	ATCA2	---	---	2-5	---	---	---
Bud sagebrush	ARSP5	---	---	2-5	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---
Other shrubs	SSSS	2-10	5-10	10-20	5-10	---	---

Range site symbol	O24XO05N	O25XO14N	O28BO16N	O25XO14N	O24XO18N	None
Potential production (lb/acre):						
Favorable years	800	1,000	500	1,000	700	---
Normal years	600	800	250	800	500	---
Unfavorable years	400	600	150	600	300	---

3563--Locane-Muni 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--		
		Locane	Muni	Locane, eroded	1	2	3
Thurber needlegrass	STTH2	20-50	---	X	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	X	1-3	---	---
Indian ricegrass	ORHY	---	20-30	---	5-15	2-10	---
Needleandthread	STCO4	---	10-20	---	5-15	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---
Basin wildrye	ELCI2	---	---	X	---	10-20	---
Nevada bluegrass	PONE3	---	---	X	---	---	---
Idaho fescue	FEID	---	---	X	---	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---
Other perennial grasses	PPGG	---	---	---	5-10	---	---
Balsamroot	BALSA	2-4	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Other perennial forbs	PPFF	---	2-5	---	5-15	---	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	15-30	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Snowberry	SYMPH	---	---	X	---	---	---
Currant	RIBES	---	---	X	---	---	---
Black sagebrush	ARARN	---	---	---	20-25	---	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Bud sagebrush	ARSP5	---	---	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-25	---
Black greasewood	SAVE4	---	---	---	---	2-10	---
Anderson peachbrush	PRAN2	---	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Other shrubs	SSSS	2-10	5-15	---	10-20	---	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---
Utah juniper	JUOS	---	---	X	---	---	---
Range site symbol		024X005N	028B010N	---	028B016N	024X041N	None
Woodland site symbol		---	---	025X062N	---	---	None
Potential production (lb/acre):							
Favorable years		800	800	500	500	1,000	---
Normal years		600	600	350	250	800	---
Unfavorable years		400	400	200	150	600	---

3625--Minat-Coztur-Belate 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--		
		Minat	Coztur	Belate	1	2	3
Thurber needlegrass	STTH2	20-50	15-25	2-10	15-25	---	---
Bluebunch wheatgrass	AGSP	5-10	20-30	15-30	20-30	---	---
Nevada bluegrass	PONE3	---	2-10	---	2-10	---	5-10
Idaho fescue	FEID	---	---	25-50	---	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	30-50
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	10-15	---	10-15	---	5-15
Balsamroot	BALSA	2-4	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	2-5	---	---
Other perennial forbs	PPFF	---	2-5	---	2-5	---	5-10
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	0-10	---	0-10	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	5-10	---	5-10	---	5-10
Range site symbol		024X005N	025X014N	024X027N	025X014N	None	028B024N
Potential production (lb/acre):							
Favorable years		800	1,000	1,200	1,000	---	2,800
Normal years		600	800	800	800	---	1,700
Unfavorable years		400	600	600	600	---	1,000

3690--Izod-Koynik-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--	
		Izod	Koynik	Rock outcrop	1	2
Indian ricegrass	ORHY	10-15	2-5	---	---	5-15
Thurber needlegrass	STTH2	10-15	---	---	20-50	---
Bluegrass	POA++	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-10	---	---	---
Desert needlegrass	STSP3	---	2-10	---	---	---
Sandberg bluegrass	POSE	---	1-3	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	1-3
Needleandthread	STCO4	---	---	---	---	5-15
Pine bluegrass	POSC	---	---	---	---	2-5
Other perennial grasses	PPGG	5-20	---	---	---	5-10
Globemallow	SPHAE	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	---	2-4	---
Other perennial forbs	PPFF	---	2-8	---	---	5-15
Black sagebrush	ARARN	25-35	---	---	---	20-25
Shadscale	ATCO	---	30-50	---	---	---
Bud sagebrush	ARSP5	---	15-30	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	5-35	---	---	2-10	10-20
Range site symbol		024X030N	024X025N	None	024X005N	028B016N
Potential production (lb/acre):						
Favorable years		500	250	---	800	500
Normal years		350	150	---	600	250
Unfavorable years		250	75	---	400	150

3740--Kelk silt loam, saline

[Absence of an entry indicates that the named plant is not a key species in the potential native 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	1	2	3
Basin wildrye	ELCI2	5-20	50-60	---	20-40
Bottlebrush squirreltail	SIHY	2-5	---	5-15	---
Indian ricegrass	ORHY	2-5	---	5-15	---
Western wheatgrass	AGSM	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	2-5	---
Needleandthread	STCO4	---	---	1-3	---
Thelypody	THELY	2-4	---	---	---
Other perennial forbs	PPFF	---	2-8	2-8	2-8
Black greasewood	SAVE4	20-30	2-10	---	5-15
Basin big sagebrush	ARTRT*	5-15	15-20	---	2-10
Wyoming big sagebrush	ARTRW*	5-10	---	---	---
Spiny hopsage	GRSP	5-15	---	2-5	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Shadscale	ATCO	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	20-30	---
Winterfat	EULA5	---	---	2-5	---
Torrey quailbush	ATTO	---	---	---	30-50
Other shrubs	SSSS	---	---	2-5	---

Range site symbol	O24XO22N	O24XO06N	O24XO02N	O24XO15N
Potential production (lb/acre):				
Favorable years	800	1,500	700	1,500
Normal years	600	1,100	450	1,200
Unfavorable years	350	600	300	800

3741--Kelk-Settlemeyer association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native 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	Settlemeyer	1	2	3
Basin wildrye	ELCI2	50-60	30-50	20-40	---	---
Western wheatgrass	AGSM	5-15	2-5	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Slender hairgrass	DEEL	---	---	---	---	10-20
Streambank wheatgrass	AGRI	---	---	---	---	2-5
Thickspike wheatgrass	AGDA	---	---	---	---	2-5
Rush	JUNCU	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	5-10
Other perennial grasses	PPGG	---	15-25	---	T-10	---
Perennial forbs	PPFF	2-8	2-5	2-8	2-8	5-10
Basin big sagebrush	ARTRT*	15-20	5-10	2-10	---	---
Black greasewood	SAVE4	2-10	---	5-15	15-30	---
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---
Torrey quailbush	ATTO	---	---	30-50	---	---
Shadscale	ATCO	---	---	---	30-50	---
Bud sagebrush	ARSP5	---	---	---	5-15	---
Seepweed	SUAED	---	---	---	2-15	---
Woods rose	ROWO	---	---	---	---	5-10
Currant	RIBES	---	---	---	---	5-10
Common chokecherry	PRVI	---	---	---	---	2-5
Skunkbush sumac	RHTR	---	---	---	---	2-5
Utah serviceberry	AMUT	---	---	---	---	2-5
Other shrubs	SSSS	---	5-10	---	---	5-10

Range site symbol	O24X006N	O28B003N	O24X015N	O24X003N	O28B033N
Potential production (lb/acre):					
Favorable years	1,500	2,600	1,500	600	1,600
Normal years	1,100	1,250	1,200	450	1,200
Unfavorable years	600	800	800	300	800

3742--Kelk-Ocala association

[The letter "T" means trace. Absence of an entry means that the named plant is not a key species in the potential native 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	1	2	3
Basin wildrye	ELCI2	50-60	40-60	---	5-15	30-50
Western wheatgrass	AGSM	5-15	---	---	---	2-5
Alkali sacaton	SPAI	---	15-30	---	---	---
Inland saltgrass	DISPS2	---	5-10	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	T-10	---	15-25
Perennial forbs	PPFF	2-8	---	2-8	T-5	2-5
Basin big sagebrush	ARTRT*	15-20	---	---	---	5-10
Black greasewood	SAVE4	2-10	5-15	15-30	60-75	---
Rubber rabbitbrush	CHNA2	2-5	1-2	---	---	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---
Shadscale	ATCO	---	---	30-50	---	---
Bud sagebrush	ARSP5	---	---	5-15	---	---
Seepweed	SUAED	---	---	2-15	---	---
Other shrubs	SSSS	---	---	---	---	5-10

Range site symbol	024X006N	024X007N	024X003N	024X011N	028B003N
Potential production (lb/acre):					
Favorable years	1,500	1,900	600	500	2,600
Normal years	1,100	1,400	450	350	1,250
Unfavorable years	600	800	300	200	800

3840--Jung-Newpass 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--		
		Jung, moderately steep	Newpass	Jung, strongly sloping	1	2	3
Bluegrass	POA++	10-40	---	10-40	---	---	---
Thurber needlegrass	STTH2	2-10	---	2-10	---	---	---
Pine bluegrass	POSC	---	5-15	---	---	5-15	---
Indian ricegrass	ORHY	---	5-15	---	5-15	5-15	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-15	5-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Needleandthread	STCO4	---	---	---	1-3	---	---
Other perennial grasses	PPGG	5-10	5-10	5-10	---	5-10	---
Perennial forbs	PPFF	5-10	5-10	5-10	2-8	5-10	---
Black sagebrush	ARARN	20-30	---	20-30	---	---	---
Shadscale	ATCO	5-10	---	5-10	30-40	---	---
Wyoming big sagebrush	ARTRW*	---	10-20	---	---	10-20	---
Spiny hopsage	GRSP	---	10-20	---	2-5	10-20	---
Nevada ephedra	EPNE	---	5-10	---	---	5-10	---
Bud sagebrush	ARSP5	---	---	---	20-30	---	---
Winterfat	EULA5	---	---	---	2-5	---	---
Other shrubs	SSSS	5-10	---	5-10	2-5	---	---
Range site symbol		027X032N	027X008N	027X032N	024X002N	027X008N	None
Potential production (lb/acre):							
Favorable years		600	700	600	700	700	---
Normal years		400	500	400	450	500	---
Unfavorable years		200	300	200	300	300	---

3841--Jung-Itca-Roca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Jung	Itca	Roca	1	2	3
Indian ricegrass	ORHY	5-15	---	---	---	---	---
Needleandthread	STCO4	5-15	---	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	20-30	---
Bluebunch wheatgrass	AGSP	---	X	40-60	20-30	---	---
Bluegrass	POA++	---	X	2-10	---	---	---
Idaho fescue	FEID	---	X	---	---	---	---
Thurber needlegrass	STTH2	---	---	5-10	15-25	5-10	---
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	X	---	10-15	5-15	---
Tapertip hawksbeard	CRAC2	---	X	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	X	2-5	2-5	---	---
Other perennial forbs	PPFF	5-15	X	---	2-5	5-10	---
Black sagebrush	ARARN	20-25	---	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	10-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	10-20	---
Mountain big sagebrush	ARVA2	---	---	T-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	0-10	---	---
Spiny hopsage	GRSP	---	---	---	---	5-15	---
Nevada ephedra	EPNE	---	---	---	---	5-10	---
Other shrubs	SSSS	10-20	X	---	5-10	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---
Range site symbol		028B016N	---	024X028N	025X014N	027X007N	None
Woodland site symbol		---	025X061N	---	---	---	None
Potential production (lb/acre):							
Favorable years		500	500	1,000	1,000	600	---
Normal years		250	375	700	800	450	---
Unfavorable years		150	250	500	600	300	---

3842--Jung-Hooplite 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--		
		Jung	Hooplite	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15
Needleandthread	STCO4	5-15	5-15	1-3	---	1-3
Pine bluegrass	POSC	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-15	---	5-15
Sandberg bluegrass	POSE	---	---	2-5	---	2-5
Other perennial grasses	PPGG	5-10	5-10	---	---	---
Perennial forbs	PPFF	5-15	5-15	2-8	---	2-8
Black sagebrush	ARARN	20-25	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	20-30	---	20-30
Shadscale	ATCO	---	---	30-40	---	30-40
Spiny hopsage	GRSP	---	---	2-5	---	2-5
Winterfat	EULA5	---	---	2-5	---	2-5
Other shrubs	SSSS	10-20	10-20	2-5	---	2-5
Range site symbol		028B016N	028B016N	024X002N	None	024X002N
Potential production (lb/acre):						
Favorable years		500	500	700	---	700
Normal years		250	250	450	---	450
Unfavorable years		150	150	300	---	300

3843--Jung-Newpass-Teguro 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--		
		Jung	Newpass	Teguro	1	2	3
Bluegrass	POA++	10-40	---	---	X	---	X
Thurber needlegrass	STTH2	2-10	---	X	---	---	---
Pine bluegrass	POSC	---	5-15	---	---	---	---
Indian ricegrass	ORHY	---	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---
Bluebunch wheatgrass	AGSP	---	---	X	X	---	X
Basin wildrye	ELCI2	---	---	X	---	---	---
Nevada bluegrass	PONE3	---	---	X	---	---	---
Idaho fescue	FEID	---	---	X	X	---	X
Other perennial grasses	PPGG	5-10	5-10	---	X	---	X
Tapertip hawksbeard	CRAC2	---	---	X	X	---	X
Arrowleaf balsamroot	BASA3	---	---	X	X	---	X
Other perennial forbs	PPFF	5-10	5-10	---	X	---	X
Black sagebrush	ARARN	20-30	---	---	---	---	---
Shadscale	ATCO	5-10	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-20	---	---	---	---
Spiny hopsage	GRSP	---	10-20	---	---	---	---
Nevada ephedra	EPNE	---	5-10	---	---	---	---
Big sagebrush	ARTR2	---	---	X	X	---	X
Snowberry	SYMPH	---	---	X	---	---	---
Currant	RIBES	---	---	X	---	---	---
Other shrubs	SSSS	5-10	---	---	X	---	X
Singleleaf pinyon	PIMO	---	---	X	X	---	X
Utah juniper	JUOS	---	---	X	---	---	---
Range site symbol		027X032N	027X008N	---	---	None	---
Woodland site symbol		---	---	025X062N	025X061N	None	025X061N
Potential production (lb/acre):							
Favorable years		600	700	500	500	---	500
Normal years		400	500	350	375	---	375
Unfavorable years		200	300	200	250	---	250

3845--Jung-Stingdorn-Atlow 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--			
		Jung	Stingdorn	Atlow	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	10-15	---	5-15	---	---
Needleandthread	STCO4	5-15	1-3	---	---	1-3	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	5-15	---	---	5-15	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---	---
Thurber needlegrass	STTH2	---	---	10-15	20-50	---	---	---
Bluegrass	POA++	---	---	2-10	---	---	---	---
Other perennial grasses	PPGG	5-10	---	5-20	---	---	---	---
Globemallow	SPHAE	---	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-4	---	---	---
Other perennial forbs	PPFF	5-15	2-8	---	---	2-8	---	---
Black sagebrush	ARARN	20-25	---	25-35	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	20-30	---	---	20-30	---	---
Shadscale	ATCO	---	30-40	---	---	30-40	---	---
Spiny hopsage	GRSP	---	2-5	---	2-5	2-5	---	---
Winterfat	EULA5	---	2-5	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	---	---
Other shrubs	SSSS	10-20	2-5	5-35	2-10	2-5	---	---
Range site symbol		028B016N	024X002N	024X030N	024X005N	024X002N	None	None
Potential production (lb/acre):								
Favorable years		500	700	500	800	700	---	---
Normal years		250	450	350	600	450	---	---
Unfavorable years		150	300	250	400	300	---	---

3846--Jung-Atlow-McVegas 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--		
		Jung	Atlow	McVegas	1	2	3
Indian ricegrass	ORHY	5-15	10-15	5-15	---	---	---
Needleandthread	STCO4	5-15	---	5-10	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	---	---	---	5-10	---
Thurber needlegrass	STTH2	---	10-15	---	---	20-50	2-10
Bluegrass	POA++	---	2-10	---	---	---	10-40
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Other perennial grasses	PPGG	5-10	5-20	5-10	---	---	5-10
Globemallow	SPHAE	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-4	---
Other perennial forbs	PPFF	5-15	---	5-10	---	---	5-10
Black sagebrush	ARARN	20-25	25-35	---	---	---	20-30
Fourwing saltbush	ATCA2	2-5	---	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	---	5-10	---	---	---
Shadscale	ATCO	---	---	30-40	---	---	5-10
Winterfat	EULA5	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	---	2-5	---
Other shrubs	SSSS	10-20	5-35	5-15	---	2-10	5-10
Range site symbol		028B016N	024X030N	028B017N	None	024X005N	027X032N
Potential production (lb/acre):							
Favorable years		500	500	700	---	800	600
Normal years		250	350	500	---	600	400
Unfavorable years		150	250	250	---	400	200

3847--Jung-Old Camp-Clanalpine 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--		
		Jung	Old Camp	Clanalpine	1	2	3
Bluegrass	POA++	10-40	---	X	---	---	10-30
Thurber needlegrass	STTH2	2-10	5-10	---	---	---	---
Pine bluegrass	POSC	---	20-30	---	---	5-15	---
Idaho fescue	FEID	---	---	X	---	---	---
Bluebunch wheatgrass	AGSP	---	---	X	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	5-15	X	---	5-15	5-15
Tapertip hawksbeard	CRAC2	---	---	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Other perennial forbs	PPFF	5-10	5-10	X	---	5-10	2-5
Black sagebrush	ARARN	20-30	---	---	---	---	---
Shadscale	ATCO	5-10	---	---	---	---	20-30
Wyoming big sagebrush	ARTRW*	---	10-20	---	---	10-20	---
Spiny hopsage	GRSP	---	5-15	---	---	---	---
Nevada ephedra	EPNE	---	5-10	---	---	10-15	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Bud sagebrush	ARSP5	---	---	---	---	---	10-20
Other shrubs	SSSS	5-10	5-10	X	---	5-15	5-10
Singleleaf pinyon	PIMO	---	---	X	---	---	---
Range site symbol		027X032N	027X007N	---	None	027X011N	027X028N
Woodland site symbol		---	---	025X061N		---	---
Potential production (lb/acre):							
Favorable years		600	600	500	---	600	700
Normal years		400	450	375	---	400	500
Unfavorable years		200	300	250	---	200	300

3848--Jung-McVegas-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--			
		Jung	McVegas	Enko	1	2	3	4
Indian ricegrass	ORHY	10-15	5-15	20-30	5-15	10-15	20-30	---
Thurber needlegrass	STTH2	10-15	---	---	---	10-15	---	---
Bluegrass	POA++	2-10	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	5-15	5-10	5-15	---	5-10	---
Sandberg bluegrass	POSE	---	2-5	2-5	2-5	---	2-5	---
Needleandthread	STCO4	---	1-3	10-20	1-3	---	10-20	---
Other perennial grasses	PPGG	5-20	---	---	---	5-20	---	---
Globemallow	SPHAE	2-5	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-8	2-5	2-8	---	2-5	---
Black sagebrush	ARARN	25-35	---	---	---	25-35	---	---
Shadscale	ATCO	---	30-40	---	30-40	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	20-30	---	---	---
Spiny hopsage	GRSP	---	2-5	---	2-5	---	---	---
Winterfat	EULA5	---	2-5	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	---	15-20	---
Other shrubs	SSSS	5-35	2-5	5-15	2-5	5-35	5-15	---

Range site symbol	024X030N	024X002N	028B010N	024X002N	024X030N	028B010N	None
Potential production (lb/acre):							
Favorable years	500	700	800	700	500	800	---
Normal years	350	450	600	450	350	600	---
Unfavorable years	250	300	400	300	250	400	---

3851--Decram-Hapgood association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Decram moderately steep	Decram, steep	Hapgood	1	2	3	4
Idaho fescue	FEID	10-20	25-50	5-15	1-10	---	---	---
Webber ricegrass	STWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	---	---	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	15-30	5-10	20-50	---	---	40-60
Thurber needlegrass	STTH2	---	2-10	---	2-5	---	---	5-10
Spike fescue	LEKI2	---	2-10	2-15	---	---	---	---
Mountain brome	BRCA5	---	---	10-15	2-15	---	---	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	---	5-10	---	---	2-5
Bluegrass	POA++	---	---	---	---	---	---	2-10
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Geranium	GERAN	---	---	2-5	---	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---	2-5
Low sagebrush	ARAR8	5-15	10-20	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	1-5	---	5-10	5-15	---	---	T-5
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---	---
Snowberry	SYMPH	---	---	2-10	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	---	5-10

Range site symbol	O24XO16N	O24XO27N	O24XO32N	O24XO29N	None	None	O24XO28N
Potential production (lb/acre):							
Favorable years	350	1,200	2,200	1,500	---	---	1,000
Normal years	250	800	1,700	1,100	---	---	700
Unfavorable years	150	600	1,200	800	---	---	500

3852--Decram-Hapgood-Chad 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--			
		Decram	Hapgood	Chad	1	2	3	4
Idaho fescue	FEID	10-15	10-15	---	5-10	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	10-15	---	---	---	---
Pine bluegrass	POSC	5-10	---	---	---	---	---	---
Mountain brome	BRCA5	---	15-20	---	2-5	---	---	---
Letterman needlegrass	STLE4	---	5-10	---	---	---	---	---
Spike fescue	LEKI2	---	5-10	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	---	---	30-50	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Thurber needlegrass	STTH2	---	---	5-10	---	---	---	---
Other perennial grasses	PPGG	10-15	5-15	10-15	5-15	---	5-15	2-10
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	5-10	5-15	5-15	---	5-10	10-20
Low sagebrush	ARAR8	5-15	---	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	10-20	15-25	---	---	---	---
Utah serviceberry	AMUT	---	5-10	3-10	2-5	---	---	---
Snowberry	SYMPH	---	5-10	---	5-10	---	---	---
Antelope bitterbrush	PUTR2	---	---	2-8	---	---	---	---
Common chokecherry	PRVI	---	---	---	20-30	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	5-10	---	15-20	5-15	---	5-10	2-5

Range site symbol	028B038N	028B029N	028B027N	028B026N	None	028B024N	025X005N
Potential production (lb/acre):							
Favorable years	800	1,500	900	1,400	---	2,800	2,000
Normal years	600	900	600	1,000	---	1,700	1,700
Unfavorable years	400	650	300	700	---	1,000	1,000

3861--Duco-Itca-Roca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Duco	Itca	Roca	1	2	3
Idaho fescue	FEID	X	X	---	---	---	---
Bluebunch wheatgrass	AGSP	X	X	40-60	---	10-20	---
Bluegrass	POA++	---	X	2-10	---	---	---
Thurber needlegrass	STTH2	X	---	5-10	---	5-10	---
Basin wildrye	ELCI2	X	---	2-5	---	2-5	30-50
Pine bluegrass	POSC	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Nevada bluegrass	PONE3	X	---	---	---	---	5-10
Other perennial grasses	PPGG	---	X	---	---	10-20	5-15
Tapertip hawksbeard	CRAC2	X	X	2-5	---	---	---
Arrowleaf balsamroot	BASA3	X	X	2-5	---	---	---
Other perennial forbs	PPFF	---	X	---	---	5-12	5-10
Big sagebrush	ARTR2	X	X	---	---	---	---
Snowberry	SYMPH	X	---	---	---	---	---
Currant	RIBES	X	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	---	---
Mountain big sagebrush	ARVA2	---	---	T-5	---	15-25	---
Antelope bitterbrush	PUTR2	---	---	---	---	5-10	---
Utah serviceberry	AMUT	---	---	---	---	2-10	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	---	X	---	---	5-15	5-10
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Utah juniper	JUOS	X	---	---	---	---	---
Range site symbol		---	---	024X028N	None	028B030N	028B024N
Woodland site symbol		025X062N	025X061N	---	None	---	---
Potential production (lb/acre):							
Favorable years		500	500	1,000	---	1,100	2,800
Normal years		350	375	700	---	850	1,700
Unfavorable years		200	250	500	---	550	1,000

3863--Duco-Clanalpine-Jung 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--		
		Duco	Clanalpine	Jung	1	2	3
Bluebunch wheatgrass	AGSP	X	X	---	---	---	---
Basin wildrye	ELCI2	X	---	---	---	---	---
Thurber needlegrass	STTH2	X	---	2-10	---	---	5-10
Nevada bluegrass	PONE3	X	---	---	---	---	---
Idaho fescue	FEID	X	X	---	---	---	---
Bluegrass	POA++	---	X	10-40	---	---	---
Pine bluegrass	POSC	---	---	---	---	5-15	20-30
Indian ricegrass	ORHY	---	---	---	---	5-15	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	X	5-10	---	5-10	5-15
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---
Other perennial forbs	PPFF	---	X	5-10	---	5-10	5-10
Big sagebrush	ARTR2	X	X	---	---	---	---
Snowberry	SYMPH	X	---	---	---	---	---
Currant	RIBES	X	---	---	---	---	---
Black sagebrush	ARARN	---	---	20-30	---	---	---
Shadscale	ATCO	---	---	5-10	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-20	10-20
Spiny hopsage	GRSP	---	---	---	---	10-20	5-15
Nevada ephedra	EPNE	---	---	---	---	5-10	5-10
Other shrubs	SSSS	---	X	5-10	---	---	5-10
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Utah juniper	JUOS	X	---	---	---	---	---
Range site symbol		---	---	027X032N	None	027X008N	027X007N
Woodland site symbol		025X062N	025X061N	---	None	---	---
Potential production (lb/acre):							
Favorable years		500	500	600	---	700	600
Normal years		350	375	400	---	500	450
Unfavorable years		200	250	200	---	300	300

3881--Layview-Packer-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--			
		Layview	Packer	Hapgood	1	2	3	4
Idaho fescue	FEID	10-20	---	5-15	10-20	30-60	---	---
Webber ricegrass	STWE	5-10	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	5-10	2-5	---	5-10	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	2-5	5-10	---	---
Sandberg bluegrass	POSE	2-5	---	---	2-5	---	---	---
Pine bluegrass	POSC	2-5	5-10	---	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	5-15	5-10	---	2-10	---	---
Thurber needlegrass	STTH2	---	2-5	---	---	---	---	---
Indian ricegrass	ORHY	---	2-5	---	---	---	---	---
Mountain brome	BRCA5	---	---	10-15	---	---	---	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	---	---
Spike fescue	LEKI2	---	---	2-15	---	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	---	---
Other perennial grasses	PPGG	---	10-15	---	---	---	---	---
Goldenweed	HAPLO2	2-5	---	---	2-5	---	---	---
Phlox	PHLOX	2-5	---	---	2-5	---	---	---
Geranium	GERAN	---	---	2-5	---	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	10-15	---	---	---	---	---
Low sagebrush	ARAR8	5-15	25-30	---	5-15	---	---	---
Black sagebrush	ARARN	5-15	---	---	5-15	10-20	---	---
Mountain big sagebrush	ARVA2	1-5	---	5-10	1-5	---	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---	---
Snowberry	SYMPH	---	---	2-10	---	---	---	---
Other shrubs	SSSS	---	10-20	---	---	---	---	---
Range site symbol		024X016N	028B037N	024X032N	024X016N	024X042N	None	None
Potential production (lb/acre):								
Favorable years		350	700	2,200	350	1,000	---	---
Normal years		250	500	1,700	250	800	---	---
Unfavorable years		150	300	1,200	150	500	---	---

3891--Labshaft-Hapgood-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--		
		Labshaft	Hapgood	Rock outcrop	1	2	3
Idaho fescue	FEID	5-15	5-15	---	10-20	5-15	---
Bluebunch wheatgrass	AGSP	5-10	5-10	---	---	5-10	---
Columbia needlegrass	STCO3	5-10	---	---	---	---	---
Western needlegrass	STOC2	5-10	---	---	---	---	---
Mountain brome	BRCA5	---	10-15	---	---	10-15	---
Slender wheatgrass	AGTR	---	20-30	---	---	20-30	---
Spike fescue	LEKI2	---	2-15	---	---	2-15	---
Bulbous oniongrass	MEBU	---	2-5	---	---	2-5	---
Nevada bluegrass	PONE3	---	2-5	---	---	2-5	---
Webber ricegrass	STWE	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-10	---	---	---	---	---
Geranium	GERAN	---	2-5	---	---	2-5	---
Groundsel	SENEC	---	2-5	---	---	2-5	---
Lupine	LUPIN	---	2-5	---	---	2-5	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	2-5	---	---
Other perennial forbs	PPFF	10-15	---	---	---	---	---
Mountain big sagebrush	ARVA2	5-10	5-10	---	1-5	5-10	---
Snowberry	SYMPH	1-5	2-10	---	---	2-10	---
Curlleaf mountainmahogany	CELE3	5-10	---	---	---	---	---
Serviceberry	AMELA	---	5-10	---	---	5-10	---
Low sagebrush	ARAR8	---	---	---	5-15	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Other shrubs	SSSS	5-10	---	---	---	---	---
Range site symbol		028B043N	024X032N	None	024X016N	024X032N	None
Potential production (lb/acre):							
Favorable years		1,000	2,200	---	350	2,200	---
Normal years		800	1,700	---	250	1,700	---
Unfavorable years		600	1,200	---	150	1,200	---

3950--Hooplite-Jung-Izod association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hooplite	Jung	Izod	1	2	3	4
Indian ricegrass	ORHY	10-15	10-15	10-15	X	---	10-30	---
Thurber needlegrass	STTH2	10-15	10-15	10-15	X	20-50	---	---
Bluegrass	POA++	2-10	2-10	2-10	X	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	X	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-20	5-20	5-20	X	---	10-20	---
Globemallow	SPHAE	2-5	2-5	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	X	2-4	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---	---
Balsamroot	BALSA	---	---	---	---	2-4	---	---
Other perennial forbs	PPFF	---	---	---	X	---	5-15	---
Black sagebrush	ARARN	25-35	25-35	25-35	X	---	5-15	---
Downy rabbitbrush	CHVIP	---	---	---	X	2-5	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20	10-25	---
Spiny hopsage	GRSP	---	---	---	---	2-5	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	---	1-5	---
Purple sage	SADOC2	---	---	---	---	---	T-5	---
Other shrubs	SSSS	5-35	5-35	5-35	X	2-10	2-4	---
Utah juniper	JUOS	---	---	---	X	---	---	---
Singleleaf pinyon	PIMO	---	---	---	X	---	---	---
Range site symbol		O24XO30N	O24XO30N	O24XO30N	---	O24XO05N	O25XO25N	None
Woodland site symbol		---	---	---	O25XO63N	---	---	None
Potential production (lb/acre):								
Favorable years		500	500	500	400	800	200	---
Normal years		350	350	350	275	600	150	---
Unfavorable years		250	250	250	150	400	100	---

3951--Hooplite-Old Camp-Puett association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hooplite	Old Camp	Puett	1	2	3
Bluegrass	POA++	10-40	---	---	10-40	---	---
Thurber needlegrass	STTH2	2-10	20-50	---	2-10	---	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---	---
Indian ricegrass	ORHY	---	---	10-30	---	5-15	10-30
Bottlebrush squirreltail	SIHY	---	---	5-10	---	5-10	5-10
Pine bluegrass	POSC	---	---	---	---	5-15	---
Other perennial grasses	PPGG	5-10	---	10-20	5-10	5-10	10-20
Balsamroot	BALSA	---	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---	---
Other perennial forbs	PPFF	5-10	---	5-15	5-10	5-10	5-15
Black sagebrush	ARARN	20-30	---	5-15	20-30	---	5-15
Shadscale	ATCO	5-10	---	---	5-10	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	10-25	---	10-20	10-25
Downy rabbitbrush	CHVIP	---	2-5	1-5	---	---	1-5
Spiny hopsage	GRSP	---	2-5	1-5	---	10-20	1-5
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	1-5
Purple sage	SADOC2	---	---	T-5	---	---	T-5
Nevada ephedra	EPNE	---	---	---	---	5-10	---
Other shrubs	SSSS	5-10	2-10	2-4	5-10	---	2-4

Range site symbol	027X032N	024X005N	025X025N	027X032N	027X008N	025X025N
Potential production (lb/acre):						
Favorable years	600	800	200	600	700	200
Normal years	400	600	150	400	500	150
Unfavorable years	200	400	100	200	300	100

3952--Hooplite-Stingdorn 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--			
		Hooplite	Stingdorn	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	5-15	---	15-25	---
Needleandthread	STCO4	5-15	1-3	1-3	---	5-10	---
Pine bluegrass	POSC	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	---	---	---	2-5	---
Bottlebrush squirreltail	SIHY	---	5-15	5-15	---	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	---	---	---	---	---
Perennial forbs	PPFF	5-15	2-8	2-8	---	5-10	---
Black sagebrush	ARARN	20-25	---	---	---	20-30	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	20-30	20-30	---	2-5	---
Shadscale	ATCO	---	30-40	30-40	---	---	---
Spiny hopsage	GRSP	---	2-5	2-5	---	---	---
Winterfat	EULA5	---	2-5	2-5	---	5-10	---
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Other shrubs	SSSS	10-20	2-5	2-5	---	---	---
Range site symbol		O28B016N	O24XO02N	O24XO02N	None	O28B011N	None
Potential production (lb/acre):							
Favorable years		500	700	700	---	950	---
Normal years		250	450	450	---	700	---
Unfavorable years		150	300	300	---	400	---

3960--Pineval gravelly loam, 2 to 4 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--		
		Pineval	1	2	3
Indian ricegrass	ORHY	20-30	2-5	5-15	2-5
Needleandthread	STCO4	10-20	---	1-3	---
Bottlebrush squirreltail	SIHY	5-10	2-5	5-15	2-5
Sandberg bluegrass	POSE	2-5	---	2-5	---
Basin wildrye	ELCI2	---	5-20	---	5-20
Thelypody	THELY	---	2-4	---	2-4
Other perennial forbs	PPFF	2-5	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	5-10	---	5-10
Black greasewood	SAVE4	---	20-30	---	20-30
Basin big sagebrush	ARTRT*	---	5-15	---	5-15
Spiny hopsage	GRSP	---	5-15	2-5	5-15
Shadscale	ATCO	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	20-30	---
Winterfat	EULA5	---	---	2-5	---
Other shrubs	SSSS	5-15	---	2-5	---
Range site symbol		028B010N	024X022N	024X002N	024X022N
Potential production (lb/acre):					
Favorable years		800	800	700	800
Normal years		600	600	450	600
Unfavorable years		400	350	300	350

3961--Pineval-Orovada-Beoska 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--		
		Pineval	Orovada	Beoska	1	2	3
Indian ricegrass	ORHY	20-30	---	5-15	2-10	---	---
Needleandthread	STCO4	10-20	---	1-3	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	5-15	2-10	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---	---
Thurber needlegrass	STTH2	---	20-50	---	2-5	20-50	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	5-10	---
Webber ricegrass	STWE	---	---	---	2-10	---	---
Desert needlegrass	STSP3	---	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	---	50-60
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	---	---	---	---	---	15-20
Balsamroot	BALSA	---	2-4	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	2-4	---
Eriogonum	ERIOG	---	---	---	1-2	---	---
Hawksbeard	CREPI	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-5	---	2-8	---	---	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	10-25	15-20	---
Downy rabbitbrush	CHVIP	---	2-5	---	2-5	2-5	---
Spiny hopsage	GRSP	---	2-5	2-5	5-15	2-5	---
Shadscale	ATCO	---	---	30-40	10-25	---	---
Bud sagebrush	ARSP5	---	---	20-30	2-5	---	---
Winterfat	EULA5	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	2-10	2-5	---	2-10	2-5

Range site symbol	O28B010N	O24X005N	O24X002N	O24X026N	O24X005N	O25X003N
Potential production (lb/acre):						
Favorable years	800	800	700	400	800	2,500
Normal years	600	600	450	300	600	1,900
Unfavorable years	400	400	300	200	400	1,200

3964--Pineval-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--		
		Pineval	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B003N
Potential production (lb/acre):						
Favorable years		800	800	800	800	2,600
Normal years		600	600	600	600	1,250
Unfavorable years		400	400	400	400	800

3990--Settlemeyer fine sandy loam, drained, 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--		
		Settlemeyer	1	2	3
Basin wildrye	ELCI2	30-50	50-60	---	---
Nevada bluegrass	PONE3	2-5	---	---	5-10
Western wheatgrass	AGSM	2-5	5-15	---	---
Thurber needlegrass	STTH2	---	---	20-50	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---
Wildrye	ELYMU	---	---	---	30-60
Inland saltgrass	DISPS2	---	---	---	5-10
Mat muhly	MURI	---	---	---	2-10
Other perennial grasses	PPGG	15-25	---	---	5-15
Balsamroot	BALSA	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	2-4	---
Sierra clover	TRWO	---	---	---	2-5
Other perennial forbs	PPFF	2-5	2-8	---	5-10
Basin big sagebrush	ARTRT*	5-10	15-20	---	2-5
Black greasewood	SAVE4	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	2-5	---
Spiny hopsage	GRSP	---	---	2-5	---
Willow	SALIX	---	---	---	5-10
Silver sagebrush	ARCA13	---	---	---	2-5
Other shrubs	SSSS	5-10	---	2-10	2-8

Range site symbol	O28B003N	O24X006N	O24X005N	O25X001N
Potential production (lb/acre):				
Favorable years	2,600	1,500	800	3,000
Normal years	1,250	1,100	600	2,500
Unfavorable years	800	600	400	1,800

3991--Settlemeyer-Pineval 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--		
		Settlemeyer	Pineval	1	2	3
Basin wildrye	ELCI2	30-50	---	5-20	---	5-15
Nevada bluegrass	PONE3	2-5	---	---	---	---
Western wheatgrass	AGSM	2-5	---	---	---	---
Indian ricegrass	ORHY	---	20-30	2-5	15-25	---
Needleandthread	STCO4	---	10-20	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-5	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---	---
Thurber needlegrass	STTH2	---	---	---	5-10	---
Alkali sacaton	SPAI	---	---	---	---	20-30
Inland saltgrass	DISPS2	---	---	---	---	5-10
Other perennial grasses	PPGG	15-25	---	---	---	10-20
Thelypody	THELY	---	---	2-4	---	---
Scarlet globemallow	SPCO	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	2-5	---	---	5-10
Basin big sagebrush	ARTRT*	5-10	---	5-15	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	5-10	15-25	---
Black greasewood	SAVE4	---	---	20-30	---	5-10
Spiny hopsage	GRSP	---	---	5-15	20-30	---
Bud sagebrush	ARSP5	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	5-10	5-15	---	5-10	2-5

Range site symbol	O28B003N	O28B010N	O24XO22N	O28BO52N	O28B004N
Potential production (lb/acre):					
Favorable years	2,600	800	800	600	2,000
Normal years	1,250	600	600	400	1,000
Unfavorable years	800	400	350	300	500

3992--Settlemeyer complex

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Settlemeyer, drained	Settlemeyer, frequently flooded	1	2
Basin wildrye	ELCI2	50-60	---	---	50-60
Nevada bluegrass	PONE3	5-15	5-10	---	---
Mat muhly	MURI	2-10	2-10	---	---
Sedge	CAREX	1-5	---	---	---
Wildrye	ELYMU	---	30-60	---	---
Inland saltgrass	DISPS2	---	5-10	---	---
Thurber needlegrass	STTH2	---	---	20-50	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---
Western wheatgrass	AGSM	---	---	---	5-15
Other perennial grasses	PPGG	15-20	5-15	---	---
Sierra clover	TRWO	---	2-5	---	---
Balsamroot	BALSA	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	2-4	---
Other perennial forbs	PPFF	5-10	5-10	---	2-8
Basin big sagebrush	ARTRT*	10-15	2-5	---	15-20
Willow	SALIX	---	5-10	---	---
Silver sagebrush	ARCA13	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	2-5	---
Spiny hopsage	GRSP	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	2-5
Other shrubs	SSSS	2-5	2-8	2-10	---

Range site symbol	025X003N	025X001N	024X005N	024X006N
Potential production (lb/acre):				
Favorable years	2,500	3,000	800	1,500
Normal years	1,900	2,500	600	1,100
Unfavorable years	1,200	1,800	400	600

4041--Hymas-Xine-Attella 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--			
		Hymas	Xine	Attella	1	2	3	4
Bluebunch wheatgrass	AGSP	X	20-30	X	20-50	10-20	---	---
Basin wildrye	ELCI2	X	2-15	X	5-10	---	---	30-50
Thurber needlegrass	STTH2	X	2-10	X	2-5	5-15	---	---
Nevada bluegrass	PONE3	X	---	X	---	---	---	5-10
Idaho fescue	FEID	X	20-40	X	1-10	---	---	---
Mountain brome	BRCA5	---	---	---	2-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	---	---	2-10	---	---
Bluegrass	POA++	---	---	---	---	2-10	---	---
Western wheatgrass	AGSM	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	---	---	5-15
Tapertip hawksbeard	CRAC2	X	1-5	X	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	X	1-5	X	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	---	5-15	---	5-10
Big sagebrush	ARTR2	X	---	X	---	---	---	---
Snowberry	SYMPH	X	---	X	---	---	---	---
Currant	RIBES	X	---	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	5-15	---	---	---
Black sagebrush	ARARN	---	---	---	---	15-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	---	5-10
Singleleaf pinyon	PIMO	X	---	X	---	---	---	---
Utah juniper	JUOS	X	---	X	---	---	---	---
Range site symbol		---	024X021N	---	024X029N	024X031N	None	028B024N
Woodland site symbol		025X062N	---	025X062N	---	---	None	---
Potential production (lb/acre):								
Favorable years		500	1,400	500	1,500	700	---	2,800
Normal years		350	1,000	350	1,100	500	---	1,700
Unfavorable years		200	700	200	800	300	---	1,000

4070--Genaw-Wieland-Grina 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--		
		Genaw	Wieland	Grina	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	X	---	5-10	---
Bluebunch wheatgrass	AGSP	5-10	5-10	X	---	---	---
Indian ricegrass	ORHY	---	---	X	---	15-30	---
Bluegrass	POA++	---	---	X	---	---	---
Basin wildrye	ELCI2	---	---	X	50-60	---	50-60
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Other perennial grasses	PPGG	---	---	---	15-20	5-15	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Balsamroot	BALSA	2-4	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Globemallow	SPHAE	---	---	---	---	2-4	---
Other perennial forbs	PPFF	---	---	---	5-10	---	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	15-30	---
Downy rabbitbrush	CHVIP	2-5	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Douglas rabbitbrush	CHVI8	---	---	X	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	15-20
Shadscale	ATCO	---	---	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	2-10	---	2-5	2-5	---
Utah juniper	JUOS	---	---	X	---	---	---
Range site symbol		024X005N	024X005N	---	025X003N	024X045N	024X006N
Woodland site symbol		---	---	025X059N	---	---	---
Potential production (lb/acre):							
Favorable years		800	800	500	2,500	350	1,500
Normal years		600	600	350	1,900	200	1,100
Unfavorable years		400	400	200	1,200	100	600

4072--Genaw-Orovada-Puett association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Genaw	Orovada	Puett	1	2	3
Indian ricegrass	ORHY	20-30	20-30	10-30	15-30	10-15	10-20
Needleandthread	STCO4	10-20	10-20	---	---	---	20-30
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---	---	2-5
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---
Thurber needlegrass	STTH2	---	---	---	5-10	10-15	---
Bluegrass	POA++	---	---	---	---	2-10	---
Thickspike wheatgrass	AGDA	---	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	10-20	5-15	5-20	2-5
Globemallow	SPHAE	---	---	---	2-4	2-5	---
Other perennial forbs	PPFF	2-5	2-5	5-15	---	---	10-20
Wyoming big sagebrush	ARTRW*	15-20	15-20	10-25	15-30	---	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	1-5	2-5	---	T-5
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	25-35	---
Purple sage	SADOC2	---	---	T-5	---	---	---
Shadscale	ATCO	---	---	---	2-5	---	---
Big sagebrush	ARTR2	---	---	---	---	---	10-20
Other shrubs	SSSS	5-15	5-15	2-4	2-5	5-35	2-10

Range site symbol	028B010N	028B010N	025X025N	024X045N	024X030N	024X017N
Potential production (lb/acre):						
Favorable years	800	800	200	350	500	900
Normal years	600	600	150	200	350	700
Unfavorable years	400	400	100	100	250	500

4073--Genaw-Broyles-Perlor association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Genaw	Broyles	Perlor	1	2	3
Thurber needlegrass	STTH2	10-20	---	---	10-20	5-10	---
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	15-30	---
Bottlebrush squirreltail	SIHY	2-10	5-15	5-15	2-10	---	5-10
Sandberg bluegrass	POSE	2-10	2-5	2-5	2-10	---	---
Needleandthread	STCO4	---	1-3	1-3	---	---	---
Other perennial grasses	PPGG	---	---	---	---	5-15	T-10
Tapertip hawksbeard	CRAC2	1-2	---	---	1-2	---	---
Globemallow	SPHAE	1-2	---	---	1-2	2-4	---
Phlox	PHLOX	1-2	---	---	1-2	---	---
Other perennial forbs	PPFF	---	2-8	2-8	---	---	2-8
Wyoming big sagebrush	ARTRW*	30-35	---	---	30-35	15-30	---
Spiny hopsage	GRSP	5-15	2-5	2-5	5-15	2-5	---
Shadscale	ATCO	---	30-40	30-40	---	2-5	30-50
Bud sagebrush	ARSP5	---	20-30	20-30	---	---	5-15
Winterfat	EULA5	---	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	---	---	---	15-30
Seepweed	SUAED	---	---	---	---	---	2-15
Other shrubs	SSSS	---	2-5	2-5	---	2-5	---

Range site symbol	O24XO20N	O24XO02N	O24XO02N	O24XO20N	O24XO45N	O24XO03N
Potential production (lb/acre):						
Favorable years	700	700	700	700	350	600
Normal years	450	450	450	450	200	450
Unfavorable years	300	300	300	300	100	300

4140--Welch loam, drained, 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--	
		Welch	1	2
Basin wildrye	ELCI2	50-60	5-10	---
Nevada bluegrass	PONE3	5-15	---	5-10
Mat muhly	MURI	2-10	---	---
Sedge	CAREX	1-5	---	5-10
Slender wheatgrass	AGTR	---	1-10	---
Nodding brome	BRAN	---	1-10	---
Slender hairgrass	DEEL	---	2-5	---
Tufted hairgrass	DECA5	---	---	30-60
Alpine timothy	PHAL2	---	---	5-10
Meadow barley	HOBR2	---	---	2-5
Other perennial grasses	PPGG	15-20	5-10	2-10
Sierra clover	TRWO	---	---	2-5
Cinquefoil	POTEN	---	---	2-5
Other perennial forbs	PPFF	5-10	10-20	10-20
Basin big sagebrush	ARTRT*	10-15	---	---
Woods rose	ROWO	---	5-10	---
Common chokecherry	PRVI	---	5-10	---
Snowberry	SYMPH	---	2-5	---
Willow	SALIX	---	---	2-5
Other shrubs	SSSS	2-5	5-10	2-5
Range site symbol		025X003N	028B025N	025X005N
Potential production (lb/acre):				
Favorable years		2,500	1,700	2,000
Normal years		1,900	1,300	1,700
Unfavorable years		1,200	900	1,000

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