



United States  
Department of  
Agriculture

In cooperation with  
Colorado Agricultural  
Experiment Station



NRCS

Natural  
Resources  
Conservation  
Service



United States  
Department of  
the Interior



Bureau of Land  
Management

# Soil Survey of San Miguel Area, Colorado

## Parts of Dolores, Montrose, and San Miguel Counties





# How to Use This Soil Survey

## Detailed Soil Maps

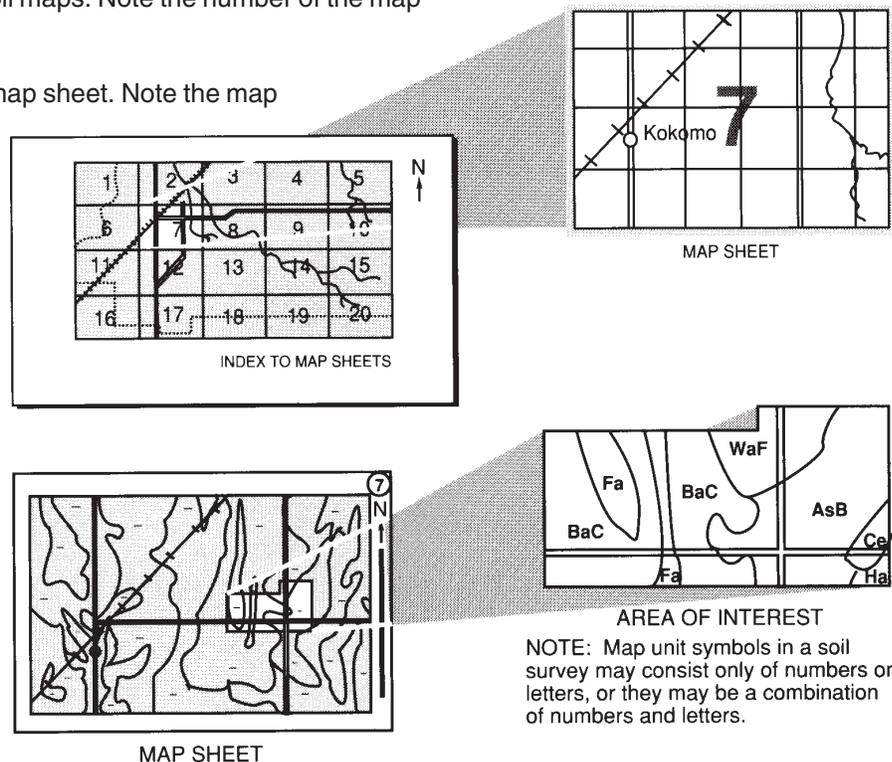
The detailed soil maps follow the general information about the survey area. These maps can be useful in planning the use and management of small areas.

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.

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

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

A **State Soil Geographic Data Base (STATSGO)** is available for this survey area. This data base consists of a soils map at a scale of 1 to 250,000 and descriptions of groups of associated soils. It replaces the general soil map published in older soil surveys. The map and the data base can be used for multicounty planning, and map output can be tailored for a specific use. More information about the STATSGO for this survey area, or for any portion of Colorado, is available at the Colorado State Office of the Natural Resources Conservation Service.



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

Major fieldwork for this soil survey was completed in 1978-1984. Soil names and descriptions were approved in 1986. Soil properties and interpretations were reviewed and updated in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1986. This survey was made cooperatively by the Natural Resources Conservation Service and the Colorado Agricultural Experiment Station and the United States Department of Interior, Bureau of Land Management. The survey is part of the technical assistance furnished to the San Miguel Basin Soil Conservation District. Funds for acceleration of this soil survey were provided by Montrose County, San Miguel County, San Miguel Basin Soil Conservation District, and the Bureau of Land Management.

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: Variations in soils and climate create a scenic mosaic of plant communities in the higher elevations of the San Miguel Area.**

# Foreword

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This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, 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 potential 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.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

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. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.



Allen Green  
State Conservationist  
Natural Resources Conservation Service



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# Soil Survey of San Miguel Area, Colorado

## Parts of Dolores, Montrose, and San Miguel Counties

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United States Department of Agriculture, Natural Resources Conservation Service,  
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Bureau of Land Management; San Miguel County; and San Miguel Basin Soil  
Conservation District.

### General Nature of the Survey Area

The San Miguel Area is in the southwestern corner of Colorado. It has a total area of 1,247,542 acres, or about 1,949 square miles (fig. 1). The area encompasses parts of Dolores, Montrose, and San Miguel Counties. Dove Creek is the county seat of Dolores County, Montrose the county seat of Montrose County, and Telluride the county seat of San Miguel County. Other communities in the area are Egnar, Nucla, Naturita, Redvale, Norwood, Uravan, Placerville, Sawpit, Bedrock, Paradox, and Slickrock. Dove Creek, Montrose, and Telluride are located outside the survey area. The population of the area is about 3,150.

The area is predominantly Federally-administered

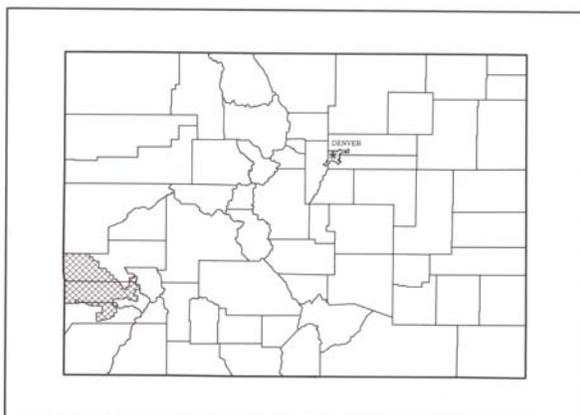


Figure 1.—Location of the San Miguel Area in Colorado.

land. About 70 percent is administered by the United States Department of the Interior, Bureau of Land Management, and the United States Department of Agriculture, Forest Service. The State of Colorado administers 1.5 percent of the area. The Dolores River flows through the area from south to north; its major tributaries are the San Miguel River and the Leopard, Saltado, Specie, Fall, Bear, Disappointment, Dry, and Naturita Creeks, and the Maverick Draw.

Elevation ranges from about 4,900 feet in the Paradox Valley to about 10,000 feet north of Last Dollar Mountain, on the National Forest boundary.

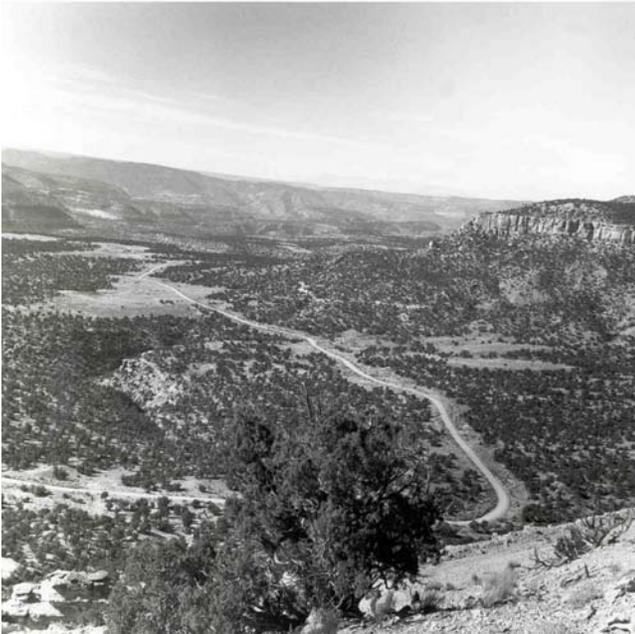
The climate of the survey area ranges from that of a warm desert in Disappointment Valley to that of cool, subhumid areas on the mesas and mountains below the Uncompahgre National Forest.

The area mainly is used as rangeland. Raising cattle, sheep, and horses is important to the economy. The area also is used as irrigated and nonirrigated cropland.

Uranium mining is active in the western part of the area when the price for uranium is favorable. Open pit coal mining is active in the Nucla area when coal prices are favorable. There is some natural gas development in the Dry Creek Basin.

### History and Development

The Ute Indians occupied the survey area when Franciscan friars Dominguez and Escalante passed through it in 1776. The friars were seeking a land route to Spanish missions in California. The friars camped at



**Figure 2.—Shown is a typical landscape of mesas, structural benches, and valley floors.**

the confluence of Dry Creek and the San Miguel River on August 21, 1776.

The first permanent settlement in the Norwood area was in about 1881. In 1887, other settlers began coming in and filing on land. Norwood had a population of 50 in 1881 and was incorporated in 1905. Raising livestock and farming were important to the area in the early days, and continue to be important today.

Grass hay, alfalfa, and small grains are grown for livestock feed. Large acreages of land administered by the Bureau of Land Management and Forest Service are used for livestock grazing in spring, summer, and fall.

Logging has been fairly active at times in the survey area.

A long history of uranium mining that dates back to the 1880's has shaped the current socioeconomic factor in the survey area since the late 1940s, especially when the price for uranium is favorable. Since World War II, the establishment of the Atomic Energy Commission and the creation of a peacetime nuclear power industry have increased the demand for uranium. Mining uranium and processing ore have been important industries in the area.

There are some small coal mines in the survey area and also a few oil and gas wells.

Some small parts of the survey area are irrigated. These include West Paradox Valley, the Nucla area, Wrights Mesa, and other very small isolated areas. The main limitation to irrigation is the lack of sufficient irrigation water.

Extensive dryland farming acreage is in the Egnar area. Pinto beans and winter wheat are grown in this area. The acreage is in an extensive tableland area that is characterized by eolian deposits.

The San Miguel Area is a plateau country characterized by many mesas that are dissected by steep canyons (fig. 2). It supports large acreages of twoneedle pinyon and Utah juniper stands.

## Water Supply

The San Miguel River is the principal source of surface water in the survey area. Other streams are the Dolores River; Naturita, Disappointment, Tabeguache, Dry, Leopard, Specie, Fall, West Paradox, and Beaver Creeks; and the Maverick Draw.

Snowmelt from the San Juan Mountains and the Uncompahgre Plateau yields the major flow for the rivers and creeks in the survey area.

The main reservoirs in the survey area, which provide water for irrigation, domestic use, and hydroelectric production, are the Gurley, Lone Cone, Miramonte, Buckeye, and Groundhog Reservoirs.

Diversion ditches from streams coming off of the Lone Cone Mountain are used to fill the Gurley and Lone Cone Reservoirs. The Miramonte Reservoir was created by the damming of West Naturita Creek. Dams constructed on West Paradox and Groundhog Creeks, respectively, created the Buckeye and Groundhog Reservoirs.

The distribution of the irrigation water stored in these reservoirs is done by several main transmission ditches. These ditches are the Gurley, Colorado Cooperative, Lone Cone, and Wray ditches. The Gurley and Lone Cone ditches provide the water that is used to irrigate about 12,000 acres on Wrights Mesa, near the towns of Norwood and Redvale. The Colorado Cooperative ditch diverts water from the San Miguel River at Pinyon and transports it to the Nucla area, where approximately 11,000 acres of land is irrigated. There are approximately 4,500 acres of irrigated land in the Paradox Valley, which receives water from the Buckeye Reservoir via the Wray ditch. There also are some other minor ditches that divert from small streams for irrigation of scattered areas of farmland. This land is mainly in alluvial areas adjacent to the streams from which the water is diverted.

The main method of irrigation is flooding from contour ditches and pumped and gravity-pressured sprinkler irrigation systems. For the most part, these sprinkler systems are the side-roll type, although there are several center-pivot systems. Gated-pipe irrigation systems are also used on irrigated land where suitable. These new irrigation systems have increased water

use efficiency by reducing water use while maintaining or improving crop yields.

## Agriculture

by Jack Warren, District Conservationist, Natural Resources Conservation Service

Many thousands of head of both cattle and sheep were raised in the early 1900s. Hay and pasture, irrigated by diverted surface waters, supplemented the high country summer grazing. Norwood was a hub for this livestock enterprise which later spread towards the west.

To the south, east, and north from Norwood is the rough and high terrain so well suited for grazing and timber production. To the west, the growing season lengthens and the agriculture picture is broader. From Coventry Hill towards Redvale, then on into Nucla, small apple orchards were established. Grain production, corn, and other vegetables became more apparent. In the west end of Montrose County, the climate is excellent for production when irrigation is adequately provided. The dryland farming area surrounding Egnar has been used for wheat and pinto bean production for over 50 years.

Today, livestock numbers have greatly declined. Most crops are produced for local use, the exceptions being wheat and beans from the Egnar area.

Recreation has stepped strongly ahead, greatly impacting this survey area. Telluride Ski Area (adjacent to this area), and related winter sport activities, year-round fishing, and fee hunting lead in monetary influence. Land lease and sales for recreational use has increased, most dramatically from Telluride (outside this area), and extending into the area around Norwood.

The San Miguel Basin Soil Conservation District was formed in 1957. This was allowed by the consolidation of three districts: the Tabeguache, Norwood, and Paradox, all of which were organized in 1937. Additional land was added to the District by an election in 1958 and by a transfer from the Dove Creek District in 1978. This combined District remains the leader for all conservation activities in the San Miguel Basin Survey Area.

## Physiography, Relief, and Drainage

The survey area is in the plateau country of southwestern Colorado. The major physiographic features in the area are the Sinbad Valley, Big and Little Gypsum Valleys, and Paradox Valley, all of which were formed by the collapse of anticlines. The Dry Creek Basin and Disappointment Valley also are major

physiographic features. The entire survey area consists of valleys and basins separated by mesas. Some of these mesas lie 1,000 to 2,000 feet above the valleys.

Total relief within the area is about 5,100 feet. Elevation ranges from about 4,900 feet in the Paradox Valley to about 10,000 feet north of Last Dollar Mountain on the National Forest boundary.

The survey area is drained by the San Miguel and Dolores Rivers and their tributaries (fig. 3). The San Miguel River drains the San Juan Mountains and runs northwest through the survey area. The Dolores River also drains the San Juan Mountains and runs from south to north through the western part of the survey area, and joins the San Miguel River north of Uravan.



Figure 3.—The floodplain and terraces of the Dolores River are bounded by steep canyons in the western part of the area.

## Natural Resources

Soil, surface water, oil, natural gas, uranium, sand, gravel, coal, and native vegetation are the major natural resources of the survey area. Soil, the most widely used of the survey area's resources, can be expected to yield benefits without depletion if managed and used properly. The purpose of this survey is to aid in maintaining and improving the value of the soil resource.

The San Miguel and Dolores Rivers and Disappointment Creek are the principal sources of surface water.

The Dry Creek Basin has a few gas wells as does the Horse Range Mesa. The number of oil wells in the survey area is minimal. There are a few small coal mine operations, mostly in the Nucla area.

Sand and gravel sources for building roads and other structures are present along the San Miguel and Dolores Rivers, and also on terraces on Wright's Mesa and south of it.

Uranium ore is mined from the Saltwash Member of the Morrison Formation. There has been a cyclical boom and bust in the uranium industry from the late 1940's until the present time.

Rangeland is the most important agricultural resource in this survey area. There is some timber production around Norwood.

Principal game animals are elk, mule deer, coyote, mountain lion, black bear, and cottontail.

## Climate

Prepared by the Natural Resources Conservation Service  
National Water and Climate Center, Portland, Oregon.

The climate tables are created from climate stations at Norwood, Telluride and Uravan, Colorado. Additional precipitation and temperature information for this survey was obtained from new high resolution climate maps, derived using the PRISM modeling system at Oregon State University. Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from First Order station at Grand Junction, Colorado.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Norwood, Telluride, and Uravan, Colorado in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperatures are 25.0, 23.3, and 31.2 degrees F, respectively, at Norwood, Telluride, and Uravan; the respective average daily minimum temperatures in winter are 11.2, 7.9, and 18.0 degrees F. The lowest temperatures on record were -31°F at Norwood on January 12, 1963; -36°F at Telluride on February 8, 1933; and -23°F at Uravan on January 13, 1963.

In summer, the average temperatures are 63.7°F, 57.8°F, and 74.1°F, respectively, at Norwood, Telluride, and Uravan. The respective average daily maximum temperatures are 80.8°F, 75.5°F, and 92.0°F. The highest temperatures in the respective periods of record were 97°F at Norwood on June 25, 1981; 96°F at Telluride on July 15, 1922; and 110°F at Uravan on July 7, 1989.

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

Average annual precipitation over this survey area is quite variable and mainly is dependent upon elevation. In general, the western plateau and valley areas receive between 10 and 15 inches of precipitation per year. In the higher mountains above 9,000 feet, average annual precipitation is as much as 40 inches on the border between Dolores and San Miguel counties. The average annual total precipitation at the three climate stations is about 15.4 inches at Norwood, 23.6 inches at Telluride, and 12.6 inches at Uravan. The growing season is only 50 to 80 days long in the higher mountains, but is over 160 days long, on average, at Uravan. At Uravan, about 7 inches of precipitation normally falls between May and October, which is the normal growing season. This 7 inches represents about 56 percent of the average annual total. The heaviest 1-day precipitation amounts during the periods of record (going back to 1948 at Norwood, 1901 at Telluride, and 1961 at Uravan) were 2.90 inches at Norwood on October 3, 1996; 3.50 inches at Telluride on August 26, 1914; and 1.90 inches at Uravan on August 21, 1971. Thunderstorms occur on about 35 days each year at lower elevations, but are somewhat more frequent at higher elevations. Most thunderstorms occur in the San Miguel Area in July and August.

The average seasonal snowfall is also very dependent on elevation. Only 10 inches of snow typically falls during a given year at Uravan and other lower-elevation valley locations in the western part of the survey area; however, snowfall dramatically increases to the east with elevation. At Norwood, average annual snowfall is 63 inches, and it is 194 inches at Telluride. Average number of days with at least one inch of snow on the ground ranges from just 5 at Uravan, to 20 to 30 at Norwood, and more than 105 at Telluride. The greatest snow depths at any one time during the periods of record were 28 inches at Norwood, recorded on March 2, 1960; 64 inches at Telluride, recorded on February 8, 1949; and just 10 inches at Uravan, recorded on December 15, 1967. The heaviest 1-day snowfalls on record were 12.0 inches at Norwood, recorded on February 18, 1955; 28.5 inches at Telluride, recorded on April 2, 1903; and 9.0 inches at Uravan, recorded on January 25, 1967.

The average relative humidity in mid-afternoon is about 35 percent at lower elevations. Humidity is higher at night, and the average at dawn is about 60 percent at lower elevations. The sun shines 78 percent of the time in summer and 60 percent in winter. The prevailing wind is from the southwest. Average wind speed is highest, around 10 miles per hour, from April to July, but is highly affected by exposure and elevation.

## 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. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; 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 material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, 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 soil color,

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

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses 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 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 predict 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.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils,

modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

## Detailed Soil Map Units

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

A map unit delineation on a soil 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 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 minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they 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 soils and miscellaneous areas on the landscape.

The presence of minor components 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 landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses of the map unit.

In the descriptions that follow, values are given for selected soil chemical and physical properties. For many properties, representative values and ratings for the whole soil are given. For some chemical properties maximum values are given. These refer to the highest value for the given property that can typically be expected in one or more layers within the soil profile. Values this high may not be representative. For more detailed information on soil chemical and physical properties, including the full ranges of values for each horizon, see the tables described in the "Soil Properties" section.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all 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 surface layer, slope, stoniness, salinity, 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, Zoltay clay loam, 1 to 3 percent slopes is a phase of the Zoltay series.

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

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. Pagoda-Coulterg-Cabba complex, 10 to 60 percent slopes is an example.

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

## 1—Abra loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Abra and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Abra soils

*Landform:* Terrace, alluvial fan, valley floor

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 7.5 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Low

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* Wyoming big sagebrush, needleandthread, blue grama, bottlebrush squirreltail, galleta

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

### Typical profile:

0 to 3 inches—loam

3 to 13 inches—loam

13 to 32 inches—loam

32 to 60 inches—gravelly sandy loam

### Minor Components

Barx and similar soils

*Composition:* About 5 percent

Clapper and similar soils

*Composition:* About 5 percent

Progresso and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in spring and fall, wildlife habitat, cropland

## 2—Abra loam, 3 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Abra and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Abra soils

*Landform:* Alluvial fan, valley floor, terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 7.5 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* Wyoming big sagebrush, needleandthread, blue grama, bottlebrush squirreltail, galleta

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

*Typical profile:*

0 to 3 inches—loam

3 to 13 inches—loam

13 to 32 inches—loam

32 to 60 inches—gravelly sandy loam

#### **Minor Components**

Barx and similar soils

*Composition:* About 5 percent

Clapper and similar soils

*Composition:* About 5 percent

Progresso and similar soils

*Composition:* About 5 percent

#### **Major Uses**

Livestock grazing in spring and fall, wildlife habitat, cropland

### **3—Abra loam, 6 to 12 percent slopes**

#### **Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 130 days

#### **Map Unit Composition**

Abra and similar soils: 85 percent

Minor components: 15 percent

#### **Component Descriptions**

##### **Abra soils**

*Landform:* Alluvial fan, valley floor, terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 6 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 7.5 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* Wyoming big sagebrush, needleandthread, blue grama, bottlebrush squirreltail, galleta

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 3 inches—loam

3 to 13 inches—loam

13 to 32 inches—loam

32 to 60 inches—gravelly sandy loam

#### **Minor Components**

Barx and similar soils

*Composition:* About 5 percent

Progresso and similar soils

*Composition:* About 5 percent

Clapper and similar soils

*Composition:* About 5 percent

#### **Major Uses**

Livestock grazing in spring and fall, wildlife habitat, cropland

### **4—Ackmen silt loam, 1 to 3 percent slopes**

#### **Map Unit Setting**

*Major Land Resource Area:* 36

*Elevation:* 6,800 to 7,300 feet (2,073 to 2,225 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)

*Frost-free period:* 100 to 120 days

#### **Map Unit Composition**

Ackmen and similar soils: 90 percent

Minor components: 10 percent

## Component Descriptions

### Ackmen soils

*Landform:* Flood plain  
*Parent material:* Alluvium derived from eolian material  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 9.5 inches (high)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* Rare  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Low  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodicity maximum:* Sodium adsorption ratio about 5 (slightly sodic)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, yellow rabbitbrush  
*Land capability subclass (nonirrigated):* 3c

#### Typical profile:

0 to 5 inches—silt loam  
 5 to 41 inches—silt loam, loam  
 41 to 60 inches—loam

### Minor Components

Monticello and similar soils  
*Composition:* About 5 percent  
 Pulpit and similar soils  
*Composition:* About 5 percent

### Major Uses

Cropland, livestock grazing, wildlife habitat

## 5—Acree loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

### Map Unit Composition

Acree and similar soils: 85 percent  
 Minor components: 15 percent

## Component Descriptions

### Acree soils

*Landform:* Structural bench, mesa  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 1 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 9.2 inches (high)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Mountain Loam  
*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, mountain big sagebrush, nodding brome, slender wheatgrass  
*Land capability subclass (irrigated):* 4c  
*Land capability subclass (nonirrigated):* 4c

#### Typical profile:

0 to 8 inches—loam  
 8 to 30 inches—clay, clay loam  
 30 to 60 inches—clay loam

### Minor Components

Nortez and similar soils  
*Composition:* About 5 percent  
 Zoltay and similar soils  
*Composition:* About 5 percent  
 Rock outcrop  
*Composition:* About 5 percent

### Major Uses

Livestock grazing in summer and fall, wildlife habitat, cropland

## 6—Acree loam, 6 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

### Map Unit Composition

Acree and similar soils: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Acree soils

*Landform:* Mesa, structural bench  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 6 to 12 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 9.2 inches (high)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Mountain Loam  
*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, mountain big sagebrush, nodding brome, slender wheatgrass  
*Land capability subclass (irrigated):* 4e  
*Land capability subclass (nonirrigated):* 4e

#### Typical profile:

0 to 8 inches—loam  
 8 to 30 inches—clay, clay loam  
 30 to 60 inches—clay loam

#### Minor Components

Nortez and similar soils  
*Composition:* About 5 percent  
 Zoltay and similar soils  
*Composition:* About 5 percent  
 Rock outcrop  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in summer and fall, wildlife habitat, pasture, cropland

### 7—Acree-Zoltay-Nortez complex, 0 to 15 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 7,600 to 8,500 feet (2,316 to 2,591 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Acree and similar soils: 45 percent  
 Zoltay and similar soils: 25 percent  
 Nortez and similar soils: 20 percent  
 Minor components: 10 percent

### Component Descriptions

#### Acree soils

*Landform:* Mesa  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 1 to 12 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 9.2 inches (high)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Mountain Loam  
*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, mountain big sagebrush, nodding brome, slender wheatgrass  
*Land capability subclass (nonirrigated):* 4e

#### Typical profile:

0 to 8 inches—loam  
 8 to 30 inches—clay, clay loam  
 30 to 60 inches—clay loam

#### Zoltay soils

*Landform:* Mesa  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 0 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 7.9 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Mountain Clay Loam  
*Potential native vegetation:* Arizona fescue, Gambel's oak, mountain muhly, western wheatgrass, Letterman's needlegrass, muttongrass  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 6 inches—loam  
 6 to 14 inches—clay loam  
 14 to 29 inches—cobble clay  
 29 to 46 inches—very cobble clay loam  
 46 to 60 inches—cobble clay loam

### **Nortez soils**

*Landform:* Mesa  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 0 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 5.4 inches (low)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pine Grasslands  
*Potential native vegetation:* ponderosa pine, Arizona fescue, needleandthread, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's oak, antelope bitterbrush, mountain big sagebrush, mountain brome, prairie Junegrass  
*Land capability subclass (nonirrigated):* 4e

*Typical profile:*  
 0 to 8 inches—loam  
 8 to 24 inches—clay loam, cobble clay loam  
 24 to 32 inches—loam  
 32 to 36 inches—unweathered bedrock

### **Minor Components**

Sagedale and similar soils  
*Composition:* About 5 percent  
*Landform:* Drainageway  
 Nunemaker and similar soils  
*Composition:* About 5 percent  
*Landform:* Drainageway

### **Major Uses**

Livestock grazing in summer, wildlife habitat

## **8—Adel loam, 5 to 30 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 48A  
*Elevation:* 9,000 to 10,000 feet (2,743 to 3,048 meters)  
*Mean annual precipitation:* 22 to 24 inches (559 to 610 millimeters)  
*Average annual air temperature:* 35 to 37 degrees F (2 to 3 degrees C)  
*Frost-free period:* 40 to 60 days

### **Map Unit Composition**

Adel and similar soils: 80 percent  
 Minor components: 20 percent

### **Component Descriptions**

#### **Adel soils**

*Landform:* Mountain slope, mesa, hill  
*Parent material:* Till and residuum derived from shale and sandstone  
*Slope:* 5 to 30 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 8.5 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* None  
*Ecological site:* Subalpine Loam  
*Potential native vegetation:* Thurber's fescue, Parry's danthonia, Arizona fescue, nodding brome, silver sagebrush  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*  
 0 to 50 inches—loam  
 50 to 60 inches—clay loam

#### **Minor Components**

Ryman and similar soils  
*Composition:* About 10 percent  
*Slope:* 0 to 5 percent  
 Cryoborolls, bouldery surface and similar soils  
*Composition:* About 10 percent  
*Slope:* 5 to 30 percent

**Major Uses**

Livestock grazing in summer, wildlife habitat

**9—Adel loam, moist, 15 to 50 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,500 to 10,000 feet (2,591 to 3,048 meters)

*Mean annual precipitation:* 26 to 30 inches (660 to 762 millimeters)

*Average annual air temperature:* 35 to 37 degrees F (2 to 3 degrees C)

*Frost-free period:* 40 to 60 days

**Map Unit Composition**

Adel and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Adel soils**

*Landform:* Mountain slope

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 15 to 50 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 8.5 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* None

*Ecological site:* Quaking Aspen

*Potential native vegetation:* quaking aspen, slender wheatgrass, elk sedge, Arizona fescue, Thurber's fescue, blue wildrye, mountain brome, mountain snowberry, nodding brome

*Land capability subclass (nonirrigated):* 7e

**Typical profile:**

0 to 50 inches—loam

50 to 60 inches—clay loam

**Minor Components**

Cryoborolls and similar soils

*Composition:* About 10 percent

**Major Uses**

Livestock grazing in summer, wildlife habitat

**10—Aquolls, 0 to 3 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 10 to 16 inches (254 to 406 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 90 to 130 days

**Map Unit Composition**

Aquolls and similar soils: 95 percent

Minor components: 5 percent

**Component Descriptions****Aquolls soils**

*Landform:* Slough, flood plain

*Parent material:* Alluvium from mixed sources

*Slope:* 0 to 3 percent

*Drainage class:* Very poorly drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 9.8 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* Frequent

*Depth to seasonal high water table:* 12 to 36 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Ecological site:* Salt Meadow

*Potential native vegetation:* alkali sacaton, inland saltgrass, sedge, western wheatgrass, fourwing saltbush, greasewood, tall rabbitbrush

*Land capability subclass (irrigated):* 5w

*Land capability subclass (nonirrigated):* 5w

**Typical profile:**

0 to 3 inches—clay loam

3 to 21 inches—clay loam

21 to 38 inches—clay loam

38 to 60 inches—sandy clay loam

**Minor Components**

Nyswonger and similar soils

*Composition:* About 5 percent

**Major Uses**

Hay, livestock grazing, wildlife habitat

**11—Badland****Map Unit Setting**

*Major Land Resource Area:* 35  
*Elevation:* 6,500 to 8,000 feet (1,981 to 2,438 meters)  
*Mean annual precipitation:* 8 to 11 inches (203 to 279 millimeters)  
*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)  
*Frost-free period:* 80 to 120 days

**Map Unit Composition**

Badland: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Badland**

*Description:* Badland is moderately steep to extremely steep barren lands dissected by many intermittent drainage channels on eroded uplands. These areas are formed by active geologic erosion of soft, multicolored, sedimentary beds consisting of shale and sandstone.

*Slope:* 10 to 120 percent  
*Depth to restrictive feature:* 0 to 3 inches to bedrock (paralithic)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Land capability subclass (nonirrigated):* 8e

**Minor Components**

Typic Torriorthents and similar soils  
*Composition:* About 10 percent  
*Landform:* Drainageway

**Major Uses**

Wildlife habitat

**12—Baird Hollow-Nordicol-Ryman complex, 5 to 40 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A  
*Elevation:* 8,800 to 10,000 feet (2,682 to 3,048 meters)

*Mean annual precipitation:* 24 to 26 inches (610 to 660 millimeters)  
*Average annual air temperature:* 35 to 37 degrees F (2 to 3 degrees C)  
*Frost-free period:* 40 to 60 days

**Map Unit Composition**

Baird Hollow and similar soils: 35 percent  
 Nordicol and similar soils: 25 percent  
 Ryman and similar soils: 20 percent  
 Minor components: 20 percent

**Component Descriptions****Baird Hollow soils**

*Landform:* Mountain slope  
*Parent material:* Colluvium and residuum from sandstone and shale  
*Slope:* 5 to 40 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 6.4 inches (moderate)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* None  
*Ecological site:* Spruce-Fir  
*Potential native vegetation:* quaking aspen, elk sedge, common juniper, dwarf blueberry, kinnikinnick, tufted hairgrass, Fendler's ceanothus, Oregongrape, boxleaf myrtle, nodding brome  
*Land capability subclass (nonirrigated):* 6e

**Typical profile:**

0 to 14 inches—stony loam  
 14 to 28 inches—very cobbly sandy clay loam, very stony clay loam  
 28 to 40 inches—very stony clay loam  
 40 to 44 inches—very stony clay  
 44 to 60 inches—gravelly clay

**Nordicol soils**

*Landform:* Mountain slope  
*Parent material:* Colluvium and residuum weathered from sandstone  
*Slope:* 5 to 40 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 6.3 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* None

*Ecological site:* Spruce-Fir

*Potential native vegetation:* quaking aspen, slender wheatgrass, elk sedge, Arizona fescue, Thurber's fescue, blue wildrye, mountain brome, mountain snowberry, nodding brome

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 15 inches—loam

15 to 24 inches—gravelly sandy clay loam

24 to 32 inches—very cobbly sandy clay loam

32 to 48 inches—very cobbly sandy clay loam

48 to 60 inches—very stony sandy clay loam

### Ryman soils

*Landform:* Mountain slope

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 5 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Quaking Aspen

*Potential native vegetation:* quaking aspen, slender wheatgrass, elk sedge, slender wheatgrass, Arizona fescue, Thurber's fescue, blue wildrye, mountain brome, mountain snowberry, nodding brome

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 23 inches—clay loam

23 to 27 inches—cobbly clay loam

27 to 39 inches—cobbly clay, stony clay

39 to 60 inches—cobbly clay

### Minor Components

Nordicol Variant and similar soils

*Composition:* About 10 percent

Leaps and similar soils

*Composition:* About 5 percent

Adel and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in summer, wildlife habitat, timber products

## 13—Barkeley-Emmons complex, 5 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 34

*Elevation:* 7,000 to 8,200 feet (2,134 to 2,499 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Barkeley and similar soils: 50 percent

Emmons and similar soils: 30 percent

Minor components: 20 percent

### Component Descriptions

#### Barkeley soils

*Landform:* Mesa

*Parent material:* Till and colluvium from mixed sources

*Slope:* 5 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 5.9 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 30 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Gambel's oak, muttongrass, Indian ricegrass, elk sedge, Saskatoon serviceberry, true mountain mahogany

*Potential production of cordwood:* 15 to 20 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 2 inches—very cobbly clay loam

2 to 10 inches—cobbly clay loam

10 to 22 inches—extremely stony clay loam  
 22 to 60 inches—extremely stony loam

### Emmons soils

*Landform:* Mesa

*Parent material:* Till and colluvium from mixed sources

*Slope:* 5 to 20 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 9.9 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 25 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Gambel's oak, muttongrass, Indian ricegrass, elk sedge, Saskatoon serviceberry, true mountain mahogany

*Potential production of cordwood:* 15 to 20 cords per

acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 5 inches—very cobbly loam

5 to 15 inches—cobbly clay loam

15 to 60 inches—cobbly clay loam

### Minor Components

Wrayha and similar soils

*Composition:* About 10 percent

Ustochreptic Calciorthiss and similar soils

*Composition:* About 10 percent

### Major Uses

Livestock grazing, wildlife habitat

## 14—Barx fine sandy loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35 (fig. 4)



Figure 4.—Irrigated alfalfa hay harvest. The soil is Barx fine sandy loam, 1 to 3 percent slopes.

*Elevation:* 5,300 to 6,800 feet (1,615 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 100 to 130 days

### Map Unit Composition

Barx and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Barx soils

*Landform:* Terrace, mesa

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Low

*Calcium carbonate maximum:* About 45 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Semidesert Sandy Loam

*Potential native vegetation:* Wyoming big sagebrush, galleta, needleandthread, Indian ricegrass, western wheatgrass

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

#### Typical profile:

0 to 2 inches—fine sandy loam

2 to 23 inches—loam, sandy clay loam

23 to 74 inches—loam

#### Minor Components

Abra and similar soils

*Composition:* About 7 percent

Progresso and similar soils

*Composition:* About 5 percent

Nyswonger and similar soils

*Composition:* About 3 percent

*Landform:* Drainageway

#### Major Uses

Livestock grazing, wildlife habitat, cropland

## 15—Barx fine sandy loam, 3 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,000 to 7,200 feet (1,524 to 2,194 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Barx and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Barx soils

*Landform:* Mesa, terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 45 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Semidesert Sandy Loam

*Potential native vegetation:* Wyoming big sagebrush, galleta, needleandthread, Indian ricegrass, western wheatgrass

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### Typical profile:

0 to 2 inches—fine sandy loam

2 to 23 inches—sandy clay loam, loam

23 to 74 inches—loam

#### Minor Components

Abra and similar soils

*Composition:* About 7 percent

Progresso and similar soils

*Composition:* About 5 percent

Nyswonger and similar soils

*Composition:* About 3 percent

*Landform:* Drainageway

### Major Uses

Livestock grazing, wildlife habitat, cropland

## 16—Barx fine sandy loam, 6 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,300 to 6,800 feet (1,615 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Barx and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Barx soils

*Landform:* Mesa, terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 6 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 45 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Semidesert Sandy Loam

*Potential native vegetation:* Wyoming big sagebrush, galleta, needleandthread, Indian ricegrass, western wheatgrass

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### Typical profile:

0 to 2 inches—fine sandy loam

2 to 23 inches—sandy clay loam, loam

23 to 74 inches—loam

### Minor Components

Abra and similar soils

*Composition:* About 7 percent

Progresso and similar soils

*Composition:* About 5 percent

Nyswonger and similar soils

*Composition:* About 3 percent

*Landform:* Drainageway

### Major Uses

Livestock grazing, wildlife habitat, cropland

## 17—Barx-Progresso complex, 3 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,300 to 6,800 feet (1,615 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Barx and similar soils: 45 percent

Progresso and similar soils: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Barx soils

*Landform:* Mesa, old terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 45 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Semidesert Sandy Loam

*Potential native vegetation:* Wyoming big sagebrush, galleta, needleandthread, Indian ricegrass, western wheatgrass

*Land capability subclass (nonirrigated): 6e*

*Typical profile:*

- 0 to 2 inches—fine sandy loam
- 2 to 23 inches—sandy clay loam, loam
- 23 to 74 inches—loam

**Progreso soils**

*Landform:* Mesa, old terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* galleta, Indian ricegrass, Wyoming big sagebrush, muttongrass, western wheatgrass, rabbitbrush

*Land capability subclass (nonirrigated): 6c*

*Typical profile:*

- 0 to 7 inches—loam
- 7 to 14 inches—clay loam
- 14 to 24 inches—clay loam
- 24 to 36 inches—sandy loam
- 36 to 40 inches—unweathered bedrock

**Minor Components**

Abra and similar soils

*Composition:* About 5 percent

Pinon and similar soils

*Composition:* About 5 percent

Bowdish and similar soils

*Composition:* About 3 percent

Rock outcrop

*Composition:* About 2 percent

**Major Uses**

Livestock grazing in spring and fall, wildlife habitat

**18—Begay fine sandy loam, 1 to 6 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 4,900 to 6,200 feet (1,494 to 1,890 meters)

*Mean annual precipitation:* 9 to 12 inches (229 to 305 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 120 to 140 days

**Map Unit Composition**

Begay and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Begay soils**

*Landform:* Old terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid

*Available water capacity:* About 7.9 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very low

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Semidesert Sandy Loam

*Potential native vegetation:* galleta, Wyoming big sagebrush, Indian ricegrass, needleandthread, blue grama, bottlebrush squirreltail, sand dropseed

*Land capability subclass (irrigated): 3e*

*Land capability subclass (nonirrigated): 4c*

*Typical profile:*

- 0 to 3 inches—fine sandy loam
- 3 to 12 inches—fine sandy loam
- 12 to 60 inches—fine sandy loam

**Minor Components**

Barx and similar soils

*Composition:* About 5 percent

Abra and similar soils

*Composition:* About 5 percent

Paradox and similar soils

*Composition:* About 5 percent

**Major Uses**

Livestock grazing in spring, wildlife habitat, cropland

## 19—Beje fine sandy loam, 3 to 25 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 36  
*Elevation:* 6,800 to 9,700 feet (2,073 to 2,957 meters)  
*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)  
*Average annual air temperature:* 41 to 45 degrees F (5 to 7 degrees C)  
*Frost-free period:* 70 to 110 days

### Map Unit Composition

Beje and similar soils: 80 percent  
 Minor components: 20 percent

### Component Descriptions

#### Beje soils

*Landform:* Mesa  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 3 to 25 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 2.1 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pinyon-Juniper  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, black sagebrush, blue grama, bottlebrush squirreltail, muttongrass, true mountain mahogany, Gambel's oak, Utah serviceberry, antelope bitterbrush, hairy goldenaster, prairie Junegrass  
*Potential production of cordwood:* 15 to 20 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot  
*Land capability subclass (nonirrigated):* 6s  
  
*Typical profile:*  
 0 to 5 inches—fine sandy loam  
 5 to 9 inches—sandy loam  
 9 to 14 inches—sandy clay loam  
 14 to 18 inches—unweathered bedrock

## Minor Components

Soils similar to Beje but moderately deep  
*Composition:* About 10 percent  
 Rock outcrop  
*Composition:* About 5 percent  
 Evanston and similar soils  
*Composition:* About 5 percent

## Major Uses

Wildlife habitat, limited livestock grazing

## 20—Billings silt loam, 1 to 4 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 5,500 to 6,600 feet (1,676 to 2,012 meters)  
*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)  
*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)  
*Frost-free period:* 130 to 150 days

### Map Unit Composition

Billings and similar soils: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Billings soils

*Landform:* Valley floor, terrace  
*Parent material:* Alluvium derived from shale  
*Slope:* 1 to 4 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 8.2 inches (moderate)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* Rare  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Low  
*Calcium carbonate maximum:* About 5 percent  
*Gypsum maximum:* About 3 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Salt Flats  
*Potential native vegetation:* alkali sacaton, inland saltgrass, Wyoming big sagebrush, basin wildrye,

fourwing saltbush, greasewood, shadscale saltbush, western wheatgrass

*Land capability subclass (irrigated):* 4s

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 to 2 inches—silt loam

2 to 21 inches—silt loam

21 to 60 inches—silty clay loam

### Minor Components

Fruitland and similar soils

*Composition:* About 5 percent

Soils similar to Billings but with less clay

*Composition:* About 5 percent

Winnett and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in winter, wildlife habitat, pasture, hayland

## 21—Billings clay loam, moist, 1 to 4 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 6,500 to 7,200 feet (1,981 to 2,194 meters)

*Mean annual precipitation:* 10 to 11 inches (254 to 279 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Billings and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Billings soils

*Landform:* Valley floor, terrace

*Parent material:* Alluvium derived from shale

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 8.4 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* Rare

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Basin Shale

*Potential native vegetation:* black sagebrush, galleta, western wheatgrass, winterfat, Wyoming big sagebrush, bottlebrush squirreltail, fourwing saltbush, greasewood, shadscale saltbush

*Land capability subclass (irrigated):* 4s

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 to 9 inches—clay loam

9 to 60 inches—silty clay loam

### Minor Components

Mitch and similar soils

*Composition:* About 5 percent

Vanada and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in winter and early spring, wildlife habitat, hayland

## 22—Bodot silty clay loam, dry, 3 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 6,300 to 6,600 feet (1,920 to 2,012 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Bodot and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Bodot soils

*Landform:* Ridge, hill

*Parent material:* Residuum weathered from shale

*Slope:* 3 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 4.3 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Basin Shale  
*Potential native vegetation:* black sagebrush, galleta, western wheatgrass, winterfat, Wyoming big sagebrush, bottlebrush squirreltail, shadscale saltbush  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 3 inches—silty clay loam  
 3 to 38 inches—silty clay, silty clay loam  
 38 to 42 inches—weathered bedrock

#### Minor Components

Vanada and similar soils  
*Composition:* About 5 percent  
*Landform:* Depression  
 Zyme and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in winter, wildlife habitat

### 23—Bodot, dry-Ustic Torriorthents complex, 5 to 50 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 5,400 to 6,800 feet (1,646 to 2,073 meters)  
*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)  
*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)  
*Frost-free period:* 110 to 130 days

#### Map Unit Composition

Bodot and similar soils: 45 percent  
 Ustic Torriorthents and similar soils: 40 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Bodot soils

*Landform:* Terrace, structural bench, landslide

*Parent material:* Residuum weathered from shale  
*Slope:* 5 to 50 percent  
*Surface fragments:* About 5 percent (shape or size unspecified)  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 4.0 inches (low)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Basin Shale  
*Potential native vegetation:* black sagebrush, galleta, western wheatgrass, winterfat, Wyoming big sagebrush, bottlebrush squirreltail, fourwing saltbush, shadscale saltbush  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*  
 0 to 3 inches—very bouldery clay loam  
 3 to 30 inches—cobble silty clay  
 30 to 34 inches—weathered bedrock

#### Ustic Torriorthents soils

*Landform:* Structural bench, landslide, terrace  
*Parent material:* Residuum weathered from sandstone and shale  
*Slope:* 5 to 50 percent  
*Depth to restrictive feature:* Greater than 60 inches to bedrock  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 3.7 inches (low)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pinyon-Juniper  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, Indian ricegrass, Wyoming big sagebrush, blue grama, bottlebrush squirreltail, galleta, saline wildrye



Figure 5.—An area of Bodot, dry-Ustic Torriorthents complex, 5 to 50 percent slopes. Uranium has been mined on this unit.

*Potential production of cordwood:* 20 to 25 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

- 0 to 4 inches—bouldery clay loam
- 4 to 31 inches—cobbley clay loam
- 31 to 35 inches—unweathered bedrock

#### Minor Components

Rock outcrop

*Composition:* About 10 percent

Pinon and similar soils

*Composition:* About 3 percent

Bowdish and similar soils

*Composition:* About 2 percent

#### Major Uses

Extensive prospecting and mining, limited livestock grazing, wildlife habitat (fig. 5)

### 24—Bodot-Zyme silty clay loams, dry, 3 to 20 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 6,300 to 6,600 feet (1,920 to 2,012 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)

*Frost-free period:* 90 to 110 days

#### Map Unit Composition

Bodot and similar soils: 50 percent

Zyme and similar soils: 35 percent

Minor components: 15 percent

#### Component Descriptions

##### Bodot soils

*Landform:* Hill, ridge

*Parent material:* Residuum weathered from shale  
*Slope:* 3 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 4.3 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Basin Shale  
*Potential native vegetation:* galleta, western wheatgrass, winterfat, Wyoming big sagebrush, bottlebrush squirreltail, shadscale saltbush  
*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 3 inches—silty clay loam  
 3 to 38 inches—silty clay loam, silty clay  
 38 to 42 inches—weathered bedrock

**Zyme soils**

*Landform:* Hill, ridge  
*Parent material:* Residuum weathered from shale  
*Slope:* 3 to 20 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 2.6 inches (very low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Basin Shale  
*Potential native vegetation:* galleta, western wheatgrass, winterfat, Wyoming big sagebrush, bottlebrush squirreltail, fourwing saltbush, shadscale saltbush, Indian ricegrass, saline wildrye  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 6 inches—silty clay loam

6 to 15 inches—clay loam  
 15 to 19 inches—weathered bedrock

**Minor Components**

Vanada and similar soils  
*Composition:* About 8 percent  
*Landform:* Depression  
 Rock outcrop  
*Composition:* About 5 percent  
 Gypsiorthids and similar soils  
*Composition:* About 2 percent

**Major Uses**

Livestock grazing in spring and fall, wildlife habitat

**25—Bond-Progresso complex, 3 to 30 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 35  
*Elevation:* 6,000 to 6,800 feet (1,829 to 2,073 meters)  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)  
*Frost-free period:* 110 to 130 days

**Map Unit Composition**

Bond and similar soils: 45 percent  
 Progresso and similar soils: 40 percent  
 Minor components: 15 percent

**Component Descriptions**

**Bond soils**

*Landform:* Mesa, structural bench  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 3 to 30 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 2.1 inches (very low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodicity maximum:* Sodium adsorption ratio about 5 (slightly sodic)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, blue grama, true mountain mahogany, antelope bitterbrush, big sagebrush, singleleaf ash, squaw apple

*Potential production of cordwood:* 2 to 5 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7s

*Typical profile:*

- 0 to 3 inches—fine sandy loam
- 3 to 16 inches—sandy clay loam, clay loam
- 16 to 20 inches—unweathered bedrock

### **Progreso soils**

*Landform:* Mesa, structural bench

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* galleta, Indian ricegrass, Wyoming big sagebrush, muttongrass, western wheatgrass, rabbitbrush

*Land capability subclass (nonirrigated):* 6c

*Typical profile:*

- 0 to 7 inches—loam
- 7 to 14 inches—clay loam
- 14 to 24 inches—clay loam
- 24 to 36 inches—sandy loam
- 36 to 40 inches—unweathered bedrock

### **Minor Components**

Barx and similar soils

*Composition:* About 5 percent

Rock outcrop

*Composition:* About 5 percent

Soils similar to Bond but with carbonates

*Composition:* About 5 percent

### **Major Uses**

Livestock grazing, wildlife habitat

## **26—Borolls-Rock outcrop complex, 40 to 90 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 6,600 to 9,200 feet (2,012 to 2,804 meters)

*Mean annual precipitation:* 15 to 22 inches (381 to 559 millimeters)

*Average annual air temperature:* 38 to 42 degrees F (3 to 6 degrees C)

*Frost-free period:* 65 to 110 days

### **Map Unit Composition**

Borolls and similar soils: 45 percent

Rock outcrop: 40 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Borolls soils**

*Landform:* Mesa, canyon

*Parent material:* Colluvium and residuum from sandstone and shale

*Slope:* 40 to 90 percent

*Depth to restrictive feature:* Greater than 60 inches to bedrock

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 5.7 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Douglas-Fir

*Potential native vegetation:* twoneedle pinyon, Rocky Mountain Douglas-fir, Gambel's oak, Arizona fescue, Utah serviceberry, western wheatgrass, Indian ricegrass, Utah snowberry, elk sedge, prairie Junegrass

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

- 0 to 10 inches—stony loam
- 10 to 13 inches—stony sandy clay loam

13 to 35 inches—very cobbly clay loam, very cobbly clay  
 35 to 60 inches—very stony clay

### Rock outcrop

*Description:* Rock outcrop consists of exposed bedrock which generally occupies higher positions on north- or east-facing slopes. Areas are steep to very steep. The bedrock outcrop is 1 foot to 30 feet high and 1 foot to 20 feet long.

*Landform:* Canyon, mesa

*Slope:* 40 to 90 percent, northwest to southeast aspects

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

### Minor Components

Ceek and similar soils

*Composition:* About 10 percent

Specie and similar soils

*Composition:* About 5 percent

### Major Uses

Wildlife habitat

## 27—Burnac-Delson sandy loams, 3 to 20 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 7,000 to 8,200 feet (2,134 to 2,499 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Burnac and similar soils: 55 percent

Delson and similar soils: 25 percent

Minor components: 20 percent

### Component Descriptions

#### Burnac soils

*Landform:* Structural bench

*Parent material:* Mass movement deposits and residuum weathered from sandstone and shale

*Slope:* 3 to 20 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 7.0 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine,

Gambel's oak, mountain muhly, muttongrass, elk sedge

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 6 inches—sandy loam

6 to 28 inches—clay

28 to 60 inches—very stony clay

#### Delson soils

*Landform:* Structural bench

*Parent material:* Alluvium and mass movement deposits derived from sandstone and shale

*Slope:* 3 to 20 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.3 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine,

Gambel's oak, mountain muhly, prairie Junegrass, elk

sedge, muttongrass

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 10 inches—sandy loam

10 to 34 inches—clay loam

34 to 60 inches—clay loam

#### Minor Components

Acree and similar soils

*Composition:* About 5 percent

Evanston and similar soils

*Composition:* About 5 percent

Pagoda and similar soils

*Composition:* About 5 percent

Coulterg and similar soils

*Composition:* About 5 percent



Figure 6.—Shown is an area of recently logged Ponderosa pine in the northwest part of the survey area on Burnac-Delson sandy loams, 3 to 20 percent slopes.

### Major Uses

Timber production, livestock grazing, wildlife habitat (fig. 6)

### 28—Burnac-Delson-Falcon sandy loams, 20 to 50 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 7,000 to 8,200 feet (2,134 to 2,499 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 482 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

#### Map Unit Composition

Burnac and similar soils: 45 percent  
 Delson and similar soils: 30 percent  
 Falcon and similar soils: 15 percent  
 Minor components: 10 percent

### Component Descriptions

#### Burnac soils

*Landform:* Structural bench  
*Parent material:* Mass movement deposits and residuum weathered from sandstone and shale  
*Slope:* 20 to 50 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 7.0 inches (moderate)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Ponderosa Pine  
*Potential native vegetation:* ponderosa pine, Gambel's oak, mountain muhly, muttongrass, elk sedge  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

- 0 to 6 inches—sandy loam
- 6 to 28 inches—clay
- 28 to 60 inches—very stony clay

**Delson soils***Landform:* Structural bench*Parent material:* Alluvium and mass movement deposits derived from sandstone and shale*Slope:* 20 to 50 percent*Drainage class:* Well drained*Slowest permeability:* Slow*Available water capacity:* About 8.3 inches (moderate)*Shrink-swell potential:* About 4.5 percent (moderate)*Hazard of flooding:* None*Depth to seasonal high water table:* Greater than 72 inches*Runoff class:* Very high*Calcium carbonate maximum:* None*Ecological site:* Ponderosa Pine*Potential native vegetation:* ponderosa pine, Gambel's oak, mountain muhly, prairie Junegrass, elk sedge, muttongrass*Land capability subclass (nonirrigated):* 7e*Typical profile:*

- 0 to 10 inches—sandy loam
- 10 to 34 inches—clay loam
- 34 to 60 inches—clay loam

**Falcon soils***Landform:* Structural bench*Parent material:* Residuum weathered from sandstone*Slope:* 20 to 50 percent*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)*Drainage class:* Well drained*Slowest permeability:* Moderately rapid*Available water capacity:* About 1.3 inches (very low)*Shrink-swell potential:* About 1.5 percent (low)*Hazard of flooding:* None*Depth to seasonal high water table:* Greater than 72 inches*Runoff class:* Very high*Calcium carbonate maximum:* None*Ecological site:* Ponderosa Pine*Potential native vegetation:* ponderosa pine, Gambel's oak, elk sedge, mountain brome, slender wheatgrass, mountain snowberry, needlegrass*Land capability subclass (nonirrigated):* 7e*Typical profile:*

- 0 to 7 inches—sandy loam

7 to 19 inches—sandy loam

19 to 23 inches—unweathered bedrock

**Minor Components**

Ceek and similar soils

*Composition:* About 5 percent

Rock outcrop

*Composition:* About 5 percent**Major Uses**

Timber production, livestock grazing, wildlife habitat

**29—Bushvalley-Nordicol Variant complex, 2 to 10 percent slopes****Map Unit Setting***Major Land Resource Area:* 48A*Elevation:* 8,500 to 9,000 feet (2,591 to 2,743 meters)*Mean annual precipitation:* 22 to 24 inches (559 to 610 millimeters)*Average annual air temperature:* 38 to 40 degrees F (3 to 4 degrees C)*Frost-free period:* 50 to 70 days**Map Unit Composition**

Bushvalley and similar soils: 50 percent

Nordicol Variant and similar soils: 30 percent

Minor components: 20 percent

**Component Descriptions****Bushvalley soils***Landform:* Mesa*Parent material:* Residuum weathered from sandstone*Slope:* 2 to 10 percent*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)*Drainage class:* Well drained*Slowest permeability:* Moderately slow*Available water capacity:* About 1.0 inches (very low)*Hazard of flooding:* None*Depth to seasonal high water table:* Greater than 72 inches*Runoff class:* Very high*Calcium carbonate maximum:* None*Ecological site:* Pine Grasslands*Potential native vegetation:* ponderosa pine, Arizona fescue, Parry's danthonia, mountain muhly, elk sedge, kinnikinnick, pine dropseed, western snowberry*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

- 0 to 5 inches—stony loam
- 5 to 12 inches—extremely channery clay loam
- 12 to 16 inches—unweathered bedrock

**Nordicol Variant soils***Landform:* Mesa*Parent material:* Residuum weathered from sandstone*Slope:* 2 to 10 percent*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)*Drainage class:* Well drained*Slowest permeability:* Moderately slow*Available water capacity:* About 5.0 inches (low)*Shrink-swell potential:* About 4.5 percent (moderate)*Hazard of flooding:* None*Depth to seasonal high water table:* Greater than 72 inches*Runoff class:* High*Calcium carbonate maximum:* None*Ecological site:* Pine Grasslands (fig. 7)*Potential native vegetation:* ponderosa pine, Arizona fescue, Parry's danthonia, mountain muhly, elk sedge, pine dropseed*Land capability subclass (nonirrigated):* 6c*Typical profile:*

- 0 to 14 inches—loam
- 14 to 31 inches—cobbley clay loam
- 31 to 34 inches—sandy clay loam
- 34 to 38 inches—unweathered bedrock



Figure 7.—Summer grazing on the Pine Grasslands ecological site. The soils are Bushvalley-Nordicol Variant complex, 2 to 10 percent slopes.

**Minor Components**

Skisams and similar soils

*Composition:* About 10 percent

Rock outcrop

*Composition:* About 10 percent

**Major Uses**

Livestock grazing in summer, wildlife habitat

**30—Callan loam, 1 to 3 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

**Map Unit Composition**

Callan and similar soils: 80 percent

Minor components: 20 percent

**Component Descriptions****Callan soils**

*Landform:* Mesa, terrace

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 50 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, yellow rabbitbrush

*Land capability subclass (irrigated):* 3c

*Land capability subclass (nonirrigated):* 3c

*Typical profile:*

0 to 4 inches—loam

4 to 14 inches—clay loam

14 to 60 inches—clay loam

**Minor Components**

Haplaquolls and similar soils

*Composition:* About 5 percent

*Landform:* Drainageway

Argiborolls and similar soils

*Composition:* About 5 percent

Gurley and similar soils

*Composition:* About 5 percent

Skein and similar soils

*Composition:* About 5 percent

**Major Uses**

Pasture, cropland, livestock grazing in spring and fall, wildlife habitat

**31—Callan loam, 3 to 6 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

**Map Unit Composition**

Callan and similar soils: 80 percent

Minor components: 20 percent

**Component Descriptions****Callan soils**

*Landform:* Mesa, terrace

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 3 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches



Figure 8.—Irrigated grass hay in a windrow. The soil is Callan loam, 3 to 6 percent slopes.

*Runoff class:* Very high

*Calcium carbonate maximum:* About 50 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, yellow rabbitbrush

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 3e

*Typical profile:*

0 to 4 inches—loam

4 to 14 inches—clay loam

14 to 60 inches—clay loam

#### Minor Components

Haplaquolls and similar soils

*Composition:* About 5 percent

*Landform:* Drainageway

Skein and similar soils

*Composition:* About 5 percent

Gurley and similar soils

*Composition:* About 5 percent

Argiborolls and similar soils

*Composition:* About 5 percent

#### Major Uses

Pasture, cropland, livestock grazing in spring and fall, wildlife habitat (fig. 8)

### 32—Callan loam, 6 to 12 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

#### Map Unit Composition

Callan and similar soils: 80 percent

Minor components: 20 percent

## Component Descriptions

### Callan soils

*Landform:* Mesa, terrace

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 6 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 50 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, yellow rabbitbrush

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 4 inches—loam

4 to 14 inches—clay loam

14 to 60 inches—clay loam

### Minor Components

Haplaquolls and similar soils

*Composition:* About 5 percent

*Landform:* Drainageway

Argiborolls and similar soils

*Composition:* About 5 percent

Skein and similar soils

*Composition:* About 5 percent

Gurley and similar soils

*Composition:* About 5 percent

### Major Uses

Pasture, cropland, livestock grazing in spring and fall, wildlife habitat

## 33—Callan-Gurley loams, 3 to 20 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Callan and similar soils: 50 percent

Gurley and similar soils: 40 percent

Minor components: 10 percent

## Component Descriptions

### Callan soils

*Landform:* Mesa, terrace

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 3 to 20 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 50 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, yellow rabbitbrush

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 4 inches—loam

4 to 14 inches—clay loam

14 to 60 inches—clay loam

### Gurley soils

*Landform:* Mesa, terrace

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 3 to 20 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.5 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 50 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 4 inches—loam

4 to 21 inches—clay loam

21 to 37 inches—loam

37 to 41 inches—unweathered bedrock

### Minor Components

Aquolls and similar soils

*Composition:* About 5 percent

*Landform:* Drainageway

Skein and similar soils

*Composition:* About 3 percent

Radersburg and similar soils

*Composition:* About 2 percent

### Major Uses

Livestock grazing in spring and fall, wildlife habitat, hayland, pasture

## 34—Ceek very flaggy clay loam, 10 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 34

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 482 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Ceek and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Ceek soils

*Landform:* Mountain slope

*Parent material:* Colluvium and residuum from sandstone and shale

*Slope:* 10 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 7.8 inches (moderate)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* Rocky Mountain juniper, ponderosa pine, Arizona fescue, Parry's danthonia, mountain muhly, Gambel's oak, Indian ricegrass, big bluegrass, bottlebrush squirreltail, muttongrass, pine dropseed, slender wheatgrass, slender wheatgrass, western wheatgrass

*Land capability subclass (irrigated):* 7e

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 5 inches—very flaggy clay loam

5 to 13 inches—very cobbly clay loam

13 to 22 inches—very cobbly clay loam

22 to 60 inches—clay

### Minor Components

Rock outcrop

*Composition:* About 5 percent

*Landform:* Rim

Soils similar to Ceek but with dark surface layers

*Composition:* About 5 percent

Zoltay and similar soils

*Composition:* About 5 percent

*Landform:* Drainageway

### Major Uses

Timber production, livestock grazing, wildlife habitat

## 35—Clapper loam, 1 to 8 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Clapper and similar soils: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Clapper soils

*Landform:* Alluvial fan, terrace, mesa  
*Parent material:* Alluvium derived from igneous rock  
*Slope:* 1 to 8 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 4.9 inches (low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 50 percent  
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Stony Foothills  
*Potential native vegetation:* twoneedle pinyon, Utah juniper, western wheatgrass, Wyoming big sagebrush, galleta, Indian ricegrass, black sagebrush, bottlebrush squirreltail, needleandthread, prairie Junegrass  
*Land capability subclass (irrigated):* 4e  
*Land capability subclass (nonirrigated):* 6e

#### Typical profile:

0 to 5 inches—loam  
 5 to 11 inches—loam  
 11 to 20 inches—cobble loam  
 20 to 60 inches—very cobbly loam

#### Minor Components

Abra and similar soils  
*Composition:* About 5 percent  
 Progresso and similar soils  
*Composition:* About 5 percent  
 Ustochreptic Calciorrhids and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in spring and fall, wildlife habitat, cropland, pasture

## 36—Clapper-Ustic Torriorthents complex, 5 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)  
*Frost-free period:* 110 to 130 days

### Map Unit Composition

Clapper and similar soils: 45 percent  
 Ustic Torriorthents and similar soils: 40 percent  
 Minor components: 15 percent

### Component Descriptions

#### Clapper soils

*Landform:* Mesa, break, terrace  
*Parent material:* Alluvium derived from igneous rock  
*Slope:* 5 to 40 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 4.9 inches (low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 50 percent  
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Stony Foothills  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, western wheatgrass, Wyoming big sagebrush, galleta, Indian ricegrass, black sagebrush, bottlebrush squirreltail, needleandthread, prairie Junegrass  
*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 5 inches—loam  
 5 to 11 inches—loam  
 11 to 20 inches—cobble loam  
 20 to 60 inches—very cobbly loam

**Ustic Torriorthents soils**

*Landform:* Mesa, break, terrace

*Parent material:* Colluvium and residuum weathered from sandstone and shale

*Slope:* 5 to 40 percent

*Depth to restrictive feature:* Greater than 60 inches to bedrock

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 3.7 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Indian ricegrass, blue grama, bluebunch wheatgrass, bottlebrush squirreltail, galleta

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 4 inches—bouldery clay loam

4 to 31 inches—cobbley clay loam

31 to 35 inches—unweathered bedrock

**Minor Components**

Barx and similar soils

*Composition:* About 10 percent

Bond and similar soils

*Composition:* About 5 percent

**Major Uses**

Limited livestock grazing, wildlife habitat

**37—Cryaquolls, 0 to 3 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 7,800 to 9,500 feet (2,377 to 2,896 meters)

*Mean annual precipitation:* 17 to 24 inches (432 to 610 millimeters)

*Average annual air temperature:* 37 to 41 degrees F (3 to 5 degrees C)

*Frost-free period:* 50 to 70 days

**Map Unit Composition**

Cryaquolls and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Cryaquolls soils**

*Landform:* Drainageway, slough

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 0 to 3 percent

*Drainage class:* Very poorly drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.9 inches (moderate)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* Frequent

*Depth to seasonal high water table:* 6 to 30 inches

*Runoff class:* High

*Calcium carbonate maximum:* None

*Ecological site:* Mountain Meadow

*Potential native vegetation:* tufted hairgrass, sedge, clover, slender wheatgrass, shrubby cinquefoil, willow

*Land capability subclass (nonirrigated):* 6w

*Typical profile:*

0 to 6 inches—loam

6 to 17 inches—clay loam

17 to 22 inches—clay

22 to 27 inches—clay

27 to 35 inches—clay

35 to 38 inches—clay loam

38 to 60 inches—clay

**Minor Components**

Cryoborolls and similar soils

*Composition:* About 5 percent

*Landform:* Terrace

Cryaquolls, moderately deep and similar soils

*Composition:* About 5 percent

*Landform:* Slough

**Major Uses**

Livestock grazing, wildlife habitat

**38—Evanston fine sandy loam, 2 to 8 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,200 feet (2,073 to 2,194 meters)

*Mean annual precipitation:* 14 to 15 inches (356 to 381 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Evanston and similar soils: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Evanston soils

*Landform:* Structural bench, ridge  
*Parent material:* Alluvium derived from sandstone  
*Slope:* 2 to 8 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 10.0 inches (high)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* western wheatgrass, muttongrass, Wyoming big sagebrush, needleandthread, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush  
*Land capability subclass (nonirrigated):* 3e

#### Typical profile:

0 to 6 inches—fine sandy loam  
6 to 24 inches—clay loam  
24 to 36 inches—loam  
36 to 60 inches—clay loam

#### Minor Components

Beje and similar soils  
*Composition:* About 10 percent  
Callan and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

## 39—Falcon-Burnac-Rock outcrop complex, 3 to 20 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 34  
*Elevation:* 7,000 to 8,200 feet (2,134 to 2,499 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Falcon and similar soils: 55 percent  
Burnac and similar soils: 25 percent  
Rock outcrop: 15 percent  
Minor components: 5 percent

### Component Descriptions

#### Falcon soils

*Landform:* Structural bench  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 3 to 20 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid  
*Available water capacity:* About 1.3 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* None  
*Ecological site:* Ponderosa Pine  
*Potential native vegetation:* ponderosa pine, Gambel's oak, elk sedge, greenleaf manzanita, mountain brome, slender wheatgrass, mountain snowberry, needlegrass  
*Land capability subclass (nonirrigated):* 6e

#### Typical profile:

0 to 7 inches—sandy loam  
7 to 19 inches—sandy loam  
19 to 23 inches—unweathered bedrock

#### Burnac soils

*Landform:* Structural bench  
*Parent material:* Mass movement deposits and residuum weathered from sandstone and shale  
*Slope:* 3 to 20 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 7.0 inches (moderate)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine, Gambel's oak, mountain muhly, muttongrass, elk sedge, greenleaf manzanita

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 6 inches—sandy loam

6 to 28 inches—clay

28 to 60 inches—very stony clay

### Rock outcrop

*Description:* Rock outcrop consists of exposed sandstone. Areas are gently sloping to steep.

*Landform:* Structural bench

*Slope:* 3 to 20 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

### Minor Components

Delson and similar soils

*Composition:* About 5 percent

### Major Uses

Timber production, livestock grazing, wildlife habitat

## 40—Farb-Rock outcrop complex, 1 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,600 to 6,300 feet (1,707 to 1,920 meters)

*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)

*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)

*Frost-free period:* 130 to 150 days

### Map Unit Composition

Farb and similar soils: 45 percent

Rock outcrop: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Farb soils

*Landform:* Mesa, escarpment, structural bench

*Parent material:* Residuum weathered from sandstone

*Slope:* 1 to 30 percent

*Depth to restrictive feature:* 8 to 15 inches to bedrock (lithic)

*Drainage class:* Excessively drained

*Slowest permeability:* Moderately rapid

*Available water capacity:* About 1.1 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Indian ricegrass, galleta, blue grama

*Potential production of cordwood:* 1 to 3 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 3 inches—sandy loam

3 to 11 inches—sandy loam

11 to 15 inches—unweathered bedrock

### Rock outcrop

*Description:* Rock outcrop consists of exposed sandstone bedrock. Areas are gently sloping to steep. They occur as 10 to 50 foot escarpments and as scattered outcrops 1 inch to 12 inches above ground level.

*Landform:* Structural bench, mesa, escarpment

*Slope:* 1 to 30 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

### Minor Components

Typic Torriorthents and similar soils

*Composition:* About 10 percent

Persayo and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in winter, wildlife habitat

## 41—Fivepine-Nortez-Rock outcrop complex, 12 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A (fig. 9)

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)



**Figure 9.**—Area of Fivepine-Nortez-Rock outcrop complex, 12 to 30 percent slopes. The Fivepine soil is in the Ponderosa Pine Woodland ecological site; the Nortez soil is in the Pine Grasslands ecological site.

*Mean annual precipitation:* 17 to 19 inches (432 to 482 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Fivepine and similar soils: 40 percent

Nortez and similar soils: 30 percent

Rock outcrop: 20 percent

Minor components: 10 percent

### Component Descriptions

#### Fivepine soils

*Landform:* Mesa

*Parent material:* Residuum weathered from sandstone

*Slope:* 12 to 30 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 2.3 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine, Rocky Mountain juniper, twoneedle pinyon, Gambel's oak, mountain muhly, prairie Junegrass, elk sedge, muttongrass

*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 5 inches—loam

5 to 9 inches—clay loam

9 to 15 inches—clay

15 to 19 inches—unweathered bedrock

#### Nortez soils

*Landform:* Mesa

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 12 to 20 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pine Grasslands

*Potential native vegetation:* ponderosa pine, Arizona fescue, needleandthread, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's oak, antelope bitterbrush, mountain big sagebrush, mountain brome, prairie Junegrass

*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 8 inches—loam

8 to 24 inches—clay loam, cobbly clay loam

24 to 32 inches—loam

32 to 36 inches—unweathered bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of exposed sandstone bedrock. Areas are moderately steep to steep. They occur as 10 to 50 foot escarpments and as scattered outcrops 1 inch to 12 inches above ground level.

*Landform:* Mesa

*Slope:* 12 to 30 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Acree and similar soils

*Composition:* About 5 percent

Borolls and similar soils

*Composition:* About 5 percent

**Major Uses**

Livestock grazing in summer and fall, timber production, wildlife habitat

**42—Fivepine-Pino loams, 0 to 15 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 482 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

**Map Unit Composition**

Fivepine and similar soils: 50 percent

Pino and similar soils: 35 percent

Minor components: 15 percent

**Component Descriptions****Fivepine soils**

*Landform:* Mesa

*Parent material:* Residuum weathered from sandstone

*Slope:* 0 to 15 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 2.3 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* Rocky Mountain juniper, twoneedle pinyon, ponderosa pine, Gambel's oak, mountain muhly, prairie Junegrass, elk sedge, muttongrass

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 to 5 inches—loam

5 to 9 inches—clay loam

9 to 15 inches—clay

15 to 19 inches—unweathered bedrock

**Pino soils**

*Landform:* Mesa

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 2 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.3 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 2 (slightly sodic)

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine, Arizona fescue, needlegrass, Gambel's oak, mountain brome, mountain muhly, western wheatgrass, bottlebrush squirreltail, pine dropseed, prairie Junegrass

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 8 inches—loam

8 to 24 inches—clay loam

24 to 32 inches—clay loam

32 to 36 inches—unweathered bedrock

**Minor Components**

Ceek and similar soils

*Composition:* About 10 percent

*Slope:* 15 to 25 percent

Acree and similar soils

*Composition:* About 5 percent

### Major Uses

Timber production, livestock grazing, wildlife habitat

## 43—Fluvaquents, 0 to 6 percent slopes, frequently flooded

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,100 to 6,200 feet (1,554 to 1,890 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 120 to 140 days

### Map Unit Composition

Fluvaquents and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Fluvaquents soils

*Landform:* Flood plain

*Parent material:* Stratified alluvium derived from mixed sources

*Slope:* 0 to 6 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 9.1 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* Frequent

*Depth to seasonal high water table:* 12 to 48 inches

*Runoff class:* Low

*Calcium carbonate maximum:* None

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Potential native vegetation:* narrowleaf cottonwood, inland saltgrass, rush, sedge, willow, tamarisk

*Land capability subclass (nonirrigated):* 7w

*Typical profile:*

0 to 11 inches—variable

11 to 60 inches—stratified very gravelly sand to clay loam

### Minor Components

Aquolls and similar soils

*Composition:* About 10 percent

*Landform:* Slough

### Major Uses

Livestock grazing, wildlife habitat

## 44—Fruitland loam, 1 to 8 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,000 feet (1,676 to 1,829 meters)

*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)

*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)

*Frost-free period:* 150 to 190 days

### Map Unit Composition

Fruitland and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Fruitland soils

*Landform:* Valley floor, terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 8 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 8.4 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Ecological site:* Alkaline Slopes

*Potential native vegetation:* Wyoming big sagebrush, greasewood, shadscale saltbush, galleta, winterfat, Indian ricegrass, bottlebrush squirreltail, sand dropseed, western wheatgrass

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 5 inches—loam

5 to 60 inches—loam, fine sandy loam

### Minor Components

Chipeta and similar soils

*Composition:* About 5 percent

Billings and similar soils

*Composition:* About 5 percent

Killpack and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in winter, wildlife habitat

## 45—Gladel-Bond-Rock outcrop complex, 1 to 50 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 46 to 50 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Gladel and similar soils: 35 percent

Bond and similar soils: 30 percent

Rock outcrop: 30 percent

Minor components: 5 percent

### Component Descriptions

#### Gladel soils

*Landform:* Mesa, structural bench, escarpment

*Parent material:* Residuum weathered from sandstone

*Slope:* 1 to 50 percent

*Depth to restrictive feature:* 5 to 15 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid

*Available water capacity:* About 1.1 inches (very low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Indian ricegrass, bluebunch wheatgrass, galleta, blue grama, bottlebrush squirreltail

*Potential production of cordwood:* 2 to 5 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 8 inches—sandy loam

8 to 12 inches—unweathered bedrock

#### Bond soils

*Landform:* Escarpment, mesa, structural bench

*Parent material:* Residuum weathered from sandstone

*Slope:* 1 to 50 percent

*Depth to restrictive feature:* 6 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 2.1 inches (very low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 5 (slightly sodic)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, blue grama, true mountain mahogany, antelope bitterbrush, big sagebrush, singleleaf ash, squaw apple

*Potential production of cordwood:* 2 to 5 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7s

*Typical profile:*

0 to 3 inches—fine sandy loam

3 to 16 inches—sandy clay loam, clay loam

16 to 20 inches—unweathered bedrock

#### Rock outcrop

*Description:* Rock outcrop consists of exposed sandstone bedrock. Areas are gently sloping to very steep. They occur as 10 to 50 foot escarpments and as scattered outcrops 1 inch to 12 inches above ground level.

*Landform:* Mesa, escarpment, structural bench

*Slope:* 1 to 50 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

#### Minor Components

Paradox and similar soils

*Composition:* About 5 percent

*Landform:* Alluvial fan

#### Major Uses

Livestock grazing, wildlife habitat

**46—Gladel-Bond-Rock outcrop complex,  
cool, 3 to 25 percent slopes**

**Map Unit Setting**

*Major Land Resource Area: 35*

*Elevation: 6,800 to 7,400 feet (2,073 to 2,256 meters)*

*Mean annual precipitation: 13 to 15 inches (330 to  
381 millimeters)*

*Average annual air temperature: 45 to 47 degrees F  
(7 to 8 degrees C)*

*Frost-free period: 100 to 120 days*

**Map Unit Composition**

Gladel and similar soils: 35 percent

Bond and similar soils: 30 percent

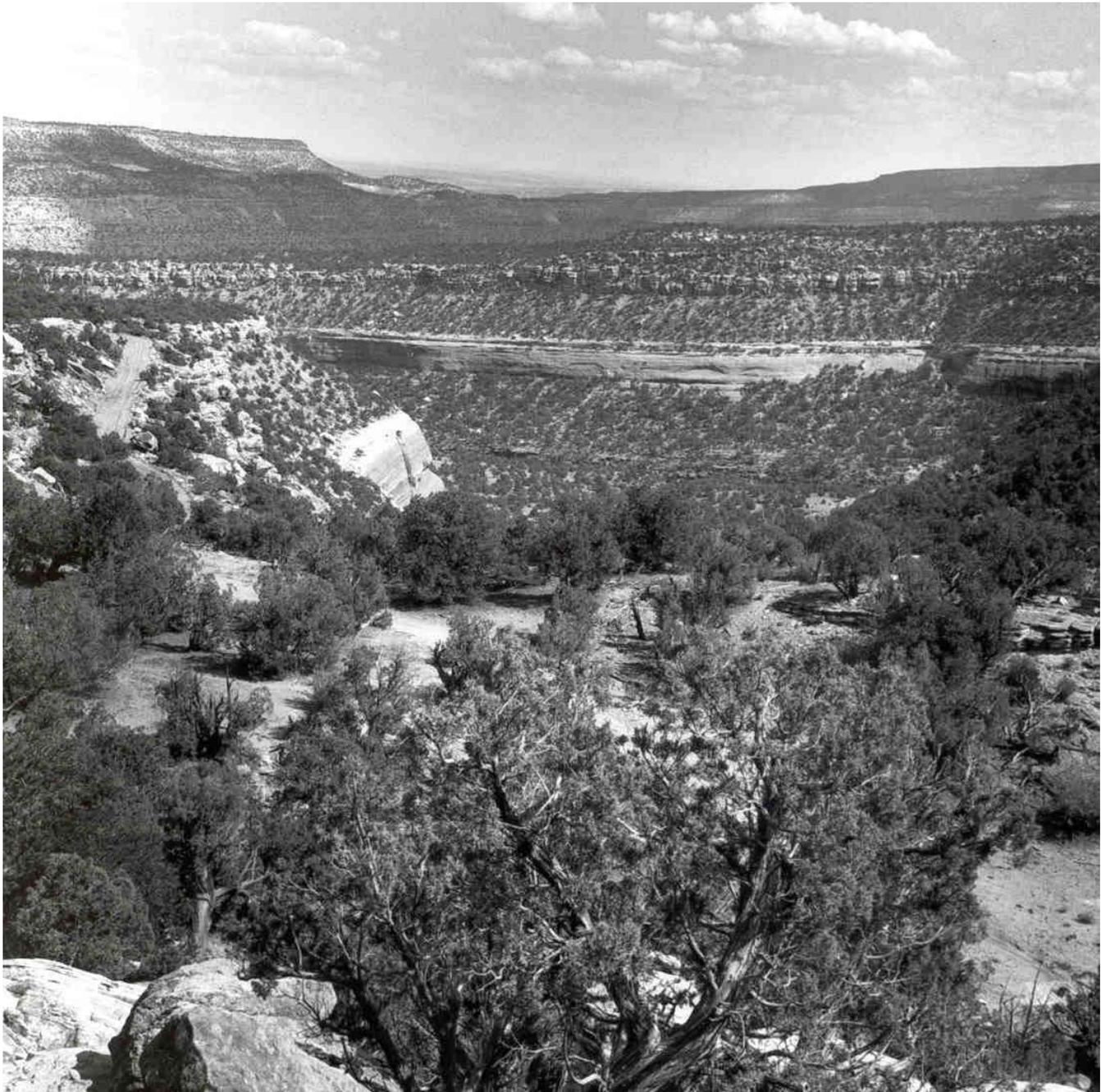


Figure 10.—A Pinyon-Juniper woodland area on Gladel-Bond-Rock outcrop complex, 1 to 50 percent slopes.

Rock outcrop: 25 percent  
 Minor components: 10 percent

### Component Descriptions

#### Gladel soils

*Landform:* Ridge, mesa  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 3 to 25 percent  
*Depth to restrictive feature:* 5 to 15 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid  
*Available water capacity:* About 1.1 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pinyon-Juniper  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, Indian ricegrass, bluebunch wheatgrass, galleta, blue grama, bottlebrush squirreltail  
*Potential production of cordwood:* 2 to 5 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 8 inches—sandy loam  
 8 to 12 inches—unweathered bedrock

#### Bond soils

*Landform:* Mesa, ridge  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 3 to 25 percent  
*Depth to restrictive feature:* 6 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 2.1 inches (very low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodicity maximum:* Sodium adsorption ratio about 5 (slightly sodic)  
*Ecological site:* Pinyon-Juniper (fig. 10)

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, blue grama, true mountain mahogany, antelope bitterbrush, big sagebrush, squaw apple

*Potential production of cordwood:* 2 to 5 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7s

#### Typical profile:

0 to 3 inches—fine sandy loam  
 3 to 16 inches—sandy clay loam, clay loam  
 16 to 20 inches—unweathered bedrock

#### Rock outcrop

*Description:* Rock outcrop consists of exposed sandstone bedrock. It occurs as outcrops 1 inch to 12 inches above ground level.

*Landform:* Mesa, ridge

*Slope:* 3 to 25 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

#### Minor Components

Monticello and similar soils

*Composition:* About 5 percent

Pinon, cool and similar soils

*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

## 47—Gurley loam, 1 to 8 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Gurley and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Gurley soils

*Landform:* Mesa, terrace

*Parent material:* Residuum weathered from interbedded sandstone and shale  
*Slope:* 1 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 5.5 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 50 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush  
*Land capability subclass (irrigated):* 3e  
*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 4 inches—loam  
 4 to 21 inches—clay loam  
 21 to 37 inches—loam  
 37 to 41 inches—unweathered bedrock

**Minor Components**

Aquolls and similar soils  
*Composition:* About 5 percent  
*Landform:* Drainageway  
 Callan and similar soils  
*Composition:* About 5 percent  
 Skein and similar soils  
*Composition:* About 5 percent

**Major Uses**

Livestock grazing, wildlife habitat, pasture, cropland

**48—Gurley-Skein loams, 3 to 20 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 34  
*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)  
*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)  
*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)  
*Frost-free period:* 90 to 110 days

**Map Unit Composition**

Gurley and similar soils: 50 percent  
 Skein and similar soils: 40 percent  
 Minor components: 10 percent

**Component Descriptions**

**Gurley soils**

*Landform:* Mesa, terrace  
*Parent material:* Residuum weathered from interbedded sandstone and shale  
*Slope:* 3 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 5.5 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 50 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush  
*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 4 inches—loam  
 4 to 21 inches—clay loam  
 21 to 37 inches—loam  
 37 to 41 inches—unweathered bedrock

**Skein soils**

*Landform:* Mesa, terrace  
*Parent material:* Residuum weathered from interbedded sandstone and shale  
*Slope:* 3 to 20 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 2.1 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 40 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, black sagebrush, Indian ricegrass, western wheatgrass, galleta, saline wildrye

*Potential production of cordwood:* 9 to 14 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 6 inches—loam

6 to 13 inches—loam

13 to 19 inches—very gravelly loam

19 to 23 inches—unweathered bedrock

### Minor Components

Callan and similar soils

*Composition:* About 5 percent

Beje and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing, wildlife habitat

## 49—Gypsiorthids, 3 to 25 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 4,900 to 6,600 feet (1,494 to 2,012 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 46 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 140 days

### Map Unit Composition

Gypsiorthids and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Gypsiorthids soils

*Landform:* Valley floor, terrace

*Parent material:* Residuum weathered from gypsum

*Slope:* 3 to 25 percent

*Depth to restrictive feature:* Greater than 60 inches to bedrock

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 5.1 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 85 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Potential native vegetation:* Indian ricegrass, Greene's rabbitbrush, sand dropseed, New Mexico feathergrass, Wyoming big sagebrush, bottlebrush squirreltail, cryptantha, fourwing saltbush, galleta, scarlet globemallow, winterfat

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 inches to 1 inch—loam

1 inch to 11 inches—loam

11 to 23 inches—loam

23 to 44 inches—silt loam

### Minor Components

Moderately deep Gypsiorthids and similar soils

*Composition:* About 10 percent

Paradox and similar soils

*Composition:* About 5 percent

*Landform:* Depression

### Major Uses

Livestock grazing in winter and spring, wildlife habitat

## 50—Gypsum land

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 4,900 to 6,600 feet (1,494 to 2,012 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 120 to 140 days

### Map Unit Composition

Gypsum land and similar soils: 95 percent

Minor components: 5 percent

### Component Descriptions

#### Gypsum Land

*Description:* Gypsum land consists of nearly barren exposures of soft gypsum. In some areas the surface layer is loam.

*Landform:* Knob on valley floor

*Slope:* 12 to 70 percent

*Hazard of flooding:* None

*Gypsum maximum:* About 100 percent  
*Salinity maximum:* About 32 mmhos/cm (strongly saline)

*Land capability subclass (nonirrigated):* 8s

#### Minor Components

Paradox and similar soils  
*Composition:* About 5 percent  
*Landform:* Depression

#### Major Uses

Wildlife habitat

### 51—Haplaquolls, 0 to 3 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 34  
*Elevation:* 6,800 to 8,200 feet (2,073 to 2,499 meters)  
*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)  
*Average annual air temperature:* 41 to 45 degrees F (5 to 7 degrees C)  
*Frost-free period:* 70 to 110 days

#### Map Unit Composition

Haplaquolls and similar soils: 85 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Haplaquolls soils

*Landform:* Flood plain, slough  
*Parent material:* Alluvium from mixed sources  
*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* Greater than 60 inches to bedrock  
*Drainage class:* Poorly drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 7.0 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* Frequent  
*Depth to seasonal high water table:* 18 to 36 inches  
*Runoff class:* Low  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Ecological site:* Mountain Meadow  
*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, sedge  
*Land capability subclass (nonirrigated):* 5w

##### Typical profile:

0 to 21 inches—loam  
 21 to 30 inches—cobbly sandy loam

30 to 60 inches—very gravelly sandy clay loam

#### Minor Components

Callan and similar soils  
*Composition:* About 5 percent  
 Gurley and similar soils  
*Composition:* About 5 percent  
 Mitch and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

### 52—Killpack-Deaver loams, 2 to 15 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 5,600 to 6,300 feet (1,707 to 1,920 meters)  
*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)  
*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)  
*Frost-free period:* 130 to 150 days

#### Map Unit Composition

Killpack and similar soils: 50 percent  
 Deaver and similar soils: 30 percent  
 Minor components: 20 percent

#### Component Descriptions

##### Killpack soils

*Landform:* Terrace, hill  
*Parent material:* Residuum weathered from shale  
*Slope:* 2 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 5.0 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Gypsum maximum:* About 1 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Ecological site:* Silty Salt Desert  
*Potential native vegetation:* galleta, shadscale saltbush, bud sagebrush, Indian ricegrass,

bottlebrush squirreltail, mat saltbush,  
saline wildrye

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 9 inches—loam  
9 to 30 inches—silty clay loam, clay loam  
30 to 34 inches—weathered bedrock

**Deaver soils**

*Landform:* Hill, terrace

*Parent material:* Residuum weathered from shale

*Slope:* 2 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to  
bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 4.4 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72  
inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 10 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly  
saline)

*Sodicity maximum:* Sodium adsorption ratio about 10  
(slightly sodic)

*Ecological site:* Silty Salt Desert

*Potential native vegetation:* galleta, shadscale  
saltbush, bud sagebrush, Indian ricegrass,  
bottlebrush squirreltail, fourwing saltbush, saline  
wildrye

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 4 inches—loam  
4 to 31 inches—clay, clay loam  
31 to 35 inches—unweathered bedrock

**Minor Components**

Rock outcrop

*Composition:* About 10 percent

*Landform:* Knob

Chipeta and similar soils

*Composition:* About 5 percent

Persayo and similar soils

*Composition:* About 5 percent

**Major Uses**

Livestock grazing in winter, wildlife habitat

**53—Leaps-Hofly loams, 5 to 40 percent  
slopes**

**Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,600 to 10,000 feet (2,621 to 3,048  
meters)

*Mean annual precipitation:* 24 to 26 inches (610 to  
660 millimeters)

*Average annual air temperature:* 35 to 37 degrees F  
(2 to 3 degrees C)

*Frost-free period:* 40 to 60 days

**Map Unit Composition**

Leaps and similar soils: 45 percent

Hofly and similar soils: 40 percent

Minor components: 15 percent

**Component Descriptions**

**Leaps soils**

*Landform:* Hill, mountain slope

*Parent material:* Alluvium and colluvium derived from  
shale

*Slope:* 5 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.7 inches (moderate)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72  
inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Deep Clay Loam

*Potential native vegetation:* western wheatgrass,  
Letterman's needlegrass, muttongrass, slender  
wheatgrass, mountain big sagebrush, mule-ears,  
noddling brome, scarlet Indian paintbrush, silvery  
lupine, sulphur wildbuckwheat

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 12 inches—loam  
12 to 60 inches—clay

**Hofly soils**

*Landform:* Hill, mountain slope

*Parent material:* Colluvium derived from shale

*Slope:* 5 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 9.8 inches (high)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* None  
*Ecological site:* Brushy Loam  
*Potential native vegetation:* Gambel's oak, Utah serviceberry, elk sedge, slender wheatgrass, western wheatgrass, Letterman's needlegrass, mountain brome, nodding brome, prairie Junegrass  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 3 inches—loam  
 3 to 32 inches—clay loam  
 32 to 60 inches—clay

**Minor Components**

Cryoborolls and similar soils  
*Composition:* About 10 percent  
 Borolls and similar soils  
*Composition:* About 5 percent

**Major Uses**

Livestock grazing, wildlife habitat

**54—Leaps-Tellura complex, 5 to 20 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 48A  
*Elevation:* 8,500 to 10,500 feet (2,591 to 3,200 meters)  
*Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)  
*Average annual air temperature:* 35 to 40 degrees F (2 to 4 degrees C)  
*Frost-free period:* 40 to 70 days

**Map Unit Composition**

Leaps and similar soils: 60 percent  
 Tellura and similar soils: 25 percent  
 Minor components: 15 percent

**Component Descriptions**

**Leaps soils**

*Landform:* Structural bench, mountain slope, alluvial fan  
*Parent material:* Alluvium and colluvium derived from shale

*Slope:* 5 to 20 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 8.8 inches (moderate)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* None  
*Ecological site:* Deep Clay Loam  
*Potential native vegetation:* western wheatgrass, Arizona fescue, muttongrass, mountain big sagebrush, nodding brome, common snowberry  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 10 inches—loam  
 10 to 60 inches—clay

**Tellura soils**

*Landform:* Structural bench, alluvial fan, mountain slope  
*Parent material:* Till, outwash, and colluvium from mixed sources  
*Slope:* 5 to 20 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 5.9 inches (low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Subalpine Clay  
*Potential native vegetation:* Thurber's fescue, Letterman's needlegrass, nodding brome, slender wheatgrass, mule-ears, shrubby cinquefoil  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 14 inches—clay loam  
 14 to 36 inches—very gravelly clay  
 36 to 60 inches—very gravelly clay loam

**Minor Components**

Borolls and similar soils  
*Composition:* About 10 percent  
 Skisams and similar soils  
*Composition:* About 3 percent

Cryaquolls and similar soils

*Composition:* About 2 percent

*Landform:* Alluvial fan

### Major Uses

Livestock grazing in summer, wildlife habitat, hayland

## 55—Lillylands loam, 15 to 50 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 482 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Lillylands and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Lillylands soils

*Landform:* Mountain slope

*Parent material:* Colluvium derived from sandstone and mixed sources

*Slope:* 15 to 50 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.5 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Brushy Loam

*Potential native vegetation:* Gambel's oak, Saskatoon serviceberry, elk sedge, mountain brome, mountain snowberry, needlegrass, slender wheatgrass, western wheatgrass

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 4 inches—loam

4 to 30 inches—clay loam

30 to 60 inches—gravelly clay

### Minor Components

Spectacle and similar soils

*Composition:* About 10 percent

Acree and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in summer, wildlife habitat

## 56—Mikim loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,100 to 6,600 feet (1,554 to 2,012 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 90 to 120 days

### Map Unit Composition

Mikim and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Mikim soils

*Landform:* Valley floor

*Parent material:* Alluvium derived from shale

*Slope:* 1 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 8.3 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* Rare

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Low

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* Wyoming big sagebrush, galleta, needleandthread, Indian ricegrass, bottlebrush squirreltail

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

*Typical profile:*

0 to 6 inches—loam

6 to 45 inches—loam  
45 to 60 inches—gravelly sandy loam

### Minor Components

Vanada and similar soils

*Composition:* About 5 percent

Paradox and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in winter and spring, wildlife habitat, pasture, cropland

## 57—Minchey fine sandy loam, 1 to 10 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,400 to 6,000 feet (1,646 to 1,829 meters)

*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)

*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)

*Frost-free period:* 130 to 150 days

### Map Unit Composition

Minchey and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Minchey soils

*Landform:* Mesa, structural bench, alluvial fan

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 10 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 7.2 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Salt Desert

*Potential native vegetation:* Indian ricegrass, galleta, shadscale saltbush, winterfat, Wyoming big sagebrush, bottlebrush squirreltail, bud sagebrush, needleandthread

*Land capability subclass (nonirrigated):* 6c

#### Typical profile:

0 to 5 inches—fine sandy loam

5 to 30 inches—sandy clay loam, gravelly sandy clay loam

30 to 60 inches—very gravelly sandy loam

### Minor Components

Farb and similar soils

*Composition:* About 5 percent

Redlands and similar soils

*Composition:* About 5 percent

Soils similar to Minchey but are moderately deep

*Composition:* About 3 percent

Soils similar to Minchey but with a natric horizon

*Composition:* About 2 percent

### Major Uses

Livestock grazing in winter, wildlife habitat

## 58—Mitch loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 36

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Mitch and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Mitch soils

*Landform:* Valley floor, drainageway

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 11.4 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* Rare

*Depth to seasonal high water table:* 24 to 48 inches

*Runoff class:* Low

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Truckee rabbitbrush, Utah serviceberry, black sagebrush, bottlebrush squirreltail

*Land capability subclass (irrigated):* 3c  
*Land capability subclass (nonirrigated):* 3c

*Typical profile:*

0 to 14 inches—loam  
 14 to 28 inches—silt loam  
 28 to 60 inches—silt loam

**Minor Components**

Aquolls and similar soils  
*Composition:* About 5 percent  
*Landform:* Drainageway  
 Callan and similar soils  
*Composition:* About 5 percent  
 Zoltay and similar soils  
*Composition:* About 5 percent

**Major Uses**

Livestock grazing in spring, fall, and winter; wildlife habitat; cropland

**59—Mivida fine sandy loam, 5 to 15 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 35  
*Elevation:* 4,900 to 6,600 feet (1,494 to 2,012 meters)  
*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)  
*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)  
*Frost-free period:* 110 to 130 days

**Map Unit Composition**

Mivida and similar soils: 85 percent  
 Minor components: 15 percent

**Component Descriptions**

**Mivida soils**

*Landform:* Alluvial fan  
*Parent material:* Alluvium and outwash derived from sandstone  
*Slope:* 5 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid  
*Available water capacity:* About 7.1 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Low  
*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 2 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Semidesert Sandy Loam  
*Potential native vegetation:* Indian ricegrass, fourwing saltbush, needleandthread, Wyoming big sagebrush, ephedra, galleta, sand dropseed  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 3 inches—fine sandy loam  
 3 to 60 inches—fine sandy loam

**Minor Components**

Begay and similar soils  
*Composition:* About 5 percent  
 Clapper and similar soils  
*Composition:* About 5 percent  
 Paradox and similar soils  
*Composition:* About 5 percent

**Major Uses**

Livestock grazing in winter and spring, wildlife habitat

**60—Monogram loam, 1 to 8 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 34  
*Elevation:* 6,800 to 7,300 feet (2,073 to 2,225 meters)  
*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)  
*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)  
*Frost-free period:* 90 to 120 days

**Map Unit Composition**

Monogram and similar soils: 85 percent  
 Minor components: 15 percent

**Component Descriptions**

**Monogram soils**

*Landform:* Mesa, structural bench  
*Parent material:* Eolian deposits  
*Slope:* 1 to 8 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 9.9 inches (high)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches



Figure 11.—In the foreground is a Loamy Foothills ecological site on Monogram loam, 1 to 8 percent slopes. The San Miguel Mountains are in the far background with Lone Cone Mountain in the center background.

*Runoff class:* High

*Calcium carbonate maximum:* About 70 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Foothills (fig. 11)

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, black sagebrush, bottlebrush squirreltail, needleandthread, prairie Junegrass

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 3 inches—loam

3 to 14 inches—loam

14 to 28 inches—loam, clay loam

28 to 60 inches—sandy clay loam, loam

#### Minor Components

Evanston and similar soils

*Composition:* About 5 percent

Progresso and similar soils

*Composition:* About 5 percent

Ackmen and similar soils

*Composition:* About 5 percent

#### Major Uses

Livestock grazing in spring and fall, wildlife habitat

## 61—Monticello-Witt loams, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 36  
*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)  
*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)  
*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)  
*Frost-free period:* 100 to 120 days

### Map Unit Composition

Monticello and similar soils: 60 percent  
 Witt and similar soils: 30 percent  
 Minor components: 10 percent

### Component Descriptions

#### Monticello soils

*Landform:* Mesa, ridge  
*Parent material:* Eolian deposits derived from sandstone  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 8.9 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Low  
*Calcium carbonate maximum:* About 25 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* muttongrass, western wheatgrass, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush  
*Land capability subclass (nonirrigated):* 3c  
*Typical profile:*  
 0 to 10 inches—loam  
 10 to 30 inches—loam  
 30 to 74 inches—loam

#### Witt soils

*Landform:* Mesa, ridge  
*Parent material:* Eolian deposits derived from sandstone, reworked by water  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 11.1 inches (high)  
*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 45 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* western wheatgrass, muttongrass, Indian ricegrass, Wyoming big sagebrush, needleandthread  
*Land capability subclass (nonirrigated):* 6c

#### Typical profile:

0 to 9 inches—loam  
 9 to 31 inches—clay loam  
 31 to 60 inches—loam

#### Minor Components

Pulpit and similar soils  
*Composition:* About 5 percent  
 Bowdish, cool and similar soils  
*Composition:* About 5 percent

#### Major Uses

Cropland, livestock grazing, wildlife habitat

## 62—Monticello-Witt loams, 3 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 36  
*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)  
*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)  
*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)  
*Frost-free period:* 100 to 120 days

### Map Unit Composition

Monticello and similar soils: 60 percent  
 Witt and similar soils: 30 percent  
 Minor components: 10 percent

### Component Descriptions

#### Monticello soils

*Landform:* Mesa, ridge  
*Parent material:* Eolian deposits derived from sandstone  
*Slope:* 3 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 8.9 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 25 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* muttongrass, western wheatgrass, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush  
*Land capability subclass (nonirrigated):* 3e

*Typical profile:*  
 0 to 10 inches—loam  
 10 to 30 inches—loam  
 30 to 74 inches—loam

#### **Witt soils**

*Landform:* Mesa, ridge  
*Parent material:* Eolian deposits derived from sandstone, reworked by water  
*Slope:* 3 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 11.1 inches (high)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 45 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* western wheatgrass, muttongrass, Indian ricegrass, Wyoming big sagebrush, needleandthread  
*Land capability subclass (nonirrigated):* 6c  
*Typical profile:*  
 0 to 9 inches—loam  
 9 to 31 inches—clay loam  
 31 to 60 inches—loam

#### **Minor Components**

Pulpit and similar soils  
*Composition:* About 5 percent  
 Bowdish, cool and similar soils  
*Composition:* About 5 percent

#### **Major Uses**

Cropland, livestock grazing, wildlife habitat

## **63—Monticello-Witt loams, 6 to 12 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 36  
*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)  
*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)  
*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)  
*Frost-free period:* 100 to 120 days

### **Map Unit Composition**

Monticello and similar soils: 60 percent  
 Witt and similar soils: 30 percent  
 Minor components: 10 percent

### **Component Descriptions**

#### **Monticello soils**

*Landform:* Mesa, ridge  
*Parent material:* Eolian deposits derived from sandstone  
*Slope:* 6 to 12 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 8.9 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 25 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* muttongrass, western wheatgrass, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, green rabbitbrush  
*Land capability subclass (nonirrigated):* 4e  
*Typical profile:*  
 0 to 10 inches—loam  
 10 to 30 inches—loam  
 30 to 74 inches—loam

#### **Witt soils**

*Landform:* Mesa, ridge  
*Parent material:* Eolian deposits derived from sandstone, reworked by water  
*Slope:* 6 to 12 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow

*Available water capacity:* About 11.1 inches (high)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 45 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* western wheatgrass, muttongrass, Indian ricegrass, Wyoming big sagebrush, needleandthread  
*Land capability subclass (nonirrigated):* 6c

*Typical profile:*  
 0 to 9 inches—loam  
 9 to 31 inches—clay loam  
 31 to 60 inches—loam

#### Minor Components

Pulpit and similar soils  
*Composition:* About 5 percent  
 Bowdish, cool and similar soils  
*Composition:* About 5 percent

#### Major Uses

Cropland, livestock grazing, wildlife habitat

### 64—Narraguinnep clay loam, moist, 15 to 50 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 34  
*Elevation:* 7,200 to 8,500 feet (2,195 to 2,591 meters)  
*Mean annual precipitation:* 19 to 22 inches (483 to 559 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

#### Map Unit Composition

Narraguinnep and similar soils: 90 percent  
 Minor components: 10 percent

#### Component Descriptions

##### Narraguinnep soils

*Landform:* Hill, mountain slope  
*Parent material:* Alluvium derived from shale  
*Slope:* 15 to 50 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow

*Available water capacity:* About 10.1 inches (high)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Brushy Loam  
*Potential native vegetation:* Gambel's oak, big bluegrass, elk sedge, mountain brome, Saskatoon serviceberry, mountain snowberry, needlegrass, slender wheatgrass, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*  
 0 to 7 inches—clay loam  
 7 to 33 inches—clay loam  
 33 to 60 inches—clay loam

#### Minor Components

Acree and similar soils  
*Composition:* About 5 percent  
 Mitch and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

### 65—Narraguinnep-Dapoin complex, 1 to 15 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 34  
*Elevation:* 7,200 to 8,500 feet (2,194 to 2,591 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

#### Map Unit Composition

Narraguinnep and similar soils: 55 percent  
 Dapoin and similar soils: 30 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Narraguinnep soils

*Landform:* Alluvial fan  
*Parent material:* Alluvium derived from shale

*Slope:* 1 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 10.3 inches (high)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Deep Clay Loam  
*Potential native vegetation:* western wheatgrass, Letterman's needlegrass, mountain big sagebrush, Saskatoon serviceberry, muttongrass, slender wheatgrass  
*Land capability subclass (irrigated):* 6e  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 7 inches—silty clay loam  
 7 to 30 inches—clay  
 30 to 60 inches—silty clay loam

#### **Dapoin soils**

*Landform:* Alluvial fan  
*Parent material:* Alluvium derived from shale  
*Slope:* 1 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 10.2 inches (high)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Deep Clay Loam  
*Potential native vegetation:* western wheatgrass, Letterman's needlegrass, mountain big sagebrush, Saskatoon serviceberry, muttongrass, slender wheatgrass  
*Land capability subclass (irrigated):* 6e  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 13 inches—clay loam  
 13 to 29 inches—clay  
 29 to 38 inches—clay loam, clay  
 38 to 60 inches—clay loam

#### **Minor Components**

Mitch and similar soils  
*Composition:* About 5 percent  
 Acree and similar soils  
*Composition:* About 5 percent  
 Sapeha and similar soils  
*Composition:* About 5 percent

#### **Major Uses**

Livestock grazing, wildlife habitat, hayland, pasture

### **66—Nortez loam, 1 to 6 percent slopes**

#### **Map Unit Setting**

*Major Land Resource Area:* 34  
*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

#### **Map Unit Composition**

Nortez and similar soils: 85 percent  
 Minor components: 15 percent

#### **Component Descriptions**

##### **Nortez soils**

*Landform:* Structural bench  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 1 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 5.4 inches (low)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pine Grasslands  
*Potential native vegetation:* ponderosa pine, Arizona fescue, needleandthread, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's

oak, antelope bitterbrush, mountain big sagebrush, mountain brome, prairie Junegrass  
*Land capability subclass (irrigated):* 4s  
*Land capability subclass (nonirrigated):* 4s

*Typical profile:*

0 to 8 inches—loam  
 8 to 24 inches—cobbley clay loam, clay loam  
 24 to 32 inches—loam  
 32 to 36 inches—unweathered bedrock

**Minor Components**

Acree and similar soils

*Composition:* About 5 percent

Fivepine and similar soils

*Composition:* About 5 percent

Borolls and similar soils

*Composition:* About 3 percent

Haplaquolls and similar soils

*Composition:* About 2 percent

*Landform:* Drainageway

**Major Uses**

Livestock grazing, wildlife habitat, cropland, pasture

**67—Nortez loam, 6 to 12 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

**Map Unit Composition**

Nortez and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Nortez soils**

*Landform:* Structural bench

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pine Grasslands

*Potential native vegetation:* ponderosa pine, Arizona fescue, needleandthread, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's oak, antelope bitterbrush, mountain big sagebrush, mountain brome, prairie Junegrass

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 8 inches—loam  
 8 to 24 inches—cobbley clay loam, clay loam  
 24 to 32 inches—loam  
 32 to 36 inches—unweathered bedrock

**Minor Components**

Acree and similar soils

*Composition:* About 5 percent

Fivepine and similar soils

*Composition:* About 5 percent

Borolls and similar soils

*Composition:* About 3 percent

Haplaquolls and similar soils

*Composition:* About 2 percent

*Landform:* Drainageway

**Major Uses**

Livestock grazing, wildlife habitat, cropland, pasture

**68—Nortez-Acree loams, 1 to 12 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)

*Mean annual precipitation:* 17 to 19 inches (432 to 483 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

**Map Unit Composition**

Nortez and similar soils: 50 percent

Acree and similar soils: 35 percent

Minor components: 15 percent

## Component Descriptions

### Nortez soils

*Landform:* Mesa, structural bench

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pine Grasslands

*Potential native vegetation:* ponderosa pine, Arizona fescue, needleandthread, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's

oak, antelope bitterbrush, mountain big sagebrush, mountain brome, prairie Junegrass

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

### *Typical profile:*

0 to 8 inches—loam

8 to 24 inches—clay loam, cobbly clay loam

24 to 32 inches—loam

32 to 36 inches—unweathered bedrock

### Acree soils

*Landform:* Mesa, structural bench

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches



Figure 12.—The foreground shows summer grazing on Nortez-Acree loams, 1 to 12 percent slopes.

*Runoff class:* Very high

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Mountain Loam

*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, mountain big sagebrush, nodding brome, slender wheatgrass

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 8 inches—loam

8 to 30 inches—clay, clay loam

30 to 60 inches—clay loam

### Minor Components

Fivepine and similar soils

*Composition:* About 5 percent

Borolls and similar soils

*Composition:* About 5 percent

Zoltay and similar soils

*Composition:* About 3 percent

*Landform:* Swale

Haplaquolls and similar soils

*Composition:* About 2 percent

*Landform:* Swale

### Major Uses

Livestock grazing in summer and fall, wildlife habitat, cropland, pasture (fig. 12)

## 69—Nortez-Fivepine loams, 1 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 34

*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)

*Mean annual precipitation:* 16 to 19 inches (406 to 483 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

### Map Unit Composition

Nortez and similar soils: 45 percent

Fivepine and similar soils: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Nortez soils

*Landform:* Mesa, structural bench

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pine Grasslands

*Potential native vegetation:* ponderosa pine, Arizona fescue, needleandthread, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's oak, antelope bitterbrush, mountain big sagebrush, mountain brome, prairie Junegrass

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 8 inches—loam

8 to 24 inches—clay loam, cobbly clay loam

24 to 32 inches—loam

32 to 36 inches—unweathered bedrock

### Fivepine soils

*Landform:* Mesa, structural bench

*Parent material:* Residuum weathered from sandstone

*Slope:* 1 to 12 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 2.3 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* Rocky Mountain juniper, ponderosa pine, twoneedle pinyon, Gambel's oak, mountain muhly, prairie Junegrass, elk sedge, muttongrass

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

- 0 to 5 inches—loam
- 5 to 9 inches—clay loam
- 9 to 15 inches—clay
- 15 to 19 inches—unweathered bedrock

**Minor Components**

Acree and similar soils

*Composition:* About 5 percent

Zoltay and similar soils

*Composition:* About 5 percent

Rock outcrop

*Composition:* About 5 percent

**Major Uses**

Livestock grazing in summer and fall, wildlife habitat, cropland, pasture

**70—Nunemaker clay, 3 to 10 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,800 feet (2,073 to 2,377 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Average annual air temperature:* 44 to 46 degrees F (7 to 8 degrees C)

*Frost-free period:* 90 to 110 days

**Map Unit Composition**

Nunemaker and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Nunemaker soils**

*Landform:* Valley floor, drainageway

*Parent material:* Alluvium derived from shale

*Slope:* 3 to 10 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.3 inches (moderate)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Clayey Foothills

*Potential native vegetation:* Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail, fourwing saltbush, muttongrass, yellow rabbitbrush

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

- 0 to 3 inches—clay
- 3 to 26 inches—clay
- 26 to 60 inches—clay

**Minor Components**

Dapoin and similar soils

*Composition:* About 10 percent

**Major Uses**

Livestock grazing, wildlife habitat

**71—Nyswonger silty clay loam, 1 to 4 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 4,900 to 6,800 feet (1,494 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 46 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 110 to 140 days

**Map Unit Composition**

Nyswonger and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Nyswonger soils**

*Landform:* Alluvial fan, valley floor, terrace

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Slowest permeability:* Slow

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* Rare

*Depth to seasonal high water table:* 42 to 48 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Foothill Swale

*Potential native vegetation:* basin wildrye, basin big sagebrush, streambank wheatgrass, western wheatgrass, fourwing saltbush

*Land capability subclass (irrigated):* 2e  
*Land capability subclass (nonirrigated):* 6c

*Typical profile:*

0 to 3 inches—silty clay loam  
 3 to 11 inches—clay  
 11 to 19 inches—clay loam  
 19 to 41 inches—sandy clay loam  
 41 to 60 inches—clay

**Minor Components**

Paradox and similar soils

*Composition:* About 5 percent

Soils similar to Nyswonger but well drained

*Composition:* About 5 percent

**Major Uses**

Cropland, livestock grazing, wildlife habitat

**72—Pagoda-Coulterg-Cabba complex, 10 to 60 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 7,200 to 8,100 feet (2,195 to 2,469 meters)

*Mean annual precipitation:* 16 to 18 inches (406 to 457 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 80 to 100 days

**Map Unit Composition**

Pagoda and similar soils: 35 percent

Coulterg and similar soils: 30 percent

Cabba and similar soils: 20 percent

Minor components: 15 percent

**Component Descriptions**

**Pagoda soils**

*Landform:* Hill

*Parent material:* Residuum weathered from shale

*Slope:* 10 to 30 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 11.8 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine, Arizona fescue, Gambel's oak, western wheatgrass, pine dropseed, prairie Junegrass, Fendler's meadowrue, Utah serviceberry, bluegrass, bottlebrush squirreltail, common snowberry, mountain muhly, nodding brome

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 4 inches—clay loam  
 4 to 26 inches—clay loam, clay  
 26 to 60 inches—clay loam

**Coulterg soils**

*Landform:* Hill

*Parent material:* Residuum weathered from shale

*Slope:* 10 to 50 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Ecological site:* Ponderosa Pine

*Potential native vegetation:* ponderosa pine, Gambel's oak, elk sedge, mountain brome, slender wheatgrass, Letterman's needlegrass, Saskatoon serviceberry, mountain snowberry

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 10 inches—clay loam  
 10 to 60 inches—loam, clay loam

**Cabba soils**

*Landform:* Hill

*Parent material:* Residuum weathered from shale

*Slope:* 20 to 60 percent, southeast to southwest aspects

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 1.1 inches (very low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)  
*Ecological site:* Ponderosa Pine  
*Potential native vegetation:* ponderosa pine, Gambel's oak, elk sedge, mountain brome, slender wheatgrass, Letterman's needlegrass, Saskatoon serviceberry, mountain snowberry  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*  
 0 to 4 inches—channery loam  
 4 to 10 inches—very channery silty clay loam  
 10 to 14 inches—unweathered bedrock

#### Minor Components

Acree and similar soils  
*Composition:* About 10 percent  
 Narraguinnep and similar soils  
*Composition:* About 5 percent

#### Major Uses

Timber production, livestock grazing, wildlife habitat

### 73—Paradox fine sandy loam, 1 to 4 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 4,900 to 6,500 feet (1,494 to 1,981 meters)  
*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)  
*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)  
*Frost-free period:* 120 to 140 days

#### Map Unit Composition

Paradox and similar soils: 85 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Paradox soils

*Landform:* Valley floor, alluvial fan  
*Parent material:* Alluvium derived from sandstone  
*Slope:* 1 to 4 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 9.1 inches (high)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Low  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Semidesert Sandy Loam (fig. 13)  
*Potential native vegetation:* Indian ricegrass, fourwing saltbush, needleandthread, Wyoming big sagebrush, galleta, sand dropseed  
*Land capability subclass (irrigated):* 2e  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 5 inches—fine sandy loam  
 5 to 19 inches—fine sandy loam  
 19 to 60 inches—loam

#### Minor Components

Ustic Torriorthents and similar soils  
*Composition:* About 10 percent  
*Landform:* Drainageway

Gypsiorthids and similar soils  
*Composition:* About 3 percent  
*Landform:* Knob

Begay and similar soils  
*Composition:* About 2 percent  
*Landform:* Knob

#### Major Uses

Livestock grazing in winter, wildlife habitat, cropland, pasture

### 74—Persayo-Chipeta complex, 2 to 20 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)  
*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)  
*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)  
*Frost-free period:* 130 to 150 days

#### Map Unit Composition

Persayo and similar soils: 50 percent  
 Chipeta and similar soils: 35 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Persayo soils

*Landform:* Hill, terrace



**Figure 13.**—Semidesert Sandy Loam ecological site is in the foreground on Paradox fine sandy loam, 1 to 4 percent slopes. The soils on the slightly raised knobs and small hills are Gypsiorthids, 3 to 25 percent slopes.

*Parent material:* Residuum weathered from shale  
*Slope:* 2 to 20 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 2.5 inches (very low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Ecological site:* Silty Salt Desert

*Potential native vegetation:* galleta, shadscale saltbush, Indian ricegrass, blue grama, bottlebrush squirreltail, bud sagebrush, fourwing saltbush, saline wildrye, spiny phlox, western wheatgrass, yellow rabbitbrush

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 2 inches—clay loam

2 to 14 inches—clay loam

14 to 18 inches—unweathered bedrock

**Chipeta soils**

*Landform:* Hill, terrace  
*Parent material:* Residuum weathered from shale  
*Slope:* 2 to 20 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 2.3 inches (very low)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Gypsum maximum:* About 10 percent  
*Salinity maximum:* About 16 mmhos/cm (moderately saline)  
*Sodicity maximum:* Sodium adsorption ratio about 15 (moderately sodic)  
*Ecological site:* Clayey Saltdesert  
*Potential native vegetation:* fourwing saltbush, Indian ricegrass, galleta, mat saltbush, shadscale saltbush, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 2 inches—silty clay  
 2 to 8 inches—clay  
 8 to 15 inches—clay  
 15 to 19 inches—weathered bedrock

**Minor Components**

Billings and similar soils  
*Composition:* About 5 percent  
*Landform:* Drainageway  
 Killpack and similar soils  
*Composition:* About 5 percent  
 Rock outcrop  
*Composition:* About 5 percent

**Major Uses**

Livestock grazing in winter, wildlife habitat

**75—Pinon-Bowdish-Progresso loams, cool, 1 to 12 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34  
*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)  
*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)  
*Frost-free period:* 90 to 120 days

**Map Unit Composition**

Pinon and similar soils: 35 percent  
 Bowdish and similar soils: 30 percent  
 Progresso and similar soils: 20 percent  
 Minor components: 15 percent

**Component Descriptions****Pinon soils**

*Landform:* Mesa, ridge  
*Parent material:* Residuum weathered from interbedded sandstone and shale  
*Slope:* 1 to 12 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 1.8 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 40 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pinyon-Juniper  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, Gambel's oak, muttongrass, Indian ricegrass, elk sedge, Saskatoon serviceberry, true mountain mahogany  
*Potential production of cordwood:* 8 to 12 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot  
*Land capability subclass (nonirrigated):* 7s

*Typical profile:*  
 0 to 5 inches—loam  
 5 to 16 inches—loam  
 16 to 20 inches—unweathered bedrock

**Bowdish soils**

*Landform:* Mesa, ridge  
*Parent material:* Residuum weathered from interbedded sandstone and shale  
*Slope:* 1 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 3.0 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail, blue grama, muttongrass, needleandthread, prairie Junegrass

*Potential production of cordwood:* 8 to 12 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 5 inches—loam

5 to 12 inches—loam

12 to 23 inches—gravelly loam

23 to 27 inches—weathered bedrock

### **Progreso soils**

*Landform:* Mesa, ridge

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Loamy Foothills

*Potential native vegetation:* muttongrass, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah serviceberry, black sagebrush, bottlebrush squirreltail, rabbitbrush

*Land capability subclass (nonirrigated):* 6c

*Typical profile:*

0 to 7 inches—loam

7 to 14 inches—clay loam

14 to 24 inches—clay loam

24 to 36 inches—sandy loam

36 to 40 inches—unweathered bedrock

### **Minor Components**

Rock outcrop

*Composition:* About 10 percent

Ustochreptic Calciorthids and similar soils

*Composition:* About 5 percent

### **Major Uses**

Livestock grazing, wildlife habitat

## **76—Pinon-Bowdish-Rock outcrop complex, 3 to 30 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 5,400 to 6,800 feet (1,646 to 2,073 meters)

*Mean annual precipitation:* 10 to 14 inches (254 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### **Map Unit Composition**

Pinon and similar soils: 30 percent

Bowdish and similar soils: 25 percent

Rock outcrop: 25 percent

Minor components: 20 percent

### **Component Descriptions**

#### **Pinon soils**

*Landform:* Escarpment, mesa, structural bench

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 3 to 30 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 1.8 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, saline wildrye

*Potential production of cordwood:* 8 to 12 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 5 inches—loam

5 to 16 inches—loam

16 to 20 inches—unweathered bedrock

**Bowdish soils**

*Landform:* Escarpment, mesa, structural bench

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 3 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 3.0 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, western wheatgrass, Wyoming big sagebrush, Indian ricegrass, bottlebrush squirreltail, blue grama, muttongrass, needleandthread, prairie Junegrass

*Potential production of cordwood:* 8 to 12 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 5 inches—loam

5 to 12 inches—loam

12 to 23 inches—gravelly loam

23 to 27 inches—weathered bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of exposed sandstone and conglomerate bedrock. Areas are gently sloping to steep. They occur as 10 to 50 foot escarpments and as scattered outcrops 1 inch to 12 inches above ground level.

*Landform:* Escarpment, mesa, structural bench

*Slope:* 3 to 30 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Progresso and similar soils

*Composition:* About 5 percent

Clapper and similar soils

*Composition:* About 5 percent

Barx and similar soils

*Composition:* About 5 percent

Ustic Torriorthents and similar soils

*Composition:* About 5 percent

**Major Uses**

Livestock grazing, wildlife habitat

**77—Pinon-Progresso loams, 3 to 12 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

**Map Unit Composition**

Pinon and similar soils: 55 percent

Progresso and similar soils: 30 percent

Minor components: 15 percent

**Component Descriptions**

**Pinon soils**

*Landform:* Hill, ridge

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 3 to 12 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 1.8 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, saline wildrye

*Potential production of cordwood:* 8 to 12 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 to 5 inches—loam

5 to 16 inches—loam

16 to 20 inches—unweathered bedrock

### **Progreso soils**

*Landform:* Hill, ridge

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* galleta, Indian ricegrass, Wyoming big sagebrush, muttongrass, western wheatgrass, rabbitbrush

*Land capability subclass (nonirrigated):* 6c

*Typical profile:*

0 to 7 inches—loam

7 to 14 inches—clay loam

14 to 24 inches—clay loam

24 to 36 inches—sandy loam

36 to 40 inches—unweathered bedrock

### **Minor Components**

Barx and similar soils

*Composition:* About 5 percent

Rock outcrop

*Composition:* About 5 percent

Ustic Torriorthents and similar soils

*Composition:* About 5 percent

### **Major Uses**

Livestock grazing, wildlife habitat

## **78—Pinon-Ustic Torriorthents complex, 5 to 30 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 5,400 to 6,800 feet (1,646 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### **Map Unit Composition**

Pinon and similar soils: 50 percent

Ustic Torriorthents and similar soils: 35 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Pinon soils**

*Landform:* Hill, ridge

*Slope:* 5 to 30 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 1.8 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, saline wildrye

*Potential production of cordwood:* 8 to 12 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7s

*Typical profile:*

0 to 5 inches—loam

5 to 16 inches—loam

16 to 20 inches—unweathered bedrock

#### **Ustic Torriorthents soils**

*Landform:* Hill, ridge

*Parent material:* Colluvium and residuum derived from sandstone and shale

*Slope:* 5 to 30 percent

*Depth to restrictive feature:* Greater than 60 inches to bedrock

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 3.7 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Indian ricegrass, blue grama, bottlebrush squirreltail, Wyoming big sagebrush

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 4 inches—bouldery clay loam

4 to 31 inches—cobbley clay loam

31 to 35 inches—unweathered bedrock

### Minor Components

Barx and similar soils

*Composition:* About 5 percent

Bowdish and similar soils

*Composition:* About 5 percent

Rock outcrop

*Composition:* About 5 percent

### Major Uses

Livestock grazing, wildlife habitat

## 79—Pojoaque-Chilton complex, 5 to 30 percent slopes, extremely stony

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,400 to 5,900 feet (1,646 to 1,798 meters)

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 47 to 49 degrees F (8 to 10 degrees C)

*Frost-free period:* 120 to 140 days

### Map Unit Composition

Pojoaque and similar soils: 50 percent

Chilton and similar soils: 30 percent

Minor components: 20 percent

## Component Descriptions

### Pojoaque soils

*Landform:* Alluvial fan

*Parent material:* Alluvium and colluvium derived from sandstone

*Slope:* 5 to 15 percent

*Surface fragments:* About 10 percent stones

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 6.9 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Utah serviceberry, true mountain mahogany, Indian ricegrass, New Mexico feathergrass, blue grama, galleta

*Potential production of cordwood:* 6 to 10 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 4 inches—very stony loam

4 to 60 inches—gravelly loam, gravelly fine sandy loam

### Chilton soils

*Landform:* Alluvial fan

*Parent material:* Alluvium and colluvium derived from sandstone

*Slope:* 5 to 30 percent

*Drainage class:* Excessively drained

*Slowest permeability:* Moderate

*Available water capacity:* About 4.9 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, Utah serviceberry, true mountain

mahogany, Indian ricegrass, New Mexico feathergrass, blue grama, galleta  
*Potential production of cordwood:* 6 to 10 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 6 inches—stony fine sandy loam  
 6 to 60 inches—very gravelly fine sandy loam

### Minor Components

Rock outcrop

*Composition:* About 10 percent

Begay and similar soils

*Composition:* About 5 percent

Ustic Torriorthents and similar soils

*Composition:* About 5 percent

### Major Uses

Livestock grazing in spring and winter, wildlife habitat

## 80—Progresso loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 90 to 130 days

### Map Unit Composition

Progresso and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Progresso soils

*Landform:* Structural bench, old terrace, mesa

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 3 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* galleta, Indian ricegrass, Wyoming big sagebrush, muttongrass, western wheatgrass, rabbitbrush

*Land capability subclass (irrigated):* 3s

*Land capability subclass (nonirrigated):* 4c

*Typical profile:*

0 to 7 inches—loam

7 to 14 inches—clay loam

14 to 24 inches—clay loam

24 to 36 inches—sandy loam

36 to 40 inches—unweathered bedrock

### Minor Components

Barx and similar soils

*Composition:* About 5 percent

Pinon and similar soils

*Composition:* About 5 percent

Bowdish and similar soils

*Composition:* About 3 percent

Aquolls and similar soils

*Composition:* About 2 percent

*Landform:* Drainageway

### Major Uses

Livestock grazing in winter, wildlife habitat, cropland, pasture

## 81—Progresso loam, 3 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Progresso and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Progresso soils

*Landform:* Mesa, structural bench, old terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 3 to 6 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* galleta, Indian ricegrass, Wyoming big sagebrush, muttongrass, western wheatgrass, rabbitbrush

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

*Typical profile:*

0 to 7 inches—loam

7 to 14 inches—clay loam

14 to 24 inches—clay loam

24 to 36 inches—sandy loam

36 to 40 inches—unweathered bedrock

### Minor Components

Barx and similar soils

*Composition:* About 5 percent

Pinon and similar soils

*Composition:* About 5 percent

Bowdish and similar soils

*Composition:* About 3 percent

Aquolls and similar soils

*Composition:* About 2 percent

*Landform:* Drainageway

### Major Uses

Livestock grazing in winter, wildlife habitat, cropland, pasture

## 82—Progresso loam, 6 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

### Map Unit Composition

Progresso and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Progresso soils

*Landform:* Structural bench, mesa, old terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 35 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* galleta, Indian ricegrass, Wyoming big sagebrush, muttongrass, western wheatgrass, rabbitbrush

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical profile:*

0 to 7 inches—loam

7 to 14 inches—clay loam

14 to 24 inches—clay loam

24 to 36 inches—sandy loam

36 to 40 inches—unweathered bedrock

### Minor Components

Barx and similar soils

*Composition:* About 5 percent

Pinon and similar soils

*Composition:* About 5 percent

Bowdish and similar soils

*Composition:* About 3 percent

Aquolls and similar soils

*Composition:* About 2 percent

*Landform:* Drainageway

### Major Uses

Livestock grazing in winter, wildlife habitat, cropland, pasture

### 83—Pulpit-Bond, cool complex, 1 to 6 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 36  
*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)  
*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)  
*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)  
*Frost-free period:* 100 to 120 days

#### Map Unit Composition

Pulpit and similar soils: 50 percent  
 Bond and similar soils: 30 percent  
 Minor components: 20 percent

#### Component Descriptions

##### Pulpit soils

*Landform:* Mesa  
*Parent material:* Eolian deposits derived from sandstone  
*Slope:* 1 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 4.6 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 25 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Foothills  
*Potential native vegetation:* western wheatgrass, muttongrass, Wyoming big sagebrush, bottlebrush squirreltail, needleandthread  
*Land capability subclass (nonirrigated):* 4e

##### Typical profile:

0 to 8 inches—loam  
 8 to 20 inches—clay loam  
 20 to 25 inches—loam  
 25 to 29 inches—unweathered bedrock

##### Bond soils

*Landform:* Mesa  
*Parent material:* Residuum weathered from sandstone

*Slope:* 1 to 6 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 2.4 inches (very low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 5 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodicity maximum:* Sodium adsorption ratio about 5 (slightly sodic)  
*Ecological site:* Pinyon-Juniper  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, Indian ricegrass, Wyoming big sagebrush, blue grama, saline wildrye, true mountain mahogany, squaw apple  
*Potential production of cordwood:* 3 to 6 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot  
*Land capability subclass (nonirrigated):* 7s

##### Typical profile:

0 to 3 inches—fine sandy loam  
 3 to 16 inches—sandy clay loam, clay loam  
 16 to 20 inches—unweathered bedrock

##### Minor Components

Gladel, cool and similar soils  
*Composition:* About 10 percent  
 Monticello and similar soils  
*Composition:* About 10 percent

##### Major Uses

Livestock grazing, wildlife habitat, cropland

### 84—Radersburg gravelly loam, 1 to 6 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 34  
*Elevation:* 7,000 to 8,100 feet (2,134 to 2,469 meters)  
*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Average annual air temperature:* 41 to 44 degrees F (5 to 7 degrees C)  
*Frost-free period:* 70 to 110 days

### Map Unit Composition

Radersburg and similar soils: 90 percent  
Minor components: 10 percent

### Component Descriptions

#### Radersburg soils

*Landform:* Mesa, ridge, terrace  
*Parent material:* Alluvium, outwash, and till derived from igneous rock  
*Slope:* 1 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 3.6 inches (low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Medium  
*Calcium carbonate maximum:* About 40 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Slopes  
*Potential native vegetation:* antelope bitterbrush, true mountain mahogany, Indian ricegrass, Saskatoon serviceberry, bluebunch wheatgrass, mountain big sagebrush, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 7 inches—gravelly loam  
7 to 12 inches—very cobbly clay loam  
12 to 60 inches—extremely cobbly loam

#### Minor Components

Rock outcrop  
*Composition:* About 5 percent  
Soils similar to Radersburg but with a cobbly surface  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in summer and fall, wildlife habitat

### 85—Radersburg gravelly loam, 6 to 30 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 34  
*Elevation:* 7,000 to 8,100 feet (2,134 to 2,469 meters)  
*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Average annual air temperature:* 41 to 44 degrees F (5 to 7 degrees C)

*Frost-free period:* 70 to 110 days

### Map Unit Composition

Radersburg and similar soils: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Radersburg soils

*Landform:* Mesa, ridge, terrace  
*Parent material:* Alluvium, outwash, and till derived from igneous rock  
*Slope:* 6 to 30 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 3.6 inches (low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* About 40 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Loamy Slopes  
*Potential native vegetation:* antelope bitterbrush, true mountain mahogany, Indian ricegrass, Saskatoon serviceberry, bluebunch wheatgrass, mountain big sagebrush, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 7 inches—gravelly loam  
7 to 12 inches—very cobbly clay loam  
12 to 60 inches—extremely cobbly loam

#### Minor Components

Callan and similar soils  
*Composition:* About 5 percent  
Gurley and similar soils  
*Composition:* About 5 percent  
Sapeha and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in spring and fall, wildlife habitat

### 86—Redlands sandy loam, 1 to 6 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35  
*Elevation:* 5,580 to 5,800 feet (1,701 to 1,768 meters)

*Mean annual precipitation:* 8 to 10 inches (203 to 254 millimeters)

*Average annual air temperature:* 49 to 51 degrees F (10 to 11 degrees C)

*Frost-free period:* 130 to 150 days

### Map Unit Composition

Redlands and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Redlands soils

*Landform:* Alluvial fan, terrace

*Parent material:* Alluvium derived from sandstone

*Slope:* 1 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Low

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)

*Ecological site:* Loamy Saltdesert

*Potential native vegetation:* Indian ricegrass, galleta, winterfat, shadscale saltbush, bottlebrush squirreltail, fourwing saltbush, spiny phlox, longflower rabbitbrush, mat saltbush, saline wildrye, scarlet globemallow

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 5 inches—sandy loam

5 to 24 inches—clay loam, loam

24 to 60 inches—sandy loam

#### Minor Components

Killpack and similar soils

*Composition:* About 5 percent

Minchey and similar soils

*Composition:* About 5 percent

Winnett and similar soils

*Composition:* About 5 percent

*Landform:* Drainageway

#### Major Uses

Livestock grazing in winter, wildlife habitat

## 87—Rock outcrop

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 4,700 to 10,000 feet (1,433 to 3,048 meters)

*Mean annual precipitation:* 10 to 22 inches (254 to 558 millimeters)

*Average annual air temperature:* 40 to 49 degrees F (4 to 10 degrees C)

*Frost-free period:* 65 to 140 days

### Map Unit Composition

Rock outcrop: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Rock outcrop

*Description:* Rock outcrop consists of barren exposures of sandstone. Areas are irregular or elongated in shape and are 40 to 2,000 acres in size. Rock outcrop most commonly occurs as nearly vertical ledges and cliffs that are 2 to 50 feet high and 5 to 1,500 feet long. Some soil material is in the crevices of the rock and at the base of the slopes.

*Landform:* Canyon, mesa

*Slope:* 40 to 120 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

#### Minor Components

Orthents and similar soils

*Composition:* About 10 percent

*Landform:* Draw

#### Major Uses

Wildlife habitat

## 88—Rock outcrop-Orthents complex, 40 to 90 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 4,700 to 9,200 feet (1,433 to 2,804 meters)

*Mean annual precipitation:* 10 to 19 inches (254 to 483 millimeters)

*Average annual air temperature:* 43 to 49 degrees F (6 to 10 degrees C)

*Frost-free period:* 70 to 140 days

### Map Unit Composition

Rock outcrop: 50 percent

Orthents and similar soils: 45 percent

Minor components: 5 percent

### Component Descriptions

#### Rock outcrop

*Description:* Rock outcrop consists of barren escarpments, ridge caps, and points of sandstone which generally occupy positions higher on the slope. The escarpments are 2 to 40 feet high and 20 to 2,500 feet long.

*Landform:* Canyon, mesa, structural bench

*Slope:* 40 to 90 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

#### Orthents soils

*Landform:* Structural bench, canyon, mesa

*Parent material:* Colluvium and residuum from sandstone and shale

*Slope:* 40 to 90 percent

*Depth to restrictive feature:* Greater than 60 inches to bedrock

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 3.7 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Douglas-Fir

*Potential native vegetation:* Rocky Mountain Douglas-fir, twoneedle pinyon, Utah juniper, ponderosa pine, Indian ricegrass, saline wildrye, Bigelow's sagebrush, bottlebrush squirreltail, galleta, blue grama, bluebunch wheatgrass

*Land capability subclass (nonirrigated):* 8e

#### Typical profile:

0 inches to 1 inch—stony loam

1 inch to 14 inches—gravelly loam

14 to 24 inches—very cobbly loam

24 to 60 inches—very cobbly loam, very cobbly sandy loam

#### Minor Components

Pinon and similar soils

*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

## 89—Ryman loam, dry, 2 to 20 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 9,000 to 9,800 feet (2,743 to 2,987 meters)

*Mean annual precipitation:* 22 to 24 inches (559 to 610 millimeters)

*Average annual air temperature:* 35 to 37 degrees F (2 to 3 degrees C)

*Frost-free period:* 40 to 60 days

### Map Unit Composition

Ryman and similar soils: 80 percent

Minor components: 20 percent

### Component Descriptions

#### Ryman soils

*Landform:* Mesa

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 2 to 20 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.5 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* None

*Ecological site:* Subalpine Loam (fig. 14)

*Potential native vegetation:* Thurber's fescue, Parry's danthonia, Arizona fescue, Columbia needlegrass, big bluegrass, nodding brome, slender wheatgrass

*Land capability subclass (nonirrigated):* 6e



Figure 14.—A summer grazing area on a Subalpine Loam ecological site. The soil is Ryman loam, dry, 2 to 20 percent slopes. Aspen woodland is in the background on Adel loam, moist, 15 to 50 percent slopes.

*Typical profile:*

0 to 21 inches—loam  
21 to 60 inches—cobble clay loam

**Minor Components**

Adel and similar soils

*Composition:* About 15 percent  
*Slope:* 20 to 40 percent

Leaps and similar soils

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent

**Major Uses**

Livestock grazing in summer, wildlife habitat

**90—Ryman loam, warm, 2 to 20 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,500 to 9,200 feet (2,591 to 2,804 meters)

*Mean annual precipitation:* 22 to 24 inches (559 to 610 millimeters)

*Average annual air temperature:* 38 to 40 degrees F (3 to 4 degrees C)

*Frost-free period:* 50 to 70 days

**Map Unit Composition**

Ryman and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Ryman soils**

*Landform:* Mesa

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 2 to 20 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.4 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Deep Clay Loam

*Potential native vegetation:* western wheatgrass, Letterman's needlegrass, muttongrass, slender wheatgrass, mountain big sagebrush, mule-ears,

nodding brome, scarlet Indian paintbrush, silvery lupine, sulphur wildbuckwheat

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 4 inches—loam  
4 to 18 inches—clay loam  
18 to 32 inches—clay loam  
32 to 60 inches—cobble clay

**Minor Components**

Cryoborolls and similar soils

*Composition:* About 10 percent

*Slope:* 20 to 40 percent

Leaps and similar soils

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

**Major Uses**

Livestock grazing in summer, wildlife habitat

**91—Ryman-Adel, moist complex, 1 to 15 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,500 to 10,500 feet (2,591 to 3,200 meters)

*Mean annual precipitation:* 24 to 30 inches (610 to 762 millimeters)

*Average annual air temperature:* 35 to 37 degrees F (2 to 3 degrees C)

*Frost-free period:* 40 to 60 days

**Map Unit Composition**

Ryman and similar soils: 50 percent

Adel and similar soils: 30 percent

Minor components: 20 percent

**Component Descriptions**

**Ryman soils**

*Landform:* Mesa, structural bench

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 1 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* None

*Ecological site:* Quaking Aspen

*Potential native vegetation:* quaking aspen, elk sedge, slender wheatgrass, Arizona fescue, Thurber's fescue, blue wildrye, mountain brome, mountain snowberry, nodding brome

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 23 inches—clay loam  
23 to 27 inches—cobble clay loam  
27 to 39 inches—cobble clay  
39 to 60 inches—cobble clay

**Adel soils**

*Landform:* Mesa, structural bench

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 1 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* None

*Ecological site:* Quaking Aspen

*Potential native vegetation:* quaking aspen, elk sedge, slender wheatgrass, Arizona fescue, Thurber's fescue, blue wildrye, mountain brome, mountain snowberry, nodding brome

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 21 inches—loam  
21 to 60 inches—clay loam

**Minor Components**

Bushvalley and similar soils

*Composition:* About 10 percent

Nordicol and similar soils

*Composition:* About 10 percent

**Major Uses**

Livestock grazing in summer, wildlife habitat, timber production

**92—Sagedale clay loam, 3 to 20 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A  
*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)  
*Mean annual precipitation:* 18 to 20 inches (457 to 508 millimeters)  
*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)  
*Frost-free period:* 80 to 90 days

**Map Unit Composition**

Sagedale and similar soils: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Sagedale soils**

*Landform:* Flood plain  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 3 to 20 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 9.6 inches (high)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Gypsum maximum:* About 5 percent  
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Mountain Clay Loam  
*Potential native vegetation:* western wheatgrass, Arizona fescue, Gambel's oak, mountain muhly, needlegrass  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 7 inches—clay loam  
 7 to 18 inches—clay loam  
 18 to 41 inches—clay  
 41 to 60 inches—clay loam

**Minor Components**

Acree and similar soils  
*Composition:* About 10 percent

Soils similar to Sagedale but moderately deep  
*Composition:* About 5 percent  
*Landform:* Knoll

**Major Uses**

Livestock grazing, wildlife habitat

**93—Sapeha very cobbly loam, 15 to 50 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34  
*Elevation:* 7,600 to 8,900 feet (2,316 to 2,713 meters)  
*Mean annual precipitation:* 16 to 18 inches (406 to 457 millimeters)  
*Average annual air temperature:* 42 to 44 degrees F (6 to 7 degrees C)  
*Frost-free period:* 75 to 100 days

**Map Unit Composition**

Sapeha and similar soils: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Sapeha soils**

*Landform:* Mesa  
*Parent material:* Alluvium and colluvium derived from igneous rock  
*Slope:* 15 to 50 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 6.0 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* None  
*Ecological site:* Loamy Slopes  
*Potential native vegetation:* antelope bitterbrush, true mountain mahogany, Indian ricegrass, Saskatoon serviceberry, bluebunch wheatgrass, mountain big sagebrush, prairie Junegrass, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*  
 0 to 5 inches—very cobbly loam  
 5 to 12 inches—cobbly clay loam  
 12 to 32 inches—very cobbly clay  
 32 to 60 inches—extremely cobbly clay

**Minor Components**

Dapoin and similar soils

*Composition:* About 10 percent

**Major Uses**

Livestock grazing, wildlife habitat

**94—Seitz gravelly loam, 10 to 60 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 9,000 to 10,500 feet (2,743 to 3,200 meters)

*Mean annual precipitation:* 24 to 28 inches (610 to 711 millimeters)

*Average annual air temperature:* 34 to 36 degrees F (1 to 2 degrees C)

*Frost-free period:* 40 to 60 days

**Map Unit Composition**

Seitz and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Seitz soils**

*Landform:* Mountain slope

*Parent material:* Colluvium from mixed sediments

*Slope:* 10 to 60 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 6.3 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Spruce-Fir

*Potential native vegetation:* white fir, quaking aspen, Rocky Mountain Douglas-fir, subalpine fir, Engelmann's spruce, slender wheatgrass, elk sedge, boxleaf myrtle, common juniper

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 3 inches—gravelly loam

3 to 11 inches—gravelly clay loam

11 to 60 inches—very gravelly clay

**Minor Components**

Cryoborolls and similar soils

*Composition:* About 10 percent

**Major Uses**

Timber production, wildlife habitat

**95—Skein-Rock outcrop complex, 3 to 65 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 6,800 to 7,400 feet (2,073 to 2,256 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

**Map Unit Composition**

Skein and similar soils: 60 percent

Rock outcrop: 30 percent

Minor components: 10 percent

**Component Descriptions****Skein soils**

*Landform:* Canyon, mesa

*Parent material:* Residuum weathered from interbedded sandstone and shale

*Slope:* 3 to 40 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 2.1 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, black sagebrush, Indian ricegrass, saline wildrye, western wheatgrass

*Potential production of cordwood:* 9 to 14 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 6 inches—loam

6 to 13 inches—loam

13 to 19 inches—very gravelly loam

19 to 23 inches—unweathered bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of exposed sandstone bedrock. Areas are gently sloping to very steep. They occur as 10 to 50 foot escarpments and as scattered outcrops 1 inch to 12 inches above ground level.

*Landform:* Canyon, mesa

*Slope:* 15 to 65 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Gurley and similar soils

*Composition:* About 5 percent

Beje and similar soils

*Composition:* About 5 percent

**Major Uses**

Livestock grazing, wildlife habitat

## **96—Skisams-Bushvalley-Cryoborolls, moderately deep complex, 2 to 15 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,500 to 9,500 feet (2,591 to 2,896 meters)

*Mean annual precipitation:* 20 to 24 inches (508 to 610 millimeters)

*Average annual air temperature:* 37 to 40 degrees F (3 to 4 degrees C)

*Frost-free period:* 50 to 70 days

**Map Unit Composition**

Skisams and similar soils: 35 percent

Bushvalley and similar soils: 30 percent

Cryoborolls and similar soils: 25 percent

Minor components: 10 percent

**Component Descriptions****Skisams soils**

*Landform:* Structural bench

*Parent material:* Residuum weathered from sandstone

*Slope:* 2 to 15 percent

*Depth to restrictive feature:* 8 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 1.4 inches (very low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Shallow Loam

*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, needlegrass, mountain snowberry, prairie Junegrass, sheep fescue, true mountain mahogany, western wheatgrass

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 to 4 inches—loam

4 to 11 inches—loam

11 to 15 inches—unweathered bedrock

**Bushvalley soils**

*Landform:* Structural bench

*Parent material:* Residuum weathered from sandstone

*Slope:* 2 to 10 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 1.0 inches (very low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Pine Grasslands

*Potential native vegetation:* ponderosa pine, Arizona fescue, Parry's danthonia, mountain muhly, elk sedge, kinnikinnick, pine dropseed, western snowberry

*Land capability subclass (nonirrigated):* 6s

*Typical profile:*

0 to 5 inches—stony loam

5 to 12 inches—extremely channery clay loam

12 to 16 inches—unweathered bedrock

**Cryoborolls soils**

*Landform:* Structural bench

*Parent material:* Residuum weathered from sandstone

*Slope:* 2 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate

*Available water capacity:* About 3.2 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* None  
*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, needlegrass, Gambel's oak  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 14 inches—loam  
 14 to 18 inches—gravelly clay loam  
 18 to 30 inches—gravelly sandy loam  
 30 to 34 inches—unweathered bedrock

### Minor Components

Adel and similar soils  
*Composition:* About 5 percent  
 Rock outcrop  
*Composition:* About 5 percent

### Major Uses

Livestock grazing in summer and fall, wildlife habitat

## 97—Skisams-Cryoborolls, moderately deep complex, 5 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,500 to 9,500 feet (2,591 to 2,896 meters)  
*Mean annual precipitation:* 20 to 24 inches (508 to 610 millimeters)  
*Average annual air temperature:* 37 to 39 degrees F (3 to 4 degrees C)  
*Frost-free period:* 50 to 70 days

### Map Unit Composition

Skisams and similar soils: 55 percent  
 Cryoborolls and similar soils: 40 percent  
 Minor components: 5 percent

### Component Descriptions

#### Skisams soils

*Landform:* Plateau  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 5 to 30 percent  
*Depth to restrictive feature:* 8 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained

*Slowest permeability:* Moderate  
*Available water capacity:* About 1.4 inches (very low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* None  
*Ecological site:* Shallow Loam  
*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, needlegrass, mountain snowberry, prairie Junegrass, sheep fescue, true mountain mahogany, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*  
 0 to 4 inches—loam  
 4 to 11 inches—loam  
 11 to 15 inches—unweathered bedrock

#### Cryoborolls soils

*Landform:* Plateau  
*Parent material:* Residuum weathered from sandstone  
*Slope:* 5 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate  
*Available water capacity:* About 3.2 inches (low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* None  
*Potential native vegetation:* Arizona fescue, mountain muhly, western wheatgrass, Gambel's oak  
*Land capability subclass (nonirrigated):* 6e

*Typical profile:*  
 0 to 14 inches—loam  
 14 to 18 inches—gravelly clay loam  
 18 to 30 inches—gravelly sandy loam  
 30 to 34 inches—unweathered bedrock

#### Minor Components

Bushvalley and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in summer and fall, wildlife habitat

**98—Specie gravelly loam, 5 to 15 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 7,000 to 9,000 feet (2,134 to 2,743 meters)

*Mean annual precipitation:* 16 to 18 inches (406 to 457 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

**Map Unit Composition**

Specie and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Specie soils**

*Landform:* Alluvial fan, terrace

*Parent material:* Colluvium derived from sandstone

*Slope:* 5 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid

*Available water capacity:* About 5.8 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Low

*Calcium carbonate maximum:* About 20 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Loamy Slopes

*Potential native vegetation:* antelope bitterbrush, true mountain mahogany, Indian ricegrass, Saskatoon serviceberry, bluebunch wheatgrass, mountain big sagebrush, prairie Junegrass, western wheatgrass

*Land capability subclass (nonirrigated):* 6e

*Typical profile:*

0 to 3 inches—gravelly loam

3 to 16 inches—very stony loam

16 to 60 inches—extremely gravelly loam

**Minor Components**

Sapeha and similar soils

*Composition:* About 10 percent

**Major Uses**

Livestock grazing, wildlife habitat

**99—Specie, moist-Rock outcrop complex, 15 to 60 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 7,600 to 9,000 feet (2,316 to 2,743 meters)

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Average annual air temperature:* 41 to 43 degrees F (5 to 6 degrees C)

*Frost-free period:* 70 to 90 days

**Map Unit Composition**

Specie and similar soils: 65 percent

Rock outcrop: 25 percent

Minor components: 10 percent

**Component Descriptions****Specie soils**

*Landform:* Mesa

*Parent material:* Colluvium derived from sandstone

*Slope:* 15 to 60 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid

*Available water capacity:* About 5.9 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Medium

*Calcium carbonate maximum:* About 20 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Douglas-Fir

*Potential native vegetation:* Rocky Mountain Douglas-fir, ponderosa pine, elk sedge, common juniper, mountain snowberry, slender wheatgrass, Oregongrape, nodding brome, silvery lupine

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 14 inches—gravelly loam

14 to 60 inches—very cobbly sandy loam, very cobbly loam

**Rock outcrop**

*Description:* Rock outcrop consists of exposed sedimentary bedrock. It occurs as steep and very steep areas of scattered outcrops and escarpments.

*Landform:* Mesa

*Slope:* 15 to 60 percent  
*Hazard of flooding:* None  
*Runoff class:* Very high  
*Land capability subclass (nonirrigated):* 8s

### Minor Components

Sapeha and similar soils  
*Composition:* About 10 percent

### Major Uses

Livestock grazing, wildlife habitat

## 100—Spectacle-Kinesava loams, 5 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,000 to 8,800 feet (2,438 to 2,682 meters)  
*Mean annual precipitation:* 18 to 20 inches (457 to 508 millimeters)  
*Average annual air temperature:* 40 to 42 degrees F (4 to 6 degrees C)  
*Frost-free period:* 60 to 80 days

### Map Unit Composition

Spectacle and similar soils: 50 percent  
 Kinesava and similar soils: 30 percent  
 Minor components: 20 percent

### Component Descriptions

#### Spectacle soils

*Landform:* Mountain slope, mesa  
*Parent material:* Till and colluvium from mixed sources  
*Slope:* 5 to 30 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 6.7 inches (moderate)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* None  
*Ecological site:* Mountain Loam  
*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, bluegrass, mountain big sagebrush, wheatgrass, brome, needlegrass  
*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 10 inches—loam  
 10 to 23 inches—very cobbly clay loam

23 to 34 inches—very cobbly clay loam  
 34 to 60 inches—clay

#### Kinesava soils

*Landform:* Mountain slope, mesa  
*Parent material:* Colluvium and residuum weathered from sandstone and shale  
*Slope:* 5 to 30 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 8.1 inches (moderate)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* High  
*Calcium carbonate maximum:* None  
*Ecological site:* Mountain Clay Loam  
*Potential native vegetation:* Arizona fescue, Gambel's oak, Thurber's fescue, mountain muhly, needlegrass, western wheatgrass  
*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 21 inches—loam  
 21 to 28 inches—clay loam  
 28 to 40 inches—cobbly clay  
 40 to 60 inches—cobbly clay

#### Minor Components

Lillylands and similar soils  
*Composition:* About 10 percent  
 Borolls and similar soils  
*Composition:* About 5 percent  
 Zoltay and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing in summer, wildlife habitat

## 101—Tellura-Leaps clay loams, 5 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,500 to 10,500 feet (2,591 to 3,200 meters)  
*Mean annual precipitation:* 20 to 25 inches (508 to 635 millimeters)  
*Average annual air temperature:* 35 to 40 degrees F (2 to 4 degrees C)  
*Frost-free period:* 50 to 70 days

### Map Unit Composition

Tellura and similar soils: 45 percent

Leaps and similar soils: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Tellura soils

*Landform:* Alluvial fan, structural bench, mountain slope

*Parent material:* Till, outwash, and colluvium from mixed sources

*Slope:* 5 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 5.9 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 5 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Subalpine Clay

*Potential native vegetation:* shrubby cinquefoil, Thurber's fescue, slender wheatgrass, Columbia needlegrass, nodding brome, Letterman's needlegrass, bottlebrush squirreltail, longflower rabbitbrush

*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 14 inches—clay loam

14 to 36 inches—very gravelly clay

36 to 60 inches—very gravelly clay loam

#### Leaps soils

*Landform:* Structural bench, alluvial fan, mountain slope

*Parent material:* Alluvium and colluvium derived from shale

*Slope:* 5 to 40 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* None

*Ecological site:* Deep Clay Loam

*Potential native vegetation:* western wheatgrass, Letterman's needlegrass, muttongrass, slender

wheatgrass, mountain big sagebrush, mule-ears, nodding brome, scarlet Indian paintbrush, silvery lupine, sulphur wildbuckwheat

*Land capability subclass (nonirrigated):* 6e

#### Typical profile:

0 to 10 inches—clay loam

10 to 60 inches—clay

#### Minor Components

Hofly and similar soils

*Composition:* About 5 percent

Cryoborolls, moderately deep and similar soils

*Composition:* About 5 percent

Rock outcrop

*Composition:* About 5 percent

#### Major Uses

Livestock grazing in summer, wildlife habitat, hayland

### 102—Typic Torriorthents, 3 to 80 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 6,300 to 7,600 feet (1,920 to 2,316 meters)

*Mean annual precipitation:* 8 to 11 inches (203 to 279 millimeters)

*Average annual air temperature:* 43 to 47 degrees F (6 to 8 degrees C)

*Frost-free period:* 80 to 120 days

#### Map Unit Composition

Typic Torriorthents and similar soils: 85 percent

Minor components: 15 percent

#### Component Descriptions

##### Typic Torriorthents soils

*Landform:* Hill, ridge

*Parent material:* Residuum weathered from shale

*Slope:* 3 to 80 percent

*Depth to restrictive feature:* 2 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 0.6 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Utah juniper, twoneedle pinyon, galleta, blue grama, Indian ricegrass, bottlebrush squirreltail, black sagebrush

*Potential production of cordwood:* 8 to 10 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 2 inches—channery silty clay loam  
2 to 4 inches—very channery silty clay loam  
4 to 8 inches—weathered bedrock

### Minor Components

Badland

*Composition:* About 10 percent

Chipeta and similar soils

*Composition:* About 5 percent

### Major Uses

Wildlife habitat, livestock grazing

## 103—Ustic Torriorthents-Ustochreptic Calciorthids, 3 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35 (fig. 15)

*Elevation:* 6,000 to 6,800 feet (1,829 to 2,073 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 100 to 130 days

### Map Unit Composition

Ustic Torriorthents and similar soils: 50 percent

Ustochreptic Calciorthids and similar soils: 45 percent

Minor components: 5 percent

### Component Descriptions

#### Ustic Torriorthents soils

*Landform:* Terrace

*Parent material:* Mass movement deposits and residuum weathered from sandstone and shale

*Slope:* 3 to 30 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 7.1 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Potential native vegetation:* Indian ricegrass, blue grama, bottlebrush squirreltail, galleta, needleandthread

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 5 inches—very gravelly clay loam  
5 to 60 inches—clay loam

#### Ustochreptic Calciorthids soils

*Landform:* Terrace

*Parent material:* Mass movement deposits and residuum weathered from sandstone and shale

*Slope:* 3 to 30 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 8.4 inches (moderate)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 40 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Potential native vegetation:* Indian ricegrass, blue grama, bottlebrush squirreltail, galleta, needleandthread

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 9 inches—very gravelly clay loam  
9 to 24 inches—clay loam  
24 to 60 inches—gravelly clay

#### Minor Components

Bodot, dry and similar soils

*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

## 104—Vananda silty clay, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 35

*Elevation:* 5,500 to 6,800 feet (1,676 to 2,073 meters)



Figure 15.—An area of Ustic Torriorthents-Ustochreptic Calciorthids complex, 3 to 30 percent slopes is in the background.

*Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)

*Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)

*Frost-free period:* 90 to 110 days

#### **Map Unit Composition**

Vananda and similar soils: 85 percent

Minor components: 15 percent

#### **Component Descriptions**

##### **Vananda soils**

*Landform:* Valley floor, terrace, alluvial fan

*Parent material:* Alluvium derived from shale

*Slope:* 1 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Very slow

*Available water capacity:* About 8.9 inches (moderate)

*Shrink-swell potential:* About 7.5 percent (high)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 15 (moderately sodic)

*Ecological site:* Basin Shale

*Potential native vegetation:* black sagebrush, galleta, western wheatgrass, Wyoming big sagebrush, Indian ricegrass

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4c

*Typical profile:*

- 0 to 6 inches—silty clay
- 6 to 17 inches—silty clay
- 17 to 60 inches—silty clay

**Minor Components**

Fluvaquents and similar soils

- Composition:* About 5 percent
- Landform:* Swale

Bodot, dry and similar soils

- Composition:* About 5 percent
- Landform:* Knob

Winnett and similar soils

- Composition:* About 5 percent
- Landform:* Depression

**Major Uses**

Livestock grazing in winter and spring, wildlife habitat, pasture, cropland

**105—Winnett silty clay loam, 1 to 3 percent slopes****Map Unit Setting**

- Major Land Resource Area:* 35
- Elevation:* 6,300 to 6,700 feet (1,920 to 2,042 meters)
- Mean annual precipitation:* 10 to 12 inches (254 to 305 millimeters)
- Average annual air temperature:* 45 to 47 degrees F (7 to 8 degrees C)
- Frost-free period:* 90 to 110 days

**Map Unit Composition**

Winnett and similar soils: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Winnett soils**

- Landform:* Valley floor, drainageway
- Parent material:* Alluvium derived from shale
- Slope:* 1 to 3 percent
- Drainage class:* Well drained
- Slowest permeability:* Impermeable
- Available water capacity:* About 4.2 inches (low)
- Shrink-swell potential:* About 7.5 percent (high)
- Hazard of flooding:* Rare
- Depth to seasonal high water table:* Greater than 72 inches
- Runoff class:* Very high
- Calcium carbonate maximum:* About 25 percent
- Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodicity maximum:* Sodium adsorption ratio about 40 (strongly sodic)

*Ecological site:* Salt Flats

*Potential native vegetation:* alkali sacaton, inland saltgrass, basin wildrye, fourwing saltbush, Sandberg bluegrass, greasewood, western wheatgrass

*Land capability subclass (nonirrigated):* 7s

*Typical profile:*

- 0 inches to 1 inch—silty clay loam
- 1 inch to 2 inches—silty clay
- 2 to 6 inches—silty clay
- 6 to 37 inches—silty clay loam
- 37 to 60 inches—silty clay

**Minor Components**

Vanada and similar soils

- Composition:* About 5 percent
- Landform:* Rise

Mikim and similar soils

- Composition:* About 5 percent
- Landform:* Rise

**Major Uses**

Livestock grazing in winter and spring, wildlife habitat

**106—Winz-Rock outcrop complex, 20 to 90 percent slopes, very stony****Map Unit Setting**

- Major Land Resource Area:* 48A
- Elevation:* 8,000 to 9,200 feet (2,438 to 2,804 meters)
- Mean annual precipitation:* 20 to 24 inches (508 to 610 millimeters)
- Average annual air temperature:* 37 to 39 degrees F (3 to 4 degrees C)
- Frost-free period:* 50 to 80 days

**Map Unit Composition**

Winz and similar soils: 60 percent  
 Rock outcrop: 25 percent  
 Minor components: 15 percent

**Component Descriptions****Winz soils**

- Landform:* Mesa
- Parent material:* Colluvium
- Slope:* 20 to 70 percent
- Surface fragments:* About 2 percent stones

*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow  
*Available water capacity:* About 3.0 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* None  
*Ecological site:* Douglas-Fir  
*Potential native vegetation:* quaking aspen, Engelmann's spruce, subalpine fir, Rocky Mountain Douglas-fir, elk sedge, common juniper, kinnikinnick, boxleaf myrtle, slender wheatgrass, Oregongrape, Woods' rose, nodding brome, silvery lupine  
*Land capability subclass (nonirrigated):* 7e

**Typical profile:**

0 to 9 inches—extremely stony loam  
 9 to 23 inches—extremely stony clay loam  
 23 to 60 inches—very stony clay loam, extremely stony clay loam, very stony clay

**Rock outcrop**

*Description:* Rock outcrop consists of exposed sedimentary bedrock. It occurs as very steep and extremely steep areas of scattered outcrops and escarpments.

*Landform:* Mesa

*Slope:* 20 to 90 percent

*Hazard of flooding:* None

*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Cryoborolls and similar soils

*Composition:* About 10 percent

Seitz and similar soils

*Composition:* About 5 percent

**Major Uses**

Wildlife habitat, livestock grazing

**107—Witt loam, dry, 1 to 12 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 35

*Elevation:* 6,000 to 6,800 feet (1,829 to 2,073 meters)

*Mean annual precipitation:* 11 to 13 inches (279 to 330 millimeters)

*Average annual air temperature:* 46 to 48 degrees F (8 to 9 degrees C)

*Frost-free period:* 110 to 130 days

**Map Unit Composition**

Witt and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Witt soils**

*Landform:* Mesa, structural bench, ridge

*Parent material:* Eolian deposits derived from sandstone

*Slope:* 1 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow

*Available water capacity:* About 11.1 inches (high)

*Shrink-swell potential:* About 1.5 percent (low)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 45 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Semidesert Loam

*Potential native vegetation:* Wyoming big sagebrush, galleta, needleandthread, Indian ricegrass, blue grama, muttongrass

*Land capability subclass (nonirrigated):* 6e

**Typical profile:**

0 to 9 inches—loam

9 to 31 inches—clay loam

31 to 60 inches—loam

**Minor Components**

Barx and similar soils

*Composition:* About 10 percent

Progresso and similar soils

*Composition:* About 5 percent

**Major Uses**

Livestock grazing, wildlife habitat

**108—Wrayha stony clay loam, 3 to 40 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 34

*Elevation:* 7,000 to 7,800 feet (2,134 to 2,377 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Average annual air temperature:* 43 to 45 degrees F  
(6 to 7 degrees C)  
*Frost-free period:* 90 to 110 days

### Map Unit Composition

Wrayha and similar soils: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Wrayha soils

*Landform:* Ridge  
*Parent material:* Residuum weathered from shale  
*Slope:* 3 to 40 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 9.9 inches (high)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Pinyon-Juniper  
*Potential native vegetation:* Utah juniper, twoneedle pinyon, Gambel's oak, muttongrass, Indian ricegrass, elk sedge, Saskatoon serviceberry, true mountain mahogany  
*Potential production of cordwood:* 15 to 20 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot  
*Land capability subclass (nonirrigated):* 7e

#### Typical profile:

0 to 7 inches—stony clay loam  
7 to 60 inches—clay

#### Minor Components

Rock outcrop  
*Composition:* About 10 percent  
Narraguinnep and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

## 109—Zoltay loam, 3 to 15 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 7,400 to 8,500 feet (2,256 to 2,591 meters)  
*Mean annual precipitation:* 17 to 19 inches (432 to 482 millimeters)

*Average annual air temperature:* 41 to 43 degrees F  
(5 to 6 degrees C)  
*Frost-free period:* 70 to 90 days

### Map Unit Composition

Zoltay and similar soils: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Zoltay soils

*Landform:* Canyon, alluvial fan  
*Parent material:* Alluvium derived from sandstone and shale  
*Slope:* 3 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow  
*Available water capacity:* About 7.9 inches (moderate)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 15 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Ecological site:* Mountain Clay Loam  
*Potential native vegetation:* Arizona fescue, Gambel's oak, mountain muhly, western wheatgrass, Letterman's needlegrass, muttongrass  
*Land capability subclass (nonirrigated):* 6e

#### Typical profile:

0 to 6 inches—loam  
6 to 14 inches—clay loam  
14 to 29 inches—cobble clay  
29 to 46 inches—very cobble clay loam  
46 to 60 inches—cobble clay loam

#### Minor Components

Ceek and similar soils  
*Composition:* About 5 percent  
Mitch and similar soils  
*Composition:* About 5 percent  
Acree and similar soils  
*Composition:* About 5 percent

#### Major Uses

Livestock grazing, wildlife habitat

## 110—Zoltay clay loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 6,800 to 8,500 feet (2,073 to 2,591 meters)

*Mean annual precipitation:* 16 to 18 inches (406 to 457 millimeters)

*Average annual air temperature:* 43 to 45 degrees F (6 to 7 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Zoltay and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Zoltay soils

*Landform:* Alluvial fan

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 11.3 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* High

*Calcium carbonate maximum:* About 15 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Mountain Clay Loam

*Potential native vegetation:* Arizona fescue, Gambel's oak, mountain muhly, western wheatgrass, Letterman's needlegrass, muttongrass

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

*Typical profile:*

0 to 12 inches—clay loam

12 to 38 inches—clay loam, silty clay loam

38 to 60 inches—clay loam, silty clay loam

#### Minor Components

Callan and similar soils

*Composition:* About 10 percent

Gurley and similar soils

*Composition:* About 5 percent

#### Major Uses

Pasture, cropland, livestock grazing, wildlife habitat

## 111—Zyme-Bodot-Rock outcrop complex, 15 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 36

*Elevation:* 6,600 to 7,500 feet (2,012 to 2,286 meters)

*Mean annual precipitation:* 12 to 15 inches (305 to 381 millimeters)

*Average annual air temperature:* 45 to 46 degrees F (7 to 8 degrees C)

*Frost-free period:* 90 to 110 days

### Map Unit Composition

Zyme and similar soils: 40 percent

Bodot and similar soils: 25 percent

Rock outcrop: 25 percent

Minor components: 10 percent

### Component Descriptions

#### Zyme soils

*Landform:* Alluvial fan

*Parent material:* Residuum weathered from shale

*Slope:* 15 to 30 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow

*Available water capacity:* About 2.6 inches (very low)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Hazard of flooding:* None

*Depth to seasonal high water table:* Greater than 72 inches

*Runoff class:* Very high

*Calcium carbonate maximum:* About 10 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Ecological site:* Pinyon-Juniper

*Potential native vegetation:* Rocky Mountain juniper, twoneedle pinyon, Indian ricegrass, Wyoming big sagebrush, Gambel's oak, true mountain mahogany, western wheatgrass, antelope bitterbrush, bottlebrush squirreltail, muttongrass, needleandthread, serviceberry

*Potential production of cordwood:* 12 to 15 cords per acre in a stand that averages 5 inches in diameter at a height of 1 foot

*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 6 inches—silty clay loam

6 to 15 inches—clay loam

15 to 19 inches—weathered bedrock

#### Bodot soils

*Landform:* Alluvial fan

*Parent material:* Residuum weathered from shale

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow  
*Available water capacity:* About 4.3 inches (low)  
*Shrink-swell potential:* About 4.5 percent (moderate)  
*Hazard of flooding:* None  
*Depth to seasonal high water table:* Greater than 72 inches  
*Runoff class:* Very high  
*Calcium carbonate maximum:* About 10 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Sodicity maximum:* Sodium adsorption ratio about 10 (slightly sodic)  
*Ecological site:* Clayey Foothills  
*Potential native vegetation:* western wheatgrass, Wyoming big sagebrush, Indian ricegrass, Utah juniper, prairie Junegrass, rabbitbrush, twoneedle pinyon  
*Land capability subclass (nonirrigated):* 7e

*Typical profile:*

0 to 3 inches—silty clay loam  
3 to 38 inches—silty clay, silty clay loam  
38 to 42 inches—weathered bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of exposed gray shale bedrock. It supports little or no vegetation.  
*Landform:* Alluvial fan  
*Slope:* 15 to 30 percent  
*Hazard of flooding:* None  
*Runoff class:* Very high

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Vanada and similar soils  
*Composition:* About 10 percent

**Major Uses**

Livestock grazing, wildlife habitat

**112—Water**

**Map Unit Setting**

*Major Land Resource Area:* 36, 35, 48A, 34

**Map Unit Composition**

Water: 95 percent  
Minor components: 5 percent

**Component Descriptions**

**Water**

*Description:* Consists of natural and impounded bodies of water, including lakes, ponds, reservoirs, and streams

**Minor Components**

Aquolls and similar soils  
*Composition:* About 5 percent  
*Landform:* Marsh

# Use and Management of the Soils

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This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as 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.

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and

indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

### Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *slightly limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately well suited*, *poorly suited*, and *unsuited* or as *good*, *fair*, and *poor*.

### Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## Crops and Pasture

By Dwight E. Curtiss, Area Agronomist, Natural Resources Conservation Service

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The Norwood area was first settled for livestock production in the 1880's. These early settlers mainly were cattle and sheep ranchers. Dryland farming began in the Egnar area in the early 1900's, but large tracts of land were not cleared for farming until the late 30's and early 40's.

The Nucla area was settled in 1894. The initial community of Pinyon grew until the Colorado Cooperative Ditch began to carry water into First and Second Parks. Initial agriculture production included fruits, grains, and vegetables such as peaches, pears, apples, carrots, beans, and potatoes.

The Norwood and Nucla areas have frost-free periods that range from 90 to 100 days and from 110 to 130 days, respectively. The Norwood area receives from 15 to 17 inches of precipitation per year, and the Nucla area receives 12 to 14 inches. Elevation at Norwood is approximately 7,000 feet, and that at Nucla is 5,800 feet.

Farming in the Norwood and Nucla areas is devoted mostly to irrigated alfalfa and cool-season grasses. Other crops grown in this area include some silage corn and feed barley. All crops are grown to feed local livestock.

Irrigation water used to grow these feed crops comes from the Gurley and Lone Cone Reservoirs, the Colorado Cooperative Ditch, and their respective ditches. About 22,000 acres is irrigated from these three irrigation systems. Most irrigation in this part of the survey area occurs on gently sloping to rolling landscapes.

Traditionally, irrigation water has been applied to the land in the Norwood and Nucla areas by contour ditches and controlled flooding techniques. New irrigation methods, using gated pipe and side-roll sprinklers, have become increasingly popular in these areas. This approach to irrigation is a proven method of increasing water use efficiency while maintaining or increasing crop yields. This method of water management is extremely valuable during periods of low water availability. Sophisticated surface irrigation systems such as graded border, basin, and benching are not practical for the Norwood and Nucla areas because of the slope of the landscape and because a large volume of water is required to apply such irrigation techniques.

Irrigated areas of the Paradox Valley and Disappointment Valley are quite isolated from the rest of the irrigated farmland in the Norwood area. Paradox Valley has a frost-free season of about 120 to 140 days; Disappointment Valley has a frost-free season of about 130 to 150 days. Paradox Valley receives from 10 to 12 inches of precipitation, and Disappointment Valley about 8 to 10 inches. Elevation

of both the Paradox and Disappointment Valleys ranges from about 5,100 to 5,700 feet.

Irrigated agriculture in the Paradox Valley includes silage corn, shelled corn, alfalfa, mixed hay, and barley. Approximately 4,500 acres is irrigated here by water stored in the Buckeye Reservoir and delivered by the Wray ditch. Besides using surface irrigation methods, local producers employ side-roll sprinklers and several center-pivot sprinklers. The main advantage of a center-pivot sprinkler system over a side-roll system is the minimal amount of operating labor needed. Under ideal conditions, center-pivot sprinklers also provide the most uniform water coverage because they move periodically throughout the irrigation cycle.

There is a very limited amount of irrigated land in the Disappointment Valley. Alfalfa and cool-season grasses are the only crops currently grown there. Approximately 800 acres is normally irrigated from Disappointment Creek and its tributaries. Irrigation water is applied exclusively through surface irrigation systems.

Installation of pipeline in sloping areas is popular throughout the survey area. Pipeline in sloping areas develops considerable pressure, and this pressure allows the use of sprinklers without the cost of pumping water. Structures to regulate and control the flow of water, such as concrete ditch lining and aluminum pipe, are common practices that can be used to reduce water losses and improve irrigation water efficiency.

The Egnar area is exclusively nonirrigated cropland. Precipitation in this area ranges from 13 to 15 inches annually. The frost-free period varies from 100 to 120 days. Elevation ranges from 6,800 to 7,400 feet. Pinto beans and winter wheat are the major crops; other crops grown in the Egnar area include barley, oats, and sunflowers.

The inherent fertility of the soils of this area have been somewhat depleted by continuous cropping practices associated with pinto beans and the resultant loss of topsoil by wind and water erosion. Some agronomic practices associated with growing pinto beans leave the soil surface exposed, less aggregated, and susceptible to wind erosion.

Conservation tillage methods can be used to protect the soil surface from wind erosion by maintaining crop residues on the soil surface. This crop residue protects the soil surface and growing plants from the damaging effects of the wind. Emergency tillage may provide a temporary measure to control wind erosion. A furrow-ridged surface is made by tillage equipment at a right angle to the prevailing wind. Planting cross wind trap strips and

stripcropping are other practices that can be used to reduce wind erosion.

Water erosion occurs during periods of rapid spring snowmelt. Water erosion also occurs during periods of high-intensity thunderstorms. Meltwater runoff transports large amounts of soil. Meltwater erosion is increased on frozen ground because there is little or no water infiltration into the soil.

High-intensity, localized thunderstorms are quite common during the summer months. These storms yield water at an application rate that is much too rapid for any of the soils of the area to absorb. The results are interrill, rill, and gully erosion.

Soil-conserving practices used in the survey area include planting and cultivating across the slope, using locally manufactured "puddlers" behind row cultivators to contain surface water where it falls, providing grassed waterways to carry concentrated flows of water safely away from fields, constructing terraces and diversions to intercept and slow the velocity of water, and growing permanent cover crops such as alfalfa and grass for hay and seed production. Conservation tillage practices such as minimum tillage and no-till farming reduce water erosion, but are not yet widely accepted in the survey area.

Fertilization is not a common agronomic practice in the nonirrigated areas of this survey. Most farmers believe the limited precipitation of this region makes the cost effectiveness of fertilization questionable. Cropping systems that include alfalfa in the rotation for a number of years improve soil structure, fertility, and water infiltration rates. High residue-producing crops such as wheat and barley can help to maintain soil organic matter if residues are conserved.

Saline seeps occur in some areas of the nonirrigated parts of the survey area. Located in upland draws, saline seeps commonly are relatively small but can grow larger, taking land out of production or interfering with farming. Most saline seeps originate as a result of soil moisture-conserving practices that increase soil water in upgradient recharge areas. Practices that help to mitigate saline seeps are planting permanent salt-tolerant grasses in reclaimed areas and establishing deep-rooted, high-water use crops such as alfalfa in upland recharge areas.

### **Yields per Acre**

The average yields per acre that can be expected of the principal crops under a high level of management are shown in Tables 5A and 5B. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall and other climatic factors. The land capability classification of

map units in the survey area also is shown in the tables.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in Tables 5A and 5B are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### **Land Capability Classification**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (USDA, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and

limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*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, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their

use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

### 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 land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 82,000 acres, or nearly 7 percent of the survey area, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in Table 6. This list does not constitute a recommendation for a

particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in Table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

## Ecological Sites and Characteristic Native Vegetation

In areas that have similar climate and topography, differences in the kind and amount of rangeland and forest understory vegetation, and the tree species are closely related to the kind of soil. Effective management is based upon the relationship between the soils and vegetation and water.

Table 7 shows, for each soil, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic native vegetation; the average percentage of each species for rangeland and for forest understory vegetation; and common trees and their site index. An explanation of the column headings in Table 7 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

*Total production* is the amount of dry-weight vegetation that can be expected to grow annually in a well managed area 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, 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. Yields are adjusted to a common percentage of air-dry moisture content.

*Characteristic native vegetation* consists of the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil, and is listed by common name. Under *composition*, the expected percentage of the total annual production of rangeland and forest understory vegetation is given for each species making up the characteristic native vegetation. The amount that can be used as forage depends upon the kinds of grazing animals and on the grazing season.

*Common trees* are those tree species that naturally occur on a soil. The potential productivity is expressed as *site index*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Site index is expressed in a different way for species of pinyon and juniper. For these tree species site index is the basal area attained when trees in a stand average 5 inches in diameter (Howell, 1940).

In this survey area, site index was determined using a 50-year curve for quaking aspen (Baker, 1925) and white fir (Schumacher, 1926). A 100-year curve was used for Engelmann's spruce (Alexander, 1967), subalpine fir (Alexander, 1967), ponderosa pine (Meyer, 1961), and Rocky Mountain Douglas-fir (Meyer, 1961). More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

## Rangeland

Jim Kellogg, Area Range Conservationist, Natural Resources Conservation Service, assisted in preparing this section.

About 60 percent of the survey area is rangeland. Almost all of this is used for the grazing of cattle and sheep. Much of the pinyon juniper is also used for the grazing of cattle. Agriculture and mining trade places from time to time, as the major source of income in the survey area. Agriculture is a major source of income. Most of the farm income is derived from cattle and sheep.

The average ranch in the area is approximately 2,000 acres of privately owned land, in addition to leased land from the Forest Service and Bureau of Land Management.

Livestock graze on the privately owned areas of range and woodland during the spring and fall. Bureau of Land Management leases are used during the late spring and early summer. Then the animals are moved to Forest Service leases. Animals are then fed through the winter on the home place.

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 similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook," which is available in local offices of the Natural Resources Conservation Service.

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, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity



**Figure 16—Shown are the results of chaining for range improvement on Pinyon-Juniper on Callan-Gurley loams, 3 to 20 percent slopes. The ecological site is Loamy Foothills.**



**Figure 17—Aerial application of herbicide for sagebrush control on a Loamy Foothills ecological site. The map unit is Pulpit-Bond, cool complex, 1 to 6 percent slopes.**

index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Several conservation practices are suitable for use on rangeland in the survey area: these include proper grazing use, a planned grazing system, seeding, and brush management (fig. 16).

Proper grazing use is grazing at an intensity that will maintain enough cover to protect the soil and maintain or improve the quality and quantity of desirable vegetation. This is achieved when at least 50 percent of the annual production, by weight, remains at the end of the grazing season. When proper grazing alone will not maintain or accelerate improvement in vegetation, a planned grazing system will help. In a planned grazing system, two or more grazing units are alternately rested from grazing in a planned sequence over a period of years. The rest period can be throughout the year or during the growing season of the key plants. This grazing system will improve efficiency of grazing through uniform use of all grazing units. Distribution of livestock in areas of rangeland can be achieved by fencing, developing watering facilities, and properly locating salt.

If undesirable shrubs have become dominant in the plant community and are competing with forage plants, brush management should be applied. Caution should be exercised when manipulating or reducing brush so that critical winter range for wildlife is not destroyed (fig. 17); the adequate cover is retained in areas where slopes are too steep, thus avoiding accelerated soil erosion; and enough grass is available to fill the voids left by removal of the brush. If the rangeland is severely deteriorated, seeding commonly is the most

economical and fastest method of revegetation. Soils that are too steep, shallow, or rocky generally are not suited to seeding.

## Forest Productivity and Management

Edwin W. Olmsted, Jr., Staff Forester, Natural Resources Conservation Service, assisted in preparing this section.

Woodland occupies about 48 percent of the San Miguel Area. Logging has been an important part of the local economy since the settlers came into the San Miguel Basin in the 1880's. The timber was used for props in the base metals mining industry, railroad ties, and construction materials. The uranium mining industry increased the demand for prop timbers. The number of sawmills reached a high point in the 1950's when beetle-damaged spruce and fir trees were harvested. The Montezuma Forest Reserve was established in 1905. The area was renamed Uncompahgre National Forest in the 1950's.

The Uncompahgre and Manti La Sal National Forests manage about 54,000 acres in the San Miguel Survey Area. All of the various renewable surface resources of the National Forest land are managed so that they are utilized in the combination that will best meet the needs of the American people. This is done by the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the forests without impairment of the productivity of the land.

The mountain pine beetle is a common insect pest in the survey area. It presently is not a serious problem. The best preventative measures for the pine beetle is proper forest management of the timber stands to ensure good healthy stands and insecticide treatment when the beetle population is beginning to expand and become a problem to the forest. These long-term investments in the forest are practical and profitable in this area.

The native forest cover can be divided into several forest-cover types. The forest cover types in the San Miguel Area are pinyon-juniper, ponderosa pine, Douglas-fir, aspen, and spruce-fir.

The pinyon-juniper type covers about 39 percent of the survey area. It is at elevations of 4,700 to 9,200 feet on canyons, mesas, benches, and ridges in the central, western, and northern parts of the survey area. This forest type is utilized for firewood, fenceposts, Christmas trees, and landscaping trees.

The ponderosa pine type covers about six percent of the survey area. It is at elevations of 7,400 to 8,500 feet on benches, mesa side slopes, and mesa tops in

the south-central and northwest parts of the survey area. Much of the ponderosa pine is of good commercial value. It is used as sawtimber, mine props, firewood, and wafer wood construction.

The Douglas-fir type covers less than one percent of the survey area. It is at elevations of 7,600 to 9,220 feet on mesa side slopes in the eastern part of the survey area. These areas are used for wildlife habitat, limited livestock grazing, and recreation.

The quaking aspen forest-cover type covers about three percent of the survey area. It is at elevations of 8,500 to 10,500 feet on mountain side slopes, mesa side slopes, and benches in the southern and eastern part of the survey area. These areas are used for wildlife habitat, summer livestock grazing, and as material for wafer wood construction.

The spruce-fir type covers less than one percent of the survey area. It is at elevations of 9,000 to 10,000 feet on mountain side slopes in the eastern part of the survey area. These areas are used for timber production, wildlife habitat, and recreation.

Professional assistance in sale, layout, appraisal, and forest land planning is available through the local office of the Colorado State Forest Service.

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management. The tables in this section only list soils that have potential as forestland.

## Forest Productivity

In Table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years.

Site index is expressed in a different way for species of pinyon and juniper. For these tree species site index is the basal area attained when trees in a stand average 5 inches in diameter (Howell, 1940).

In this survey area, site index was determined using a 50-year curve for quaking aspen (Baker, 1925) and white fir (Schumacher, 1926). A 100-year curve was used for Engelmann's spruce (Alexander, 1967), subalpine fir (Alexander, 1967), ponderosa pine (Meyer, 1961), and Rocky Mountain Douglas-fir (Meyer, 1961). More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

*Trees to manage* are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

### Forest Management

In Tables 9A through 9E, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately well suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low*, *moderate*, and *high*.

Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates

that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to

a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

## Recreation

Outdoor recreation in the survey area includes hunting, fishing, hiking, camping, river rafting, snowmobiling, and skiing. Tourism is particularly important during big-game hunting season when many out-of-state and nonresident hunters come to the San Miguel Basin Area to hunt.

The Buckeye, Groundhog, and Miramonte Reservoirs, with their public camp and picnic grounds, attract many campers, picnickers, and fishermen. Gurley Reservoir is another popular fishing spot in the survey area. Trout fishing opportunities abound along the San Miguel and Dolores Rivers and their tributaries.

River rafting has become a popular spring and early summer outdoor recreation activity in the survey area, particularly on the Dolores River.

Several campgrounds and picnic grounds are adjacent to the survey area within the Uncompahgre National Forest.

The soils of the survey area are rated in Tables 10A and 10B according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited*

indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in Tables 10A and 10B can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock

or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water

table, ponding, flooding, slope, and texture of the surface layer.

*Off-road motorcycle trails* require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

*Golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

## Wildlife Habitat

Edward L. Neilson, Jr., Biologist, Natural Resources Conservation Service, assisted in preparing this section.

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.

In Table 11, 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 potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management,

and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

*Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

*Grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, brome grass, clover, and alfalfa.

*Wild herbaceous plants* are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are annual mustards, cheatgrass, arrowleaf balsamroot, wheatgrass, and annual sunflowers.

*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 pine, spruce, fir, cedar, 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, Wyoming big sagebrush, and Gambel oak.

*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, saltgrass, rushes, sedges, and reeds.

*Shallow water areas* have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

Wildlife is among the most important resources of this survey area. The soils support habitat types that vary from sagebrush steppe to subalpine woodlands. Some game species inhabiting the area are elk, mule deer, pronghorn, black bear, Rocky Mountain bighorn sheep, two species of cottontail rabbit, blue grouse, mourning dove, Canada goose, mallard, and various other waterfowl species. Important predators in the area include mountain lion, coyote, badger, bobcat, gray fox, striped skunk, marten, mink, long-tailed weasel, raccoon, bald eagle, golden eagle, red-tailed hawk, American kestrel, ferruginous hawk, Cooper's hawk, sharp-shinned hawk, prairie falcon, great horned owl, and midget faded prairie rattlesnake.

Many non-game species also inhabit the survey area, such as several species of hummingbird, many species of native songbirds, white-tailed jackrabbit, raven, magpie, and turkey vultures. Rodents include beaver, muskrat, yellow bellied marmots, porcupine, Gunnison's prairie dog, several species of ground squirrel, chipmunk, and mice.

The Dolores River and San Miguel River, as well as many streams and lakes in the county, contain a variety of sport fish species, including rainbow trout, brook trout, brown trout, native cutthroat, and channel catfish.

The survey area has present or potential habitat for many state and federally classified threatened and/or endangered species, including Colorado river cutthroat, peregrine falcon, greater sandhill crane, and black-footed ferret.

The potential 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 pheasant, meadowlark, field sparrow, cottontail, red fox, horned lark, white-tailed jackrabbit, and coyote.

*Habitat for woodland wildlife* consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include elk, blue grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, mule deer, black bear, chickadees, juncos, marten, and snowshoe hare.

*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, and beaver.

*Habitat for rangeland wildlife* consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, sage grouse, meadowlark, horned lark, coyote, badger, bobcat, white-tailed jackrabbit, cottontail, and various birds of prey.



Figure 18—A drop structure on Gypsiorthids, 3 to 25 percent slopes.

## Engineering

This section provides information for planning land uses related to urban development and to water management (fig. 18). Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the

soils and on the estimated data and test data in the "Soil Properties" section.

*Information in this section 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 between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential,

available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems (fig. 19), ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil 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.

### Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 12A and 12B show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation



Figure 19—An irrigation water diversion on the San Miguel River. Soils on side slopes are Rock outcrop-Orthents complex, 40 to 90 percent slopes.

procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*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 soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

### Sanitary Facilities

Tables 13A and 13B show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has

features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a

cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

*A trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult

to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for

plants. It should not have excess sodium, salts, or lime and should not be too acid.

### Construction Materials

Tables 14A and 14B give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In Table 14A, only the likelihood 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 Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is an unlikely source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good*, *fair*, or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

*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. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as

available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface 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.

*Reclamation material* is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, 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 whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a 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 AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

### **Water Management**

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and

aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are 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 increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

*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 this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface 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.

*Aquifer-fed excavated ponds* are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

*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, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or 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 a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained 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 particle-size distribution, plasticity, and compaction characteristics. These results are reported in Table 16.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

## Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

*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 15 percent or more, 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 (ASTM, 1998) and the system adopted by the American Association

of State Highway and Transportation Officials (AASHTO, 1998).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-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, CL-ML.

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 particle-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* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry 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 particle-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 generally omitted in the table.

## Physical Properties

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In Table 17, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ - or  $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore

space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* ( $K_{sat}$ ) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. 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.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In Table 17, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water

capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factors* are shown in Table 17 as the K factor ( $K_w$  and  $K_f$ ) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) 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, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor  $K_w$*  indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor  $K_f$*  indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

*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 susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

*Wind erodibility index* is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

## Chemical Properties

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Calcium carbonate equivalent* is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

*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 table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Sodium adsorption ratio (SAR)* is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

## Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, 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 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.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 19 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration* and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under

normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

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 little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

## Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the thickness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*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 to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.



# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1999). 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. In the San Miguel Area, soils were classified according to "Keys to Soil Taxonomy," second edition (USDA, 1985). Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Twelve 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 common horizonation, 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; type of saturation; 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 Calciorthids (*Calci*, meaning accumulation of calcium carbonates, plus *orthid*, the suborder of the Aridisols that has a common sequence of horizons).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup 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 taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Ustollic* identifies the subgroup

that is an intergrade to the Ustolls. An example is Ustollic Calciorthids.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, mesic Ustollic Calciorthids.

**SERIES.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (USDA, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1999) and in "Keys to Soil Taxonomy" (USDA, 1985). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

### Abra Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan, terrace, valley floor

*Parent material:* alluvium derived from sandstone

*Elevation:* 5,500 to 6,800 feet

*Slope:* 1 to 12 percent

*Climatic data:*

*Average annual precipitation:* 10 to 14 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 110 to 130 days

*Taxonomic class:* Fine-loamy, mixed, mesic Ustollic Calciorthids

### Typical Pedon

*Map unit in which located:* Abra loam, 1 to 3 percent slopes

*Location in survey area:* about 300 feet west and 1,200 feet north of the southeast corner of Sec. 17, T. 44 N., R. 15 W.

A—0 to 3 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/3) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw—3 to 8 inches; light reddish brown (5YR 6/4) loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk1—8 to 13 inches; pink (7.5YR 8/4) loam, pink (7.5YR 7/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 23 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk2—13 to 32 inches; pink (7.5YR 8/4) loam, pink (7.5YR 7/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; 20 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline; clear wavy boundary.

Bky—32 to 60 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; 10 percent calcium carbonate equivalent; strongly effervescent; calcium carbonate disseminated throughout; few lenses of gypsum crystals; 25 percent gravel, 5 percent cobbles; moderately alkaline.

### Range in Characteristics

Secondary calcium carbonate is at a depth of 8 to 23 inches. The particle-size control section is loam, sandy clay loam, gravelly sandy loam, or clay loam, and the clay content is 20 to 30 percent. The Bw horizon is absent in some pedons.

*A horizon:* The content of rock fragments is 0 to 10 percent. The hue is 5YR to 10YR.

*Bk horizons:* The content of rock fragments is 5 to 15 percent to a depth of about 30 inches, and 15 to 35 percent below this depth. Few to common gypsum crystals exist. The calcium carbonate equivalent is 10 to 40 percent, and decreases with depth. The hue is 7.5YR or 10YR.

### Ackmen Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* flood plain

*Parent material:* alluvium derived from eolian material

*Elevation:* 6,800 to 7,300 feet

*Slope:* 1 to 3 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 100 to 120 days

*Taxonomic class:* Fine-silty, mixed, mesic Cumulic Haplustolls

### Typical Pedon

*Map unit in which located:* Ackmen silt loam, 1 to 3 percent slopes

*Location in survey area:* about 2,300 feet east and 500 feet north of the southwest corner of Sec. 19, T. 42 N., R. 19 W.

A—0 to 5 inches; reddish brown (5YR 4/3) silt loam, dark reddish brown (5YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

AB—5 to 15 inches; reddish brown (5YR 5/3) silt loam, dark reddish brown (5YR 3/2) moist; moderate medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; slightly alkaline; clear smooth boundary.

Bw—15 to 41 inches; reddish brown (5YR 5/3) silt loam, dark reddish brown (5YR 3/3) moist; moderate fine subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; slightly alkaline; clear smooth boundary.

C—41 to 60 inches; reddish brown (5YR 5/3) loam, dark reddish brown (5YR 3/3) moist; massive; hard, very friable, slightly sticky and plastic; slightly alkaline.

### Range in Characteristics

The mollic epipedon is 40 to 60 inches thick.

*A horizon:* The hue is 7.5YR and 5YR. The reaction is neutral or slightly alkaline.

*AB, B, and C horizons:* The hue is 7.5YR or 5YR.

## Acree Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, structural bench

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 7,400 to 8,500 feet

*Slope:* 1 to 12 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 45 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, montmorillonitic Typic Argiborolls

### Typical Pedon

*Map unit in which located:* Acree loam, 1 to 6 percent slopes

*Location in survey area:* about 600 feet south and 600 feet east of the northwest corner of Sec. 13, T. 44 N., R. 13 W.

A1—0 to 4 inches; brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

A2—4 to 8 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; weak fine and medium granular structure; hard, friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

BA—8 to 12 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; few thin clay films on faces of peds; neutral; clear smooth boundary.

Bt1—12 to 16 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/3) moist; moderate medium subangular and angular blocky structure; hard, friable, sticky and plastic; common thin clay films on faces of peds; neutral; clear wavy boundary.

Bt2—16 to 24 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular and subangular blocky; hard, friable, sticky and plastic; many thick clay films on faces of peds; neutral; gradual smooth boundary.

Bt3—24 to 30 inches; reddish brown (5YR 5/4) clay,

reddish brown (5YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular and subangular blocky; hard, friable, sticky and plastic; many thick clay films on faces of peds; neutral; clear wavy boundary.

Btk—30 to 39 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 5/4) moist; weak medium prismatic structure parting to weak medium subangular blocky; hard, friable, sticky and plastic; 2 percent calcium carbonate equivalent; common thin clay films on faces of peds; spots of calcium carbonate accumulation; slightly alkaline; gradual smooth boundary.

Bk1—39 to 50 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; weak medium prismatic structure; hard, friable, sticky and plastic; 4 percent calcium carbonate equivalent; very few thin clay films on faces of peds; strongly effervescent; many fine seams and streaks of calcium carbonate; moderately alkaline; gradual smooth boundary.

Bk2—50 to 60 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; massive; hard, friable, sticky and plastic; 8 percent calcium carbonate equivalent; very few thin clay films on faces of peds; violently effervescent, many fine seams and streaks of calcium carbonate; moderately alkaline.

### Range in Characteristics

The mollic epipedon ranges from 8 to 13 inches thick. Calcium carbonate is at a depth 13 to 40 inches. The content of rock fragments is 0 to 15 percent.

*A horizons:* The hue is 5YR to 10YR.

*Bt horizons:* The texture is clay loam or clay. The clay content is 35 to 42 percent. The reaction is neutral or slightly alkaline. The hue is 5YR or 7.5YR.

*Btk and Bk horizons:* The texture is loam or clay loam. The reaction is slightly alkaline or moderately alkaline. The calcium carbonate equivalent is 3 to 15 percent, and decreases with depth. The hue is 10YR to 5YR.

This soil was characterized by the National Soil Survey Laboratory; pedon number 83PO807 and soil survey sample number S83CO-113-002.

## Adel Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* hill, mesa, mountain slope, structural bench

*Parent material:* residuum weathered from interbedded sandstone and shale, till and residuum derived from shale and sandstone

*Elevation:* 8,500 to 10,500 feet

*Slope:* 1 to 50 percent

*Climatic data:*

*Average annual precipitation:* 22 to 30 inches

*Average annual temperature:* 35 to 37 degrees F.

*Frost-free period:* 40 to 60 days

*Taxonomic class:* Fine-loamy, mixed Pachic Cryoborolls

### Typical Pedon

*Map unit in which located:* Adel loam, 5 to 30 percent slopes

*Location in survey area:* about 1,150 feet north and 2,100 feet west of the southeast corner of Sec. 34, T. 46 N., R. 10 W.

A1—0 to 20 inches; very dark grayish brown (10YR 3/2) loam, black (10YR 2/1) moist; moderate very fine granular structure; slightly hard, very friable, slightly sticky and nonplastic; neutral; clear smooth boundary.

A2—20 to 30 inches; dark brown (10YR 3/3) loam, black (10YR 2/1) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and nonplastic; neutral; clear smooth boundary.

A3—30 to 50 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; slightly alkaline; abrupt wavy boundary.

AC—50 to 60 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; massive; very hard, firm, slightly sticky and slightly plastic; slightly alkaline.

### Range in Characteristics

The mollic epipedon is 40 to 60 inches thick. The particle-size control section is 0 to 5 percent rock fragments.

*AC horizon:* The reaction is neutral or slightly alkaline.

### Aquolls

*Depth class:* very deep

*Drainage class:* very poorly or poorly drained

*Permeability:* slow

*Landform:* flood plain, slough

*Parent material:* alluvium from mixed sources

*Elevation:* 5,500 to 6,800 feet

*Slope:* 0 to 3 percent

*Climatic data:*

*Average annual precipitation:* 10 to 16 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 90 to 130 days

*Taxonomic class:* Aquolls

### Reference Pedon

*Map unit in which located:* Aquolls, 0 to 3 percent slopes

*Location in survey area:* about 1,900 feet west and 699 feet south of the northeast corner of Sec. 16, T. 44 N., R. 15 W.

Oi—1 inch to 0 inches; slightly decayed roots and stems.

A1—0 to 3 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; massive; hard, friable, slightly sticky and plastic; strongly effervescent; slightly alkaline; clear smooth boundary.

A2—3 to 13 inches; brown (7.5YR 5/2) clay loam, dark brown (7.5YR 3/2) moist; massive; hard, friable, sticky and plastic; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg1—13 to 21 inches; reddish brown (5YR 5/3) clay loam, reddish brown (5YR 4/3) moist; common fine prominent gray (10YR 5/1) moist, iron depletions; massive; hard, friable, sticky and plastic; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg2—21 to 33 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/2) moist; common fine prominent gray (10YR 5/1) moist, iron depletions; massive; hard, friable, slightly sticky and plastic; strongly effervescent; slightly alkaline; clear wavy boundary.

Cg3—33 to 38 inches; very pale brown (10YR 7/3) clay loam, gray (10YR 6/1) moist; few fine distinct yellowish brown (10YR 5/4) and very pale brown (10YR 8/3) moist, masses of iron accumulation; massive; hard, friable, sticky and plastic; violently effervescent; moderately alkaline; clear wavy boundary.

Cg4—38 to 60 inches; white (10YR 7/2) sandy clay loam, gray (10YR 6/1) moist; few fine distinct very pale brown (10YR 8/3) moist, masses of iron accumulation; massive; hard, friable, slightly sticky and slightly plastic; violently effervescent; moderately alkaline.

### Range in Characteristics

The water table ranges between depths of 6 to 50 inches throughout the year.

The particle-size control section is 0 to 15 percent rock fragments.

Most pedons are continuously saturated with water within 40 inches of the soil surface for 90 days or more in most years. Some pedons have an irregular decrease in organic-carbon content with increasing depth.

*A and Cg horizons:* The hue is 2.5Y, 10YR, 7.5YR, or 5YR. The texture is clay loam and sandy clay loam.

## Baird Hollow Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mountain slope

*Parent material:* colluvium and residuum from sandstone and shale

*Elevation:* 8,800 to 10,000 feet

*Slope:* 5 to 40 percent

*Climatic data:*

*Average annual precipitation:* 24 to 26 inches

*Average annual temperature:* 35 to 37 degrees F.

*Frost-free period:* 40 to 60 days

*Taxonomic class:* Clayey-skeletal, montmorillonitic Cryic Paleborolls

### Typical Pedon

*Map unit in which located:* Baird Hollow-Nordicol-Ryman complex, 5 to 40 percent slopes

*Location in survey area:* about 2,250 feet east and 1,800 feet south of the northwest corner of Sec. 16, T. 42 N., R. 13 W.

Oe—2 inches to 0; moderately decomposed aspen leaves and twigs.

A—0 to 14 inches; dark grayish brown (10YR 4/2) stony loam, very dark gray (10YR 3/1) moist; moderate fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; 10 percent stones, 10 percent cobbles, and 5 percent gravel; moderately acid; clear smooth boundary.

E1—14 to 22 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 5/3) moist; weak fine granular structure; hard, very friable, slightly sticky and slightly plastic; 10 percent stones, 15 percent cobbles, and 15 percent gravel; neutral; clear smooth boundary.

E2—22 to 28 inches; very pale brown (10YR 7/3) very stony clay loam, brown (10YR 5/3) moist; weak and moderate fine and medium subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; 20 percent stones, 20 percent

cobbles, and 10 percent gravel; neutral; gradual irregular boundary.

B/E—28 to 40 inches; 60 percent B and 40 percent E; light gray (10YR 7/2) very stony clay loam, yellowish brown (10YR 5/4) moist; weak and moderate fine and medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; 15 percent stones, 20 percent cobbles, and 10 percent gravel; neutral; gradual wavy boundary.

Bt—40 to 44 inches; grayish brown (10YR 5/2) very stony clay, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; very hard, firm, sticky and plastic; 15 percent stones, 20 percent cobbles, and 10 percent gravel; neutral; clear wavy boundary.

2C—44 to 60 inches; light gray (2.5Y 7/2) gravelly clay, light yellowish brown (2.5Y 6/4) moist; massive; very hard, firm, sticky and plastic; 5 percent stones, 5 percent cobbles, and 10 percent gravel; neutral.

### Range in Characteristics

The solum is 44 to 60 or more inches thick. The particle-size control section is 35 to 50 percent rock fragments.

*A horizon:* The reaction is neutral to moderately acid.

*Bt horizon:* The clay content is 35 to 45 percent. The content of rock fragments is 35 to 50 percent.

## Barkelew Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* mesa

*Parent material:* till and colluvium from mixed sources

*Elevation:* 7,000 to 8,200 feet

*Slope:* 5 to 40 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Loamy-skeletal, mixed Borollic Calciorthids

### Typical Pedon

*Map unit in which located:* Barkelew-Emmons complex, 5 to 40 percent slopes

*Location in survey area:* about 2,000 feet south and 2,650 feet west of the northeast corner of Sec. 12, T. 43 N., R. 15 W.

- A—0 to 2 inches, dark grayish brown (10YR 4/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; 15 percent gravel, 20 percent cobbles, 10 percent stones; slightly effervescent; slightly alkaline; clear smooth boundary.
- Bw—2 to 10 inches; dark yellowish brown (10YR 4/4) cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; 15 percent gravel, 10 percent cobbles; slightly effervescent; slightly alkaline; clear smooth boundary.
- Bk1—10 to 22 inches; white (10YR 8/1) extremely stony clay loam, pale brown (10YR 6/3) moist; massive; hard, friable, sticky and slightly plastic; 20 percent gravel, 25 percent cobbles, 20 percent stones; calcium carbonate disseminated throughout; 19 percent calcium carbonate equivalent; violently effervescent; moderately alkaline; clear wavy boundary.
- Bk2—22 to 60 inches; white (10YR 8/1) extremely stony loam, pale brown (10YR 6/3) moist; massive; hard, friable, sticky and slightly plastic; 20 percent gravel, 25 percent cobbles, and 20 percent stones; calcium carbonate disseminated throughout; 23 percent calcium carbonate equivalent; violently effervescent; moderately alkaline.

#### Range in Characteristics

*A horizon:* The hue is 2.5Y or 10YR.

*Bw and Bk horizons:* The clay content is 25 to 35 percent. The hue is 2.5Y or 10YR.

#### Barx Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* mesa, terrace

*Parent material:* alluvium derived from sandstone

*Elevation:* 5,000 to 7,200 feet

*Slope:* 1 to 12 percent

*Climatic data:*

*Average annual precipitation:* 10 to 14 inches

*Average annual temperature:* 46 to 48 degrees F.

*Frost-free period:* 100 to 130 days

*Taxonomic class:* Fine-loamy, mixed, mesic Ustollic Haplargids

#### Typical Pedon

*Map unit in which located:* Barx fine sandy loam, 1 to 3 percent slopes

*Location in survey area:* about 900 feet north and 400 feet west of the southeast corner of Sec. 27, T. 45 N., R 17 W.

A1—0 to 2 inches; brown (7.5YR 4/4) fine sandy loam, dark brown (7.5YR 3/4) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; slightly alkaline; clear smooth boundary.

A2—2 to 5 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; slightly alkaline; clear smooth boundary.

Bt1—5 to 11 inches; yellowish red (5YR 5/6) sandy clay loam, reddish brown (5YR 4/3) moist; moderate fine subangular blocky structure parting to moderate fine granular; hard, very friable, sticky and plastic; slightly alkaline; clear smooth boundary.

Bt2—11 to 15 inches; yellowish red (5YR 5/6) sandy clay loam, reddish brown (5YR 4/3) moist; strong medium subangular blocky structure; very hard, friable, sticky and plastic; slightly alkaline; clear smooth boundary.

Btk—15 to 23 inches; light reddish brown (5YR 6/3) sandy clay loam, reddish brown (5YR 5/4) moist; moderate medium subangular blocky structure; extremely hard, firm, sticky and plastic; 17 percent calcium carbonate equivalent; calcium carbonate segregated in many irregularly shaped medium sized concretions; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk1—23 to 31 inches; pinkish white (7.5YR 8/2) loam, light brown (7.5YR 6/4) moist; massive; extremely hard, firm, sticky and plastic; 37 percent calcium carbonate equivalent; calcium carbonate segregated in many irregularly shaped medium sized concretions; violently effervescent; moderately alkaline; clear smooth boundary.

Bk2—31 to 38 inches; pinkish white (7.5YR 8/2) loam, light brown (7.5YR 6/4) moist; massive; very hard, friable, slightly sticky and slightly plastic; 44 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline; clear smooth boundary.

C1—38 to 51 inches; very pale brown (5YR 8/3) loam, very pale brown (5YR 7/3) moist; massive; hard,

friable, slightly sticky and slightly plastic; 34 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline; clear wavy boundary.

C2—51 to 60 inches; pink (5YR 7/4) loam, light reddish brown (5YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 25 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline; clear wavy boundary.

C3—60 to 74 inches; pink (7.5YR 7/4) loam, light brown (7.5YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 17 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline.

#### Range in Characteristics

The solum is 20 to 32 inches thick. The depth to secondary calcium carbonate is 12 to 19 inches.

*A horizons:* The hue is 5YR or 7.5YR.

*B horizons:* The texture is loam, clay loam, or sandy clay loam. The clay content is 20 to 34 percent. The hue is 2.5YR to 7.5YR.

*C horizons:* The texture is loam or sandy clay loam. The hue is 2.5YR to 7.5YR. The calcium carbonate equivalent is 15 to 45 percent, and decreases with depth.

This soil was characterized by the National Soil Survey Laboratory; pedon number 80P375 and soil survey sample number S80CO-113-001.

### Begay Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* terrace

*Parent material:* alluvium derived from sandstone

*Elevation:* 4,900 to 6,200 feet

*Slope:* 1 to 6 percent

*Climatic data:*

*Average annual precipitation:* 9 to 12 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Coarse-loamy, mixed, mesic Ustollic Camborthids

#### Typical Pedon

*Map unit in which located:* Begay fine sandy loam, 1 to 6 percent slopes

*Location in survey area:* about 200 feet east of the northwest corner of Sec. 25, T. 47 N., R. 18 W.

A—0 to 3 inches; red (2.5YR 5/6) fine sandy loam, reddish brown (2.5YR 4/4) moist; weak fine granular structure; soft, very friable; strongly effervescent; slightly alkaline; clear smooth boundary.

Bw—3 to 12 inches; red (2.5YR 5/6) fine sandy loam, reddish brown (2.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable; strongly effervescent; slightly alkaline; clear smooth boundary.

Bk—12 to 60 inches; red (2.5YR 5/6) fine sandy loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, very friable; few fine irregular soft masses of lime; violently effervescent; slightly alkaline.

#### Range in Characteristics

The content of rock fragments is 0 to 10 percent, and fragments are predominantly gravel-sized. The hue is 2.5YR or 5YR.

*Bw horizon:* The texture is fine sandy loam, very fine sandy loam, or sandy loam. The clay content is 14 to 18 percent.

*Bk horizon:* The texture is fine sandy loam, sandy loam, or very fine sandy loam. A small amount of visible calcium carbonate is present. The calcium carbonate equivalent is 5 to 10 percent.

### Beje Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa

*Parent material:* residuum weathered from sandstone

*Elevation:* 6,800 to 9,700 feet

*Slope:* 3 to 25 percent

*Climatic data:*

*Average annual precipitation:* 15 to 17 inches

*Average annual temperature:* 41 to 45 degrees F.

*Frost-free period:* 70 to 110 days

*Taxonomic class:* Loamy, mixed Lithic Argiborolls

#### Typical Pedon

*Map unit in which located:* Beje fine sandy loam, 3 to 25 percent slopes

*Location in survey area:* about 400 feet east and 1,800 feet north of the southwest corner of Sec. 13, T. 48 N., R. 19 W.

A—0 to 5 inches; reddish brown (5YR 4/3) fine sandy loam, dark reddish brown (5YR 3/3) moist; weak

fine granular structure; soft, very friable, nonsticky and slightly plastic; neutral; clear smooth boundary.

BA—5 to 9 inches; reddish brown (5YR 4/4) sandy loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable; neutral; clear smooth boundary.

Bt—9 to 14 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; calcium carbonate disseminated throughout; strongly effervescent; slightly alkaline; abrupt smooth boundary.

R—14 inches; hard, red sandstone.

### Range in Characteristics

Bedrock is at a depth of 10 to 20 inches. The depth to secondary calcium carbonate is 8 to 13 inches. The reaction is neutral or slightly alkaline. The mollic epipedon is 5 to 7 inches thick. The content of rock fragments is 0 to 15 percent. The hue is 7.5YR to 5YR.

*Bt horizon:* The texture is clay loam or sandy clay loam.

## Billings Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* terrace, valley floor

*Parent material:* alluvium derived from shale

*Elevation:* 5,500 to 7,200 feet

*Slope:* 1 to 4 percent

*Climatic data:*

*Average annual precipitation:* 8 to 11 inches

*Average annual temperature:* 47 to 51 degrees F.

*Frost-free period:* 110 to 150 days

*Taxonomic class:* Fine-silty, mixed (calcareous), mesic Typic Torrifuvents

### Typical Pedon

*Map unit in which located:* Billings silt loam, 1 to 4 percent slopes

*Location in survey area:* about 1,700 feet north and 10 feet east of the southwest corner of Sec. 8, T. 43 N., R. 17 W.

A—0 to 2 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate medium granular and moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine distinct gypsum threads and nodules; strongly effervescent; strongly alkaline; abrupt smooth boundary.

AC—2 to 13 inches; grayish brown (2.5Y 5/2) silt loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky and weak medium platy structure; hard, very friable, slightly sticky and slightly plastic; few fine distinct gypsum threads and nodules; strongly effervescent; strongly alkaline; gradual wavy boundary.

C1—13 to 21 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, very friable, sticky and plastic; few fine distinct gypsum threads and nodules; strongly effervescent; moderately alkaline; gradual wavy boundary.

C2—21 to 45 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, very friable, sticky and plastic; few fine distinct gypsum threads and nodules; strongly effervescent; moderately alkaline; gradual wavy boundary.

C3—45 to 60 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, very friable, sticky and plastic; few fine prominent yellowish brown (10YR 5/4) moist, masses of iron accumulation; strongly effervescent; strongly alkaline.

### Range in Characteristics

The hue is 2.5Y to 5Y. The reaction is moderately alkaline or strongly alkaline. The AC horizon is absent in some pedons.

*C horizons:* The texture is silt loam or silty clay loam. The clay content is 20 to 35 percent. Few to common gypsum crystals may occur throughout.

## Bodot Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, hill, landslide, ridge, structural bench, terrace

*Parent material:* residuum weathered from shale

*Elevation:* 5,400 to 7,500 feet

*Slope:* 3 to 50 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 48 degrees F.

*Frost-free period:* 90 to 130 days

*Taxonomic class:* Fine, montmorillonitic (calcareous), mesic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Bodot silty clay loam, dry, 3 to 12 percent slopes

*Location in survey area:* about 1,800 feet south and 1,700 feet east of the northwest corner of Sec. 21, T. 44 N., R. 16 W.

- A—0 to 3 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and plastic; strongly effervescent; slightly alkaline; clear smooth boundary.
- AC—3 to 18 inches; grayish brown (2.5Y 5/2) silty clay, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; hard, friable, slightly sticky and plastic; slightly effervescent; moderately alkaline; clear wavy boundary.
- C—18 to 38 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, friable, slightly sticky and plastic; calcium carbonate is segregated in many irregularly shaped medium sized threads and soft masses; 25 percent shale fragments; slightly effervescent; moderately alkaline; diffuse wavy boundary.
- Cr—38 inches; fractured, noncalcareous gray shale.

#### Range in Characteristics

A paralithic contact is at a depth of 20 to 40 inches. The particle-size control section is 0 to 30 percent rock fragments, and the clay content is 35 to 50 percent.

*A horizon:* The hue is 2.5Y, 10YR, or 7.5YR. The texture is clay loam, silty clay loam, and very bouldery clay loam. The reaction is slightly alkaline or moderately alkaline.

*AC horizon:* The hue is 2.5Y and 10YR. The AC horizon is absent in some pedons. The reaction is slightly alkaline or moderately alkaline.

*C horizon:* The texture is silty clay loam, cobbly silty clay, and silty clay. The clay content is 28 to 50 percent. The reaction is moderately alkaline or strongly alkaline.

This soil was characterized by the National Soil Survey Laboratory; pedon number 80P374 and soil survey sample number S80CO-085-002. The location of this site (in an area of Bodot, dry-Ustic Torriorthents complex, 5 to 50 percent slopes) is about 1,800 feet west and 300 feet south of the northeast corner of Sec. 8, T. 47 N., R. 17 W.

#### Bond Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* slow

*Landform:* escarpment, mesa, ridge, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 5,500 to 7,400 feet

*Slope:* 1 to 50 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 50 degrees F.

*Frost-free period:* 100 to 130 days

*Taxonomic class:* Loamy, mixed, mesic Lithic Ustollic Haplargids

#### Typical Pedon

*Map unit in which located:* Gladel-Bond-Rock outcrop complex, 1 to 50 percent slopes

*Location in survey area:* about 1,000 feet west and 700 feet north of the southeast corner of Sec. 16, T. 48 N., R. 18 W.

A—0 to 3 inches; light reddish brown (5YR 6/4) fine sandy loam, dark reddish brown (5YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; neutral; abrupt smooth boundary.

Bt1—3 to 9 inches; reddish brown (5YR 4/3) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate coarse subangular blocky structure; hard, friable, sticky and plastic; neutral; abrupt wavy boundary.

Bt2—9 to 13 inches; reddish brown (5YR 5/3) clay loam, yellowish red (5YR 4/6) moist; moderate coarse subangular blocky structure; hard, friable, sticky and plastic; neutral; clear smooth boundary.

Bt3—13 to 16 inches; reddish brown (5YR 5/3) sandy clay loam, yellowish red (5YR 4/6) moist; massive; hard, friable, sticky and plastic; strongly effervescent; calcium carbonate disseminated throughout; slightly alkaline; abrupt smooth boundary.

R—16 inches; hard sandstone.

#### Range in Characteristics

Bedrock is at a depth of 10 to 20 inches. The content of rock fragments is 0 to 10 percent. The reaction is neutral to moderately alkaline. The particle-size control section is clay loam or sandy clay loam, and the clay content is 20 to 35 percent.

#### Borolls

*Depth class:* shallow to very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* canyon, mesa

*Parent material:* colluvium and residuum from sandstone and shale

*Elevation:* 6,600 to 9,200 feet

*Slope:* 40 to 90 percent

*Climatic data:*

*Average annual precipitation:* 15 to 22 inches

*Average annual temperature:* 38 to 42 degrees F.

*Frost-free period:* 65 to 110 days

*Taxonomic class:* Borolls

### Reference Pedon

*Map unit in which located:* Borolls-Rock outcrop complex, 40 to 90 percent slopes

*Location in survey area:* about 2,700 feet north and 250 feet west of the southeast corner of Sec. 14, T. 44 N., R. 12 W.

A—0 to 10 inches, dark grayish brown (10YR 4/2) stony loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; 5 percent gravel, 10 percent cobbles, and 10 percent stones; slightly alkaline; clear wavy boundary.

BA—10 to 13 inches; brown (7.5YR 5/4) stony sandy clay loam, brown (7.5YR 4/2) moist; weak fine subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; 10 percent gravel, 10 percent cobbles, and 10 percent stones; slightly alkaline; gradual wavy boundary.

Bt—13 to 21 inches; light brown (7.5YR 6/4) very cobbly clay loam, brown (7.5YR 4/2) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; 20 percent gravel, 15 percent cobbles, 10 percent stones; slightly alkaline; gradual wavy boundary.

Btk—21 to 35 inches; brown (7.5YR 5/4) very cobbly clay, brown (7.5YR 4/2) moist; strong fine and medium angular blocky structure; hard, friable, sticky and plastic; calcium carbonate disseminated throughout; 20 percent gravel, 20 percent cobbles, 10 percent stones; slightly effervescent; moderately alkaline; diffuse wavy boundary.

Bk—35 to 60 inches; brown (7.5YR 5/4) very stony clay, brown (7.5YR 4/2) moist; moderate medium angular blocky structure; very hard, firm, sticky and plastic; calcium carbonate disseminated throughout; 25 percent gravel, 15 percent cobbles, 15 percent stones; slightly effervescent; moderately alkaline.

Bedrock is at a depth of 15 to 60 inches or more. The mollic epipedon is 10 to 12 inches thick. The particle-size control section is 30 to 60 percent rock fragments. The depth to secondary calcium carbonate

is 20 to 40 inches. The Bt horizon is absent in some pedons.

*A horizon:* The texture is stony loam and stony clay loam. The hue is 10YR and 7.5YR.

*Bt and Btk horizons:* The texture is very cobbly clay loam and very cobbly clay. The clay content is 30 to 45 percent. The content of rock fragments is 35 to 60 percent. The hue is 7.5YR and 5YR. The reaction is slightly alkaline or moderately alkaline.

*Bk horizon:* The texture is very stony clay loam and very stony clay. The hue is 7.5YR and 5YR.

### Bowdish Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* escarpment, mesa, ridge, structural bench

*Parent material:* residuum weathered from interbedded sandstone and shale

*Elevation:* 5,400 to 7,400 feet

*Slope:* 1 to 15 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 48 degrees F.

*Frost-free period:* 90 to 130 days

*Taxonomic class:* Fine-loamy, mixed, mesic Ustollic Calciorthids

### Typical Pedon

*Map unit in which located:* Pinon-Bowdish-Rock outcrop complex, 3 to 30 percent slopes

*Location in survey area:* about 150 feet east and 700 feet south of the northwest corner of Sec. 18, T. 48 N., R. 17 W.

A—0 to 5 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable; strongly effervescent; moderately alkaline; clear smooth boundary.

Bw—5 to 12 inches; light brown (7.5YR 6/4) loam; brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; hard, friable; 18 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk—12 to 23 inches; pinkish white (7.5YR 8/2) gravelly loam, light brown (7.5YR 6/4) moist; weak medium subangular blocky structure; hard, friable, nonsticky and slightly plastic; 15 percent gravel; 30 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; violently

effervescent; moderately alkaline; abrupt wavy boundary.

R—23 inches; hard sandstone.

### Range in Characteristics

Bedrock is at a depth of 20 to 40 inches.

*A horizon:* The hue is 7.5YR to 5YR. The content of rock fragments is 0 to 10 percent.

*Bk horizon:* The hue is 7.5YR or 10YR. The texture is loam, clay loam, sandy loam, gravelly loam, gravelly clay loam, or gravelly sandy loam. The clay content is 18 to 35 percent. The content of rock fragments is 5 to 35 percent. The reaction is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 15 to 40 percent.

## Burnac Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* structural bench

*Parent material:* mass movement deposits and residuum weathered from sandstone and shale

*Elevation:* 7,000 to 8,200 feet

*Slope:* 3 to 50 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, montmorillonitic Mollic Eutroboralfs

### Typical Pedon

*Map unit in which located:* Burnac-Delson sandy loams, 3 to 20 percent slopes

*Location in survey area:* about 2,700 feet north and 2,000 feet east of the southwest corner of Sec. 24, T. 48 N., R. 19 W.

Oi—1/2 inch to 0 inches; thin mat of pine needles.

A—0 to 6 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

Bt1—6 to 18 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; moderate medium angular blocky structure parting to strong fine angular blocky; very hard, friable, sticky and plastic; continuous thick clay films on faces of peds; neutral; clear smooth boundary.

Bt2—18 to 28 inches; yellowish red (5YR 5/6) clay, yellowish red (5YR 4/6) moist; moderate medium angular blocky structure parting to moderate fine

angular blocky; extremely hard, firm, sticky and plastic; continuous moderately thick clay films on faces of peds; neutral; clear smooth boundary.

C—28 to 60 inches; light brown (7.5YR 6/4) very stony clay, brown (7.5YR 5/4) moist; massive; extremely hard, firm, sticky and plastic; 10 percent gravel, 5 percent cobbles, and 30 percent stones; slightly alkaline.

### Range in Characteristics

The solum is 25 to 37 inches thick. Calcium carbonate may occur at a depth of 45 to 60 inches.

*A horizon:* The hue is 10YR or 7.5YR. The texture is sandy loam or loam.

*Bt horizons:* The hue is 5YR or 7.5YR. The texture is clay loam or clay. The content of rock fragments is 0 to 15 percent.

*C horizon:* The hue is 7.5YR or 5YR. The content of rock fragments is 15 to 50 percent.

## Bushvalley Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 8,500 to 9,500 feet

*Slope:* 2 to 10 percent

*Climatic data:*

*Average annual precipitation:* 20 to 24 inches

*Average annual temperature:* 37 to 40 degrees F.

*Frost-free period:* 50 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed Argic Lithic Cryoborolls

### Typical Pedon

*Map unit in which located:* Bushvalley-Nordicol Variant complex, 2 to 10 percent slopes

*Location in survey area:* about 500 feet east and 700 feet south of the northwest corner of Sec. 18, T. 45 N., R. 10 W.

A—0 to 5 inches; brown (7.5YR 5/2) stony loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; 15 percent gravel, 5 percent cobbles, and 15 percent stones; neutral; clear smooth boundary.

Bt—5 to 12 inches; strong brown (7.5YR 5/6) extremely channery clay loam, strong brown (7.5YR 4/6) moist; moderate fine subangular blocky structure; soft, friable, slightly sticky and

plastic; 70 percent channers and 10 percent flagstones; neutral; abrupt smooth boundary.  
R—12 inches; Dakota sandstone.

#### Range in Characteristics

Bedrock is at a depth of 10 to 20 inches. The particle-size control section is 40 to 80 percent rock fragments.

*A horizon:* The hue is 7.5YR or 10YR.

*Bt horizon:* The hue is 7.5YR or 5YR.

### Cabba Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* slow

*Landform:* hill

*Parent material:* residuum weathered from shale

*Elevation:* 7,200 to 8,100 feet

*Slope:* 20 to 60 percent

*Climatic data:*

*Average annual precipitation:* 16 to 18 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 80 to 100 days

*Taxonomic class:* Loamy, mixed (calcareous), frigid, shallow Typic Ustorthents

#### Typical Pedon

*Map unit in which located:* Pagoda-Coulter-Cabba complex, 10 to 60 percent slopes

*Location in survey area:* about 3,400 feet west and 1,800 feet south of the northeast corner of Sec. 12, T. 41 N., R. 14 W.

A—0 to 4 inches; grayish brown (10YR 5/2) channery loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, slightly sticky and plastic; 20 percent shale chips; violently effervescent; moderately alkaline; clear smooth boundary.

C—4 to 10 inches; grayish brown (2.5Y 5/2) very channery silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and plastic; 35 percent shale chips; violently effervescent; moderately alkaline; clear smooth boundary.

Cr—10 inches; partially weathered shale.

#### Range in Characteristics

Paralithic contact is at a depth of 10 to 20 inches. The clay content is 20 to 35 percent.

*C horizon:* The content of rock fragments is 10 to 35 percent.

### Callan Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, terrace

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 6,800 to 7,400 feet

*Slope:* 1 to 20 percent

*Climatic data:*

*Average annual precipitation:* 15 to 17 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine, mixed Aridic Argiborolls

#### Typical Pedon

*Map unit in which located:* Callan loam, 3 to 6 percent slopes

*Location in survey area:* about 1,800 feet west and 700 feet north of the southeast corner of Sec. 16, T. 45 N., R. 13 W.

A—0 to 4 inches; brown (7.5YR 5/3) loam, dark brown (7.5YR 3/3) moist; weak fine crumb and granular structure; soft, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

BA—4 to 8 inches; brown (7.5YR 4/3) clay loam, dark brown (7.5YR 3/3) moist; weak medium granular structure; hard, very friable, sticky and plastic; neutral; clear smooth boundary.

Bt—8 to 14 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; moderate fine and medium angular blocky structure; very hard, firm, sticky and plastic; neutral; abrupt smooth boundary.

Btk—14 to 22 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; strong medium angular blocky structure; very hard, friable, sticky and plastic; 3 percent calcium carbonate equivalent; calcium carbonates disseminated throughout; strongly effervescent; slightly alkaline; clear smooth boundary.

Bk1—22 to 38 inches; light brown (7.5YR 6/4) clay loam; brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; very hard, friable, sticky and plastic; 15 percent calcium carbonate equivalent; calcium carbonate coatings on 20 percent of peds; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk2—38 to 48 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; weak coarse subangular blocky structure; very hard, firm, sticky

and slightly plastic; 10 percent calcium carbonate equivalent; lime coatings on 20 percent of peds; violently effervescent; moderately alkaline; clear wavy boundary.

Btkb—48 to 60 inches; brown (7.5YR 5/4) clay loam, strong brown (7.5YR 4/6) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; 4 percent calcium carbonate equivalent; mycelia and coatings on faces of peds; violently effervescent; moderately alkaline.

#### Range in Characteristics

The mollic epipedon is 7 to 10 inches thick. Lime is at a depth of 10 to 20 inches. The content of rock fragments is 0 to 15 percent, and the fragments are predominantly gravel-sized. The hue is 7.5YR or 5YR.

*Bt horizon:* The texture is clay loam or silty clay loam. The clay content is 35 to 40 percent.

*Bk horizons:* The texture is clay loam or loam. The calcium carbonate equivalent is 10 to 50 percent, and decreases with depth.

This soil was characterized by the National Soil Survey Laboratory; pedon number 83P0806 and soil survey sample number S83CO-113-001.

### Ceek Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mountain slope

*Parent material:* colluvium and residuum from sandstone and shale

*Elevation:* 7,400 to 8,500 feet

*Slope:* 10 to 40 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Clayey-skeletal, montmorillonitic Mollic Eutroboralfs

#### Typical Pedon

*Map unit in which located:* Ceek very flaggy clay loam, 10 to 40 percent slopes

*Location in survey area:* about 1,200 feet east and 1,000 feet north of the southwest corner of Sec. 18, T. 44 N., R. 13 W.

Oi—1 inch to 0 inches; slightly decomposed pine needles.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) very flaggy clay loam, black (10YR 2/1) moist;

moderate fine granular structure; hard, very friable, nonsticky and slightly plastic; common fine and medium pores and roots; 10 percent gravel, 30 percent flagstones; neutral; clear wavy boundary.

E—5 to 13 inches; brown (7.5YR 5/2) very cobbly clay loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; very hard, friable, sticky and slightly plastic; common fine and medium pores and roots; 10 percent gravel, 40 percent cobbles; neutral; clear smooth boundary.

Bt—13 to 22 inches; brown (7.5YR 5/4) very cobbly clay loam, strong brown (7.5YR 4/6) moist; weak medium subangular blocky structure; extremely hard, friable, sticky and plastic; few fine pores and roots; 10 percent gravel, 35 percent cobbles, 10 percent stones; few moderately thick clay films on faces of peds; neutral; abrupt wavy boundary.

2Bk1—22 to 31 inches; weak red (2.5YR 4/2) clay, dusky red (2.5YR 3/2) moist; massive; extremely hard, firm, sticky and plastic; calcium carbonate disseminated throughout; strongly effervescent; slightly alkaline; abrupt wavy boundary.

2Bk2—31 to 60 inches; reddish gray (5YR 5/2) clay, dark reddish gray (5YR 4/2) moist; massive; hard, very friable, sticky and plastic; few calcium carbonate coatings on faces of peds; violently effervescent; moderately alkaline.

#### Range in Characteristics

The particle-size control section is 35 to 60 percent rock fragments. The depth to secondary calcium carbonate is 22 to 30 inches.

*E horizon:* The hue is 10YR or 7.5YR.

*Bt horizon:* The hue is 10YR or 7.5YR.

*2Bk horizons:* The hue is 5YR or 2.5YR.

### Chilton Series

*Depth class:* very deep

*Drainage class:* excessively drained

*Permeability:* moderate

*Landform:* alluvial fan

*Parent material:* alluvium and colluvium derived from sandstone

*Elevation:* 5,400 to 5,900 feet

*Slope:* 5 to 30 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Loamy-skeletal, mixed (calcareous), mesic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Pojoaque-Chilton complex, 5 to 30 percent slopes, extremely stony  
*Location in survey area:* about 1,800 feet east and 500 feet north of the southwest corner of Sec. 24, T. 47 N., R. 18 W.

- A—0 to 6 inches; red (2.5YR 4/8) stony fine sandy loam, dark red (2.5YR 3/6) moist; weak fine granular structure; slightly hard, very friable; 15 percent gravel, 5 percent cobbles, 10 percent stones; strongly effervescent; moderately alkaline; clear wavy boundary.
- C1—6 to 15 inches; red (2.5YR 5/6) very gravelly fine sandy loam, dark red (2.5YR 3/6) moist; weak medium subangular blocky structure; slightly hard, very friable; 45 percent gravel, 10 percent cobbles; strongly effervescent; moderately alkaline; clear wavy boundary.
- C2—15 to 60 inches; red (2.5YR 5/6) very gravelly fine sandy loam, dark red (2.5YR 3/6) moist; massive; slightly hard, very friable; 40 percent gravel, 10 percent cobbles; strongly effervescent; moderately alkaline.

### Range in Characteristics

The hue is 2.5YR or 5YR. The particle-size control section is very gravelly fine sandy loam or very gravelly loam, and the clay content is 18 to 27 percent.

*A horizon:* The content of rock fragments is 15 to 30 percent, and the fragments are predominantly stone- and gravel-sized.

*C horizons:* The content of rock fragments is 35 to 60 percent, and the fragments are predominantly gravel-sized.

### Chipeta Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* hill, terrace

*Parent material:* residuum weathered from shale

*Elevation:* 5,500 to 6,800 feet

*Slope:* 2 to 20 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 130 to 150 days

*Taxonomic class:* Clayey, mixed (calcareous), mesic, shallow Typic Torriorthents

### Typical Pedon

*Map unit in which located:* Persayo-Chipeta complex, 2 to 20 percent slopes  
*Location in survey area:* about 1,500 feet south and 200 feet west of the northeast corner of Sec. 28, T. 43 N., R. 16 W.

- A—0 to 2 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; moderate fine granular structure; slightly hard, friable, sticky and plastic; strongly effervescent; slightly alkaline; clear smooth boundary.
- AC—2 to 8 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, sticky and plastic; strongly effervescent; slightly alkaline; gradual smooth boundary.
- Cy—8 to 15 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, sticky and plastic; 20 percent soft shale chips; strongly effervescent; slightly alkaline; abrupt smooth boundary.
- Cr—15 inches; gypsiferous shale.

### Range in Characteristics

Shale is at a depth of 10 to 20 inches. The hue is 5Y or 2.5Y. The reaction is slightly alkaline or moderately alkaline.

*A and AC horizons:* Soft shale fragments range from 0 to 15 percent.

*Cy horizon:* The texture is clay or clay loam. The clay content is 35 to 50 percent. Soft shale fragments range from 15 to 60 percent. Gypsum crystals are common to many.

### Clapper Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan, break, mesa, terrace

*Parent material:* alluvium derived from igneous rock

*Elevation:* 5,500 to 6,800 feet

*Slope:* 1 to 40 percent

*Climatic data:*

*Average annual precipitation:* 12 to 14 inches

*Average annual temperature:* 46 to 48 degrees F.

*Frost-free period:* 110 to 130 days

*Taxonomic class:* Loamy-skeletal, mixed, mesic Ustollic Calciorthis

### Typical Pedon

*Map unit in which located:* Clapper loam, 1 to 8 percent slopes

*Location in survey area:* about 300 feet south and 100 feet west of the northeast corner of Sec. 6, T. 45 N., R. 14 W.

A—0 to 5 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; moderate thin platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; strongly effervescent; moderately alkaline; clear smooth boundary.

Bw—5 to 11 inches; pink (7.5YR 7/4) loam, brown (7.5YR 5/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, sticky and slightly plastic; calcium carbonate disseminated throughout; 35 percent calcium carbonate equivalent; violently effervescent; moderately alkaline; clear wavy boundary.

Bk1—11 to 20 inches; white (7.5YR 8/0) cobbly loam, pinkish gray (7.5YR 7/2) moist; massive; very hard, friable, slightly sticky and slightly plastic; 5 percent gravel and 10 percent cobbles; calcium carbonate disseminated throughout; 50 percent calcium carbonate equivalent; violently effervescent; moderately alkaline; clear wavy boundary.

2Bk2—20 to 60 inches; pinkish white (7.5YR 8/2) very cobbly loam, pinkish gray (7.5YR 6/2) moist; massive; hard, friable, slightly sticky and nonplastic; 25 percent gravel and 35 percent cobbles; calcium carbonate disseminated throughout; 35 percent calcium carbonate equivalent; violently effervescent; moderately alkaline.

### Range in Characteristics

The hue is 7.5YR or 10YR.

*A horizon:* The reaction is moderately alkaline.

*Bw and Bk horizons:* The clay content is 18 to 27 percent. The content of rock fragments is 35 to 80 percent below a depth of about 20 inches. The calcium carbonate equivalent is 15 to 50 percent with a weighted average of 20 to 40 percent, and decreases with depth. The texture is loam, cobbly loam, very cobbly loam, or very gravelly loam.

### Coulterg Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* hill

*Parent material:* residuum weathered from shale

*Elevation:* 7,200 to 8,100 feet

*Slope:* 10 to 50 percent

*Climatic data:*

*Average annual precipitation:* 16 to 18 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 80 to 100 days

*Taxonomic class:* Fine-loamy, mixed Typic Haploborolls

### Typical Pedon

*Map unit in which located:* Pagoda-Coulterg-Cabba complex, 10 to 60 percent slopes

*Location in survey area:* about 3,150 feet west and 1,800 feet south of the northeast corner of Sec. 2, T. 41 N., R. 14 W.

Oi—1/2 inch to 0 inches; slightly decomposed pine needles and oak leaves.

A—0 to 5 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; slightly alkaline; abrupt smooth boundary.

BA—5 to 10 inches; dark grayish brown (10YR 4/2) clay loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; slightly hard, very friable, nonsticky and slightly plastic; strongly effervescent; moderately alkaline; clear wavy boundary.

Bw—10 to 14 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, very friable, slightly sticky and plastic; violently effervescent; moderately alkaline; clear wavy boundary.

Ck1—14 to 31 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and plastic; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline.

Ck2—31 to 60 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; massive; very hard, friable, slightly sticky and slightly plastic; calcium carbonate disseminated throughout; 20 percent thin shale fragments; violently effervescent; moderately alkaline.

### Range in Characteristics

The mollic epipedon is 8 to 15 inches thick. In places this soil is noncalcareous for a few inches into the surface. The content of rock fragments is 0 to 15 percent.

*A horizon:* The reaction is neutral or slightly alkaline.  
*Ck horizons:* The hue is 10YR or 2.5Y.

## Cryaquolls

*Depth class:* very deep

*Drainage class:* very poorly drained

*Permeability:* very slow

*Landform:* drainageway, slough

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 7,800 to 9,500 feet

*Slope:* 0 to 3 percent

*Climatic data:*

*Average annual precipitation:* 17 to 24 inches

*Average annual temperature:* 37 to 41 degrees F.

*Frost-free period:* 50 to 70 days

*Taxonomic class:* Cryaquolls

### Reference Pedon

*Map unit in which located:* Cryaquolls, 0 to 3 percent slopes

*Location in survey area:* about 600 feet north and 2,200 feet west of the southeast corner of Sec. 27, T. 43 N., R. 12 W.

A1—0 to 6 inches; very dark gray (10YR 3/1) loam, black (10YR 2/1) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; neutral; clear wavy boundary.

A2—6 to 17 inches; very dark gray (10YR 3/1) clay loam, black (10YR 2/1) moist; massive; extremely hard, firm, slightly sticky and plastic; neutral; abrupt smooth boundary.

C—17 to 22 inches; gray (10YR 6/1) clay, gray (10YR 5/1) moist; massive; extremely hard, extremely firm, sticky and plastic; neutral; clear wavy boundary.

Cg1—22 to 27 inches; light olive gray (5Y 6/2) clay, olive gray (5Y 5/2) moist; extremely hard, very firm, slightly sticky and plastic; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear wavy boundary.

Cg2—27 to 35 inches; light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist; massive; very hard, firm, slightly sticky and plastic; few fine distinct gray (10YR 5/1) iron depletions; neutral; clear wavy boundary.

Cg3—35 to 38 inches; brownish yellow (10YR 6/6) clay loam, yellowish brown (10YR 5/6) moist; massive; extremely hard, firm, slightly sticky and plastic; few fine prominent gray (10YR 5/1) iron depletions; neutral; clear wavy boundary.

Cg4—38 to 60 inches; pale olive (5Y 6/3) clay, olive (5Y 5/3) moist; massive; extremely hard, firm, slightly sticky and plastic; few fine prominent gray (10YR 5/1) iron depletions; neutral.

### Range in Characteristics

The water table ranges between depths of 10 to 50 inches throughout the year. The mollic epipedon is 15 to 22 inches thick. The particle-size control section is 0 to 15 percent rock fragments. Some pedons have organic layers on the surface 2 to 4 inches thick.

*A horizons:* The texture is loam and clay loam.

*C horizons:* The texture is clay and clay loam. The hue is 10YR, 2.5Y, or 5Y.

## Cryoborolls

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* plateau, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 8,500 to 9,500 feet

*Slope:* 2 to 30 percent

*Climatic data:*

*Average annual precipitation:* 20 to 24 inches

*Average annual temperature:* 37 to 40 degrees F.

*Frost-free period:* 50 to 70 days

*Taxonomic class:* Cryoborolls

### Reference Pedon

*Map unit in which located:* Skisams-Bushvalley-Cryoborolls, moderately deep complex, 2 to 15 percent slopes

*Location in survey area:* about 2,300 feet north and 2,500 feet east of the southwest corner of Sec. 7, T. 45 N., R. 10 W.

A—0 to 7 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral; clear, smooth boundary.

AB—7 to 14 inches; brown (7.5YR 4/4) loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

Bt—14 to 18 inches; strong brown (7.5YR 4/6) gravelly clay loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and plastic; 25 percent gravel; neutral; clear, smooth boundary.

BC—18 to 30 inches; brownish yellow (10YR 6/6) gravelly sandy loam, yellowish brown (10YR 5/6)

moist; massive; soft, very friable, nonsticky and nonplastic; few thin lenses of clay loam on top and as pendants to the coarse fragments; 30 percent gravel; neutral; abrupt smooth boundary.

R—30 inches; fractured bedrock.

#### Range in Characteristics

The mollic epipedon is 12 to 25 inches thick. The particle-size control section is 15 to 50 percent rock fragments. The Bt horizon is absent in some pedons.

*A horizon:* The hue is 10YR and 7.5YR. The texture is loam, cobbly loam, or gravelly loam.

*AB, Bt, and BC horizons:* The hue is 10YR and 7.5YR.

### Dapoin Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan

*Parent material:* alluvium derived from shale

*Elevation:* 7,200 to 8,500 feet

*Slope:* 1 to 15 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, montmorillonitic Typic Haploborolls

#### Typical Pedon

*Map unit in which located:* Narraguinnep-Dapoin complex, 1 to 15 percent slopes

*Location in survey area:* about 800 feet north and 500 feet west of the southeast corner of Sec. 29, T. 40 N., R. 14 W.

A1—0 to 4 inches; dark brown (10YR 3/3) clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and plastic; slightly alkaline; clear smooth boundary.

A2—4 to 13 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; slightly alkaline; clear smooth boundary.

Bw—13 to 18 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong coarse subangular blocky structure; very hard, firm, sticky and plastic; slightly alkaline; clear smooth boundary.

Ck1—18 to 29 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; massive; extremely hard, very firm, sticky and plastic; calcium carbonate disseminated throughout; strongly effervescent; slightly alkaline; clear wavy boundary.

Ck2—29 to 32 inches; light brownish gray (2.5Y 6/2) clay loam, light olive brown (2.5Y 5/4) moist; massive; extremely hard, very firm, slightly sticky and plastic; calcium carbonate disseminated throughout; 20 percent shale chips; violently effervescent; moderately alkaline; clear wavy boundary.

Ck3—32 to 38 inches; light brownish gray (2.5Y 6/2) clay, light olive brown (2.5Y 5/4) moist; massive; extremely hard, very firm, sticky and plastic; calcium carbonate disseminated throughout; 25 percent shale chips; violently effervescent; moderately alkaline; clear wavy boundary.

Ck4—38 to 44 inches; light yellowish brown (2.5Y 6/4) clay loam, light olive brown (2.5Y 5/4) moist; massive; extremely hard, very firm, sticky and plastic; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline; clear wavy boundary.

Ck5—44 to 60 inches; light gray (2.5Y 7/2) clay loam, olive (5Y 5/3) moist; massive; extremely hard, very firm, slightly sticky and plastic; calcium carbonate disseminated throughout; 10 percent shale chips; violently effervescent; moderately alkaline.

#### Range in Characteristics

The mollic epipedon is 10 to 16 inches thick. The particle-size control section is clay or clay loam, and the clay content is 35 to 50 percent.

*A horizons:* The texture is clay loam. The reaction is neutral or slightly alkaline. The content of rock fragments is 0 to 5 percent.

*Ck horizons:* The texture is clay or clay loam. The reaction is slightly alkaline or moderately alkaline. The hue is 10YR or 2.5Y.

### Deaver Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* hill, terrace

*Parent material:* residuum weathered from shale

*Elevation:* 5,600 to 6,300 feet

*Slope:* 2 to 15 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.  
*Frost-free period:* 130 to 150 days

*Taxonomic class:* Fine, montmorillonitic (calcareous), mesic Typic Torriorthents

#### Typical Pedon

*Map unit in which located:* Killpack-Deaver loams, 2 to 15 percent slopes

*Location in survey area:* about 1,700 feet west and 2,350 feet south of the northeast corner of Sec. 23, T. 43 N., R. 17 W.

A—0 to 4 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; moderate fine granular structure; hard, very friable, sticky and slightly plastic; violently effervescent; moderately alkaline; clear smooth boundary.

AC—4 to 17 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; violently effervescent; moderately alkaline; clear wavy boundary.

C—17 to 31 inches; light gray (2.5Y 7/2) clay, grayish brown (2.5Y 5/2) moist; massive; hard, friable, sticky and plastic; violently effervescent; moderately alkaline.

Cr—31 inches; gray platy shale.

#### Range in Characteristics

Shale is at a depth of 20 to 40 inches. The hue is 10YR or 2.5Y.

*A horizon:* Rock fragments range from 0 to 10 percent, and fragments are predominantly channer-sized.

*C horizon:* The texture is clay or clay loam. The content of rock fragments is 0 to 15 percent, and the fragments are predominantly channer-sized. Some pedons have visible accumulations of gypsum and/or calcium carbonate, which are not concentrated into a definite horizon of secondary accumulation.

### Delson Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* structural bench

*Parent material:* alluvium and mass movement deposits derived from sandstone and shale

*Elevation:* 7,000 to 8,200 feet

*Slope:* 3 to 50 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.  
*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, montmorillonitic Typic Argiborolls

#### Typical Pedon

*Map unit in which located:* Burnac-Delson sandy loams, 3 to 20 percent slopes

*Location in survey area:* about 1,250 feet south and 1,000 feet west of the northeast corner of Sec. 3, T. 48 N., R. 20 W.

A—0 to 10 inches; brown (7.5YR 5/2) sandy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; neutral; clear smooth boundary.

Bt1—10 to 19 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; extremely hard, friable, slightly sticky and slightly plastic; many moderately thick clay films on faces of peds; neutral; clear smooth boundary.

Bt2—19 to 34 inches; yellowish red (5YR 5/6) clay loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; extremely hard, friable, sticky and plastic; many moderately thick clay films on faces of peds; neutral; clear smooth boundary.

BC—34 to 44 inches; red (2.5YR 5/6) clay loam, red (2.5YR 4/6) moist; weak medium subangular blocky structure; hard, very friable, sticky and plastic; neutral; clear smooth boundary.

C—44 to 60 inches; red (2.5YR 5/6) clay loam, red (2.5YR 4/6) moist; massive; hard, very friable; sticky and plastic; neutral.

#### Range in Characteristics

The solum is 25 to 60 inches thick.

*A horizon:* The hue is 7.5YR or 5YR. The texture is loam or sandy loam.

*Bt horizons:* The hue is 7.5YR or 5YR. The clay content is 35 to 40 percent. The content of rock fragments is 0 to 20 percent.

*C horizon:* The hue is 7.5YR, 5YR, or 2.5YR.

### Emmons Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa

*Parent material:* till and colluvium from mixed sources

*Elevation:* 7,000 to 8,200 feet

*Slope:* 5 to 20 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine-loamy, mixed Aridic Calciborolls

### Typical Pedon

*Map unit in which located:* Barkelew-Emmons complex, 5 to 40 percent slopes

*Location in survey area:* about 850 feet south and 400 feet east of the northwest corner of Sec. 18, T. 43 N., R. 14 W.

Oe—1 inch to 0 inches; partially decomposed organic material.

A1—0 to 5 inches; grayish brown (10YR 5/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; hard, friable, slightly sticky and slightly plastic; 5 percent gravel and 40 percent cobbles; strongly effervescent; slightly alkaline; clear smooth boundary.

A2—5 to 15 inches; brown (10YR 4/3) cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; 10 percent gravel and 5 percent cobbles; strongly effervescent; slightly alkaline; clear wavy boundary.

Bk1—15 to 29 inches; light brownish gray (10YR 6/2) cobbly clay loam, grayish brown (10YR 5/2) moist; strong fine subangular blocky structure; very hard, very firm, sticky and plastic; 10 percent gravel and 5 percent cobbles; calcium carbonate disseminated throughout; 22 percent calcium carbonate equivalent; violently effervescent; moderately alkaline; clear wavy boundary.

Bk2—29 to 60 inches; light gray (10YR 7/2) cobbly clay loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; extremely hard, very firm, slightly sticky and plastic; 10 percent gravel and 5 percent cobbles; calcium carbonate disseminated throughout; 23 percent calcium carbonate equivalent; violently effervescent; moderately alkaline.

### Range in Characteristics

*A1 horizon:* The content of rock fragments is 35 to 45 percent.

*A2 and Bk horizons:* The content of rock fragments is 5 to 15 percent. The calcium carbonate equivalent ranges from 15 to 25 percent.

## Evanston Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* ridge, structural bench

*Parent material:* alluvium derived from sandstone

*Elevation:* 6,800 to 7,200 feet

*Slope:* 2 to 8 percent

*Climatic data:*

*Average annual precipitation:* 14 to 15 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine-loamy, mixed Aridic Argiborolls

### Typical Pedon

*Map unit in which located:* Evanston fine sandy loam, 2 to 8 percent slopes

*Location in survey area:* about 3,000 feet east and 3,300 feet north of the southwest corner of Sec. 10, T. 48 N., R. 19 W.

A—0 to 6 inches; reddish brown (5YR 4/3) fine sandy loam, dark reddish brown (5YR 3/2) moist; weak fine granular structure; soft, very friable; slightly alkaline; clear smooth boundary.

Bt1—6 to 12 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; slightly alkaline; gradual wavy boundary.

Bt2—12 to 24 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; slightly alkaline; clear wavy boundary.

Bk—24 to 36 inches; reddish brown (5YR 5/3) loam, dark reddish brown (5YR 3/4) moist; moderate coarse and medium subangular blocky structure; hard, friable, slightly sticky and plastic; calcium carbonate segregated in common fine threads; strongly effervescent; slightly alkaline; clear smooth boundary.

Btkb1—36 to 45 inches; reddish brown (5YR 5/4) clay loam, yellowish red (5YR 4/6) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, friable, slightly sticky and plastic; calcium carbonate segregated in many fine mycelia; strongly effervescent; slightly alkaline; clear smooth boundary.

Btkb2—45 to 60 inches; reddish brown (5YR 5/4) clay loam, yellowish red (5YR 4/6) moist; moderate

medium prismatic structure; very hard, firm, slightly sticky and plastic; calcium carbonates segregated in many fine threads; slightly effervescent; slightly alkaline.

#### Range in Characteristics

The mollic epipedon is 7 to 12 inches thick. The depth to secondary calcium carbonate is 21 to 28 inches. The content of rock fragments is 0 to 5 percent. The clay content is 20 to 35 percent. The Btkb horizon is absent in some pedons.

Evanston soils in this area have a color hue of 5YR. A hue this red is outside the range defined for the series, but does not affect the taxonomic classification. The use or behavior of the soils is not affected.

### Falcon Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 7,000 to 8,200 feet

*Slope:* 3 to 50 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Loamy, mixed Lithic Haploborolls

#### Typical Pedon

*Map unit in which located:* Falcon-Burnac-Rock outcrop complex, 3 to 20 percent slopes

*Location in survey area:* about 600 feet east and 350 feet south of the northwest corner of Sec. 11, T. 48 N., R. 20 W.

A—0 to 7 inches; dark grayish brown (10YR 4/2) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable; slightly acid; clear smooth boundary.

AC—7 to 13 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable; moderately acid; clear smooth boundary.

C—13 to 19 inches; light brown (7.5YR 6/4) sandy loam, brown (7.5YR 4/4) moist; massive; soft, very friable; moderately acid; abrupt smooth boundary.

R—19 inches; hard sandstone.

#### Range in Characteristics

Bedrock is at a depth of 10 to 20 inches. The particle-size control section is 0 to 25 percent rock fragments. The AC horizon is absent in some pedons.

*A horizon:* The texture is sandy loam or very stony sandy loam. The hue is 10YR or 7.5YR.

*C horizon:* The clay content is 14 to 18 percent. The hue is 10YR or 7.5YR. The reaction is neutral to moderately acid.

### Farb Series

*Depth class:* very shallow and shallow

*Drainage class:* excessively drained

*Permeability:* moderate

*Landform:* escarpment, mesa, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 5,600 to 6,300 feet

*Slope:* 1 to 30 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 130 to 150 days

*Taxonomic class:* Loamy, mixed (calcareous), mesic Lithic Torriorthents

#### Typical Pedon

*Map unit in which located:* Farb-Rock outcrop complex, 1 to 30 percent slopes

*Location in survey area:* about 300 feet west and 1,400 feet south of the northeast corner of Sec. 28, T. 44 N., R. 18 W.

A—0 to 3 inches; strong brown (7.5YR 5/6) sandy loam, brown (7.5YR 4/4) moist; single grain; loose; slightly alkaline; clear smooth boundary.

AC—3 to 11 inches; brown (7.5YR 5/4) sandy loam, brown (7.5YR 4/4) moist; single grain; soft, very friable; strongly effervescent; slightly alkaline; abrupt smooth boundary.

R—11 inches; hard sandstone.

#### Range in Characteristics

Bedrock is at a depth of 8 to 15 inches. The profile is commonly noncalcareous to a depth of 3 inches, but some pedons may be calcareous throughout. The content of rock fragments is 0 to 30 percent, and fragments are predominantly gravel-sized. The hue is 7.5YR or 10YR. The texture is sandy loam or gravelly sandy loam. The reaction is slightly alkaline or moderately alkaline.

## Fivepine Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 7,400 to 8,500 feet

*Slope:* 0 to 30 percent

*Climatic data:*

*Average annual precipitation:* 16 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Clayey, montmorillonitic Lithic Argiborolls

### Typical Pedon

*Map unit in which located:* Nortez-Fivepine loams, 1 to 12 percent slopes

*Location in survey area:* about 150 feet south and 2,000 feet west of the northeast corner of Sec. 14, T. 44 N., R. 13 W.

A—0 to 5 inches; reddish brown (5YR 4/2) loam, dark reddish brown (5YR 3/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and nonplastic; neutral; clear smooth boundary.

Bt1—5 to 9 inches; reddish brown (5YR 4/4) clay loam, reddish brown (5YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; neutral; gradual wavy boundary.

Bt2—9 to 15 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; moderate fine and medium angular blocky structure; hard, firm, sticky and plastic; slightly alkaline; abrupt smooth boundary.

R—15 inches; hard, calcareous Dakota sandstone; calcium carbonate is segregated in thin layer on top of the bedrock.

### Range in Characteristics

Bedrock is at a depth of 10 to 20 inches. The reaction is neutral or slightly alkaline. A C horizon is in some pedons. The hue is 7.5YR or 5YR.

*A horizon:* The content of rock fragments is 0 to 15 percent, and the fragments are predominantly gravel- and cobble-sized.

*Bt horizons:* The texture is clay loam or clay. The clay content is 35 to 50 percent. The content of rock fragments is 0 to 15 percent.

## Fluvaquents

*Depth class:* very deep

*Drainage class:* somewhat poorly drained

*Permeability:* slow

*Landform:* flood plain

*Parent material:* stratified alluvium derived from mixed sources

*Elevation:* 5,100 to 6,200 feet

*Slope:* 0 to 6 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Fluvaquents

### Reference Pedon

*Map unit in which located:* Fluvaquents, 0 to 6 percent slopes, frequently flooded

*Location in survey area:* about 700 feet south and 1,500 feet west of the northeast corner of Sec. 16, T. 47 N., R. 18 W.

A—0 to 11 inches; pinkish gray (7.5YR 6/2) silt loam, brown (7.5YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; moderately alkaline; clear wavy boundary.

C—11 to 15 inches; pinkish gray (7.5YR 6/2) silt loam stratified with thin lenses of loam; brown (7.5YR 4/2) moist; massive; hard, friable, nonsticky and nonplastic; strongly effervescent; moderately alkaline; clear wavy boundary.

Cg—15 to 60 inches; pinkish gray (7.5YR 6/2) silt loam stratified with thin lenses of loam, brown (7.5YR 4/2) moist; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; massive; hard, friable, nonsticky and nonplastic; strongly effervescent; moderately alkaline.

### Range in Characteristics

The water table varies between the surface and a depth of 84 inches throughout the year, and is at a depth of 0 to 12 inches in spring and early summer. The particle-size control section is 0 to 60 percent rock fragments.

*A horizon:* The texture is silt loam and loamy fine sand. The clay content is 10 to 18 percent. The hue is 10YR and 7.5YR.

*C horizon:* The texture is stratified silt loam, loam, silty clay loam, clay loam, loamy fine sand, and very gravelly loamy sand. The clay content is 10 to 35 percent. The hue is 10YR and 7.5YR.

## Fruitland Series

*Depth class:* very deep

*Drainage class:* well drained  
*Permeability:* moderate  
*Landform:* terrace, valley floor  
*Parent material:* alluvium derived from sandstone

*Elevation:* 5,500 to 6,000 feet

*Slope:* 1 to 8 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 150 to 190 days

*Taxonomic class:* Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents

### Typical Pedon

*Map unit in which located:* Fruitland loam, 1 to 8 percent slopes

*Location in survey area:* about 2,600 feet south and 400 feet west of the northeast corner of Sec. 11, T. 43 N., R. 17 W.

A—0 to 5 inches; pinkish gray (7.5YR 6/2) loam, brown (7.5YR 5/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and plastic; strongly effervescent; moderately alkaline; clear wavy boundary.

C1—5 to 20 inches; pinkish gray (7.5YR 6/2) loam, brown (7.5YR 5/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and plastic; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C2—20 to 53 inches; pale brown (10YR 6/3) fine sandy loam, brown (7.5YR 5/2) moist; single grain; loose; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C3—53 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (7.5YR 5/2) moist; single grain; loose; strongly effervescent; slightly alkaline.

### Range in Characteristics

*A horizon:* The reaction is slightly alkaline or moderately alkaline. The hue is 7.5YR to 2.5Y.

*C horizons:* The texture is loam or fine sandy loam. The reaction is slightly alkaline or moderately alkaline. The hue is 7.5YR to 2.5Y. The clay content is 10 to 18 percent.

## Gladel Series

*Depth class:* very shallow and shallow

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* escarpment, mesa, ridge, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 5,500 to 7,400 feet

*Slope:* 1 to 50 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 50 degrees F.

*Frost-free period:* 100 to 130 days

*Taxonomic class:* Loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Gladel-Bond-Rock outcrop complex, 1 to 50 percent slopes

*Location in survey area:* about 1,200 feet west and 700 feet north of the southeast corner of Sec. 2, T. 43 N., R. 19 W.

A—0 to 4 inches; reddish brown (5YR 5/4) sandy loam, dark reddish brown (5YR 3/4) moist; weak fine granular structure; soft, very friable; slightly effervescent; moderately alkaline; clear smooth boundary.

Bk—4 to 8 inches; reddish brown (5YR 5/4) sandy loam, dark reddish brown (5YR 3/4) moist; weak medium subangular blocky structure; soft, very friable; few visible fine threads of calcium carbonate; strongly effervescent; moderately alkaline; abrupt smooth boundary.

R—8 inches; hard sandstone.

### Range in Characteristics

Bedrock is at a depth of 5 to 15 inches. The depth to secondary calcium carbonate is 0 to 10 inches. The content of rock fragments is 0 to 15 percent, and the fragments are predominantly gravel-sized.

*A horizon:* The reaction is slightly alkaline or moderately alkaline.

*Bk horizon:* The texture is sandy loam or loam. The clay content is 12 to 18 percent.

## Gurley Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, terrace

*Parent material:* residuum weathered from interbedded sandstone and shale

*Elevation:* 6,800 to 7,400 feet

*Slope:* 1 to 20 percent

*Climatic data:*

*Average annual precipitation:* 15 to 17 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine, mixed Aridic Argiborolls

### Typical Pedon

*Map unit in which located:* Gurley loam, 1 to 8 percent slopes

*Location in survey area:* about 2,450 feet north and 10 feet east of the southwest corner of Sec. 24, T. 45 N., R. 13 W.

A—0 to 4 inches; brown (7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; slightly effervescent; slightly alkaline; clear smooth boundary.

Bt—4 to 16 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, friable, sticky and plastic; strongly effervescent; slightly alkaline; gradual smooth boundary.

Btk—16 to 21 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; very hard, friable, sticky and plastic; violently effervescent; 21 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; moderately alkaline; gradual smooth boundary.

Bk—21 to 37 inches; very pale brown (10YR 8/2) loam, very pale brown (10YR 8/2) moist; massive; hard, friable, slightly sticky and slightly plastic; violently effervescent; 47 percent calcium carbonate equivalent; calcium carbonate disseminated throughout; 10 percent gravel; moderately alkaline; abrupt smooth boundary.

R—37 inches; hard sandstone.

### Range in Characteristics

The depth to secondary calcium carbonate is 0 to 18 inches. The solum is 15 to 25 inches thick. The upper 7 inches, after mixing, meets the requirements for a mollic epipedon.

*A and Bt horizons:* The hue is 7.5YR or 5YR. The content of rock fragments is 0 to 10 percent, and the fragments are predominantly gravel-sized.

*Bk horizon:* The hue is 10YR to 5YR. The texture is loam or gravelly loam. The calcium carbonate equivalent is 20 to 50 percent. The content of rock fragments is 10 to 35 percent.

### Gypsiorthids

*Depth class:* moderately deep to very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* terrace, valley floor

*Parent material:* residuum weathered from gypsum

*Elevation:* 4,900 to 6,600 feet

*Slope:* 3 to 25 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 46 to 49 degrees F.

*Frost-free period:* 110 to 140 days

*Taxonomic class:* Gypsiorthids

### Reference Pedon

*Map unit in which located:* Gypsiorthids, 3 to 25 percent slopes

*Location in survey area:* about 1,600 feet south and 250 feet west of the northeast corner of Sec. 26, T. 47 N., R. 18 W.

A—0 inches to 1 inch; pink (5YR 8/4) loam, light reddish brown (5YR 6/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; 63 percent calcium sulfate disseminated throughout; moderately alkaline; clear smooth boundary.

Bky—1 inch to 11 inches; pink (7.5YR 8/4) loam, pink (7.5YR 7/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; 80 percent calcium sulfate disseminated throughout; moderately alkaline; clear smooth boundary.

C1—11 to 23 inches; reddish yellow (5YR 6/6) loam, yellowish red (5YR 5/6) moist; massive; slightly hard, very friable, nonsticky and nonplastic; slightly effervescent; 60 percent calcium sulfate disseminated throughout; moderately alkaline; abrupt irregular boundary.

2C2—23 to 30 inches; red (2.5YR 5/6) silt loam, red (2.5YR 4/6) moist; massive; slightly hard, very friable, nonsticky and nonplastic; slightly effervescent; 56 percent calcium sulfate; many fine crystals of calcium sulfate; moderately alkaline; clear smooth boundary.

2C3—30 to 44 inches; red (2.5YR 4/6) silt loam, dark red (2.5YR 3/6) moist; massive; very hard, friable, slightly sticky and slightly plastic; slightly effervescent; 41 percent calcium sulfate; many medium crystals of calcium sulfate; moderately alkaline.

### Range in Characteristics

Bedrock is at a depth of 20 to 60 inches or more.

*A horizon:* The texture is fine sandy loam and loam. The clay content is 12 to 18 percent. The hue is 7.5YR, 5YR, and 2.5YR. The content of rock fragments is 0 to 5 percent.

*Bky horizon:* The texture is loam and fine sandy loam. The clay content is 15 to 20 percent. The hue is 7.5YR, 5YR, and 2.5YR. The reaction is moderately alkaline with 75 to 85 percent calcium sulfate.

*C horizon:* The texture is silt loam, loam, and fine sandy loam. The clay content is 10 to 15 percent. The reaction is moderately alkaline. The content of calcium sulfate is 55 to 65 percent. The content of rock fragments is 0 to 10 percent.

*2C horizons:* The texture is silt loam. The clay content is 7 to 15 percent. The content of rock fragments is 0 to 10 percent. The hue is 2.5YR and 5YR. The reaction is moderately alkaline. The content of calcium sulfate is 35 to 60 percent.

This soil was characterized by the National Soil Survey Laboratory; pedon number 79P223 and soil survey sample number S79CO-085-001.

## Haplaquolls

*Depth class:* moderately deep and deep

*Drainage class:* poorly drained

*Permeability:* moderate

*Landform:* flood plain, slough

*Parent material:* alluvium from mixed sources

*Elevation:* 6,800 to 8,200 feet

*Slope:* 0 to 3 percent

*Climatic data:*

*Average annual precipitation:* 15 to 17 inches

*Average annual temperature:* 41 to 45 degrees F.

*Frost-free period:* 70 to 110 days

*Taxonomic class:* Haplaquolls

### Reference Pedon

*Map unit in which located:* Haplaquolls, 0 to 3 percent slopes

*Location in survey area:* about 900 feet west and 600 feet south of the northeast corner of Sec. 21, T. 45 N., R. 13 W.

A—0 to 21 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; violently effervescent; moderately alkaline; clear wavy boundary.

Cg1—21 to 30 inches; light gray (10YR 7/2) cobbly sandy loam, grayish brown (10YR 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; 15 percent gravel and 10 percent cobbles; violently effervescent; few fine distinct dark yellowish brown (10YR 4/4) and prominent black (10YR 2/1) masses of redoximorphic

concentration; moderately alkaline; clear wavy boundary.

Cg2—30 to 60 inches; pale brown (10YR 6/3) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; massive; very hard, friable, slightly sticky and slightly plastic; 30 percent gravel and 10 percent cobbles; violently effervescent; lime disseminated throughout; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; moderately alkaline.

### Range in Characteristics

Bedrock is at a depth of 20 inches or more. The water table ranges between depths of 6 and 50 inches throughout the year. The mollic epipedon is 12 to 22 inches thick. The particle-size control section is 15 to 45 percent rock fragments.

*A horizon:* The hue is 10YR or 7.5YR. The texture is loam or fine sandy loam.

*Cg horizons:* The texture is cobbly sandy loam, very gravelly sandy clay loam, very gravelly sandy loam, and gravelly sandy loam.

Most pedons are continuously saturated with water in the Cg for as long as 90 days in most years. Some pedons have an irregular decrease in organic carbon content with increasing depth.

## Hofly Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* hill, mountain slope

*Parent material:* colluvium derived from shale

*Elevation:* 8,600 to 10,000 feet

*Slope:* 5 to 40 percent

*Climatic data:*

*Average annual precipitation:* 24 to 26 inches

*Average annual temperature:* 35 to 37 degrees F.

*Frost-free period:* 40 to 60 days

*Taxonomic class:* Fine, montmorillonitic Pachic Cryoborolls

### Typical Pedon

*Map unit in which located:* Leaps-Hofly loams, 5 to 40 percent slopes

*Location in survey area:* about 800 feet north and 250 feet east of the southwest corner of Sec. 16, T. 45 N., R. 10 W.

A—0 to 3 inches; dark gray (10YR 4/1) loam, very dark grayish brown (2.5Y 3/2) moist; weak thin platy structure parting to moderate very fine

- granular; slightly hard, friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.
- Bw—3 to 32 inches; dark gray (10YR 4/1) clay loam, very dark grayish brown (2.5Y 3/2) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and plastic; neutral; abrupt smooth boundary.
- C—32 to 60 inches; olive brown (2.5Y 4/4) clay, dark grayish brown (2.5Y 4/2) moist; massive; very hard, very firm, slightly sticky and plastic; 5 percent cobbles; neutral.

#### Range in Characteristics

The particle-size control section is 0 to 15 percent rock fragments. The hue is 2.5Y or 10YR.

*Bw and C horizons:* The texture is clay loam and clay.

### Killpack Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* hill, terrace

*Parent material:* residuum weathered from shale

*Elevation:* 5,600 to 6,300 feet

*Slope:* 2 to 15 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 130 to 150 days

*Taxonomic class:* Fine-silty, mixed (calcareous), mesic Typic Torriorthents

#### Typical Pedon

*Map unit in which located:* Killpack-Deaver loams, 2 to 15 percent slopes

*Location in survey area:* about 500 feet east and 500 feet north of the southwest corner of Sec. 3, T. 43 N., R. 17 W.

A—0 to 9 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; strongly effervescent; slightly alkaline; abrupt smooth boundary.

2Cy—9 to 20 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; strongly effervescent; common fine gypsum nests; slightly alkaline; gradual wavy boundary.

2C—20 to 30 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2)

moist; massive; hard, friable, slightly sticky and plastic; 20 percent soft shale chips; violently effervescent; slightly alkaline; clear smooth boundary.

2Cr—30 inches; gypsiferous gray shale.

#### Range in Characteristics

Shale is at a depth of 20 to 40 inches.

*A horizon:* Soft shale fragments range from 0 to 15 percent, and are predominantly gravel-sized. The hue is 7.5YR or 10YR.

*2Cy and 2C horizons:* The texture is clay loam or silty clay loam. Soft shale fragments range from 0 to 30 percent. The clay content is 27 to 40 percent. The hue is 10YR or 2.5Y. The reaction is slightly alkaline or moderately alkaline.

### Kinesava Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, mountain slope

*Parent material:* colluvium and residuum weathered from sandstone and shale

*Elevation:* 8,000 to 8,800 feet

*Slope:* 5 to 30 percent

*Climatic data:*

*Average annual precipitation:* 18 to 20 inches

*Average annual temperature:* 40 to 42 degrees F.

*Frost-free period:* 60 to 80 days

*Taxonomic class:* Fine, mixed Pachic Paleborolls

#### Typical Pedon

*Map unit in which located:* Spectacle-Kinesava loams, 5 to 30 percent slopes

*Location in survey area:* about 900 feet east and 1,900 feet south of the northwest corner of Sec. 8, T. 42 N., R. 13 W.

A—0 to 21 inches; very dark gray (10YR 3/1) loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and nonplastic; neutral; clear wavy boundary.

BA—21 to 28 inches; very dark grayish brown (10YR 3/2) clay loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; neutral; gradual wavy boundary.

Bt—28 to 40 inches; brown (7.5YR 5/4) cobbly clay, brown (7.5YR 4/4) moist; moderate medium and coarse subangular blocky structure; hard, firm,

sticky and plastic; 10 percent gravel and 5 percent cobble; neutral; gradual wavy boundary.

BC—40 to 60 inches; pale brown (10YR 6/3) cobbly clay, brown (10YR 5/3) moist; weak moderate subangular blocky structure; hard, firm, sticky and plastic; 15 percent cobbles and 10 percent gravel; neutral.

#### Range in Characteristics

The mollic epipedon is 28 to 35 inches thick.

*Bt horizon:* The hue is 10YR or 7.5YR. The content of rock fragments is 5 to 25 percent.

### Leaps Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, hill, mountain slope, structural bench

*Parent material:* alluvium and colluvium derived from shale

*Elevation:* 8,500 to 10,500 feet

*Slope:* 5 to 40 percent

*Climatic data:*

*Average annual precipitation:* 20 to 26 inches

*Average annual temperature:* 35 to 40 degrees F.

*Frost-free period:* 40 to 70 days

*Taxonomic class:* Fine, montmorillonitic Typic Cryoborolls

#### Typical Pedon

*Map unit in which located:* Tellura-Leaps clay loams, 5 to 40 percent slopes

*Location in survey area:* about 2,500 feet south and 1,900 feet east of the northwest corner of Sec. 2, T. 42 N., R. 11 W.

A—0 to 10 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/1) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; neutral; clear wavy boundary.

Bw—10 to 18 inches; pale brown (10YR 6/3) clay, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; very hard, firm, slightly sticky and plastic; neutral; gradual wavy boundary.

BC—18 to 35 inches; grayish brown (10YR 5/2) clay, dark grayish brown (10YR 4/2) moist; massive; very hard, firm, slightly sticky and plastic; neutral; gradual wavy boundary.

C—35 to 60 inches; grayish brown (10YR 5/2) clay, dark grayish brown (10YR 4/2) moist; massive; very hard, firm, slightly sticky and plastic; neutral.

#### Range in Characteristics

The mollic epipedon is 7 to 14 inches thick. The particle-size control section is clay, and the clay content is 40 to 50 percent.

*A horizon:* The texture is clay loam or loam. The reaction is neutral. The content of rock fragments is 0 to 15 percent.

*B horizon:* The texture is clay. The reaction is neutral. Hue is 10YR or 7.5YR.

*C horizon:* The texture is clay. The reaction is neutral.

### Lillylands Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mountain slope

*Parent material:* colluvium derived from sandstone and mixed sources

*Elevation:* 7,400 to 8,500 feet

*Slope:* 15 to 50 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, mixed Pachic Haploborolls

#### Typical Pedon

*Map unit in which located:* Lillylands loam, 15 to 50 percent slopes

*Location in survey area:* about 2,400 feet north and 2,000 feet east of the southwest corner of Sec. 20, T. 43 N., R. 14 W.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) loam, black (10YR 2/1) moist; moderate fine granular structure; hard, very friable, slightly sticky and slightly plastic; 5 percent gravel; neutral; clear smooth boundary.

A2—4 to 21 inches; very dark grayish brown (10YR 3/2) clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; 5 percent gravel; neutral; gradual wavy boundary.

A3—21 to 30 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2)

moist; moderate medium subangular blocky structure; very hard, firm, sticky and plastic; 5 percent gravel; neutral; abrupt smooth boundary.

2C1—30 to 45 inches; brown (7.5YR 5/4) gravelly clay, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; extremely hard, firm, sticky and plastic; 10 percent gravel, 5 percent cobbles, 5 percent stones; neutral (pH 7.2); clear smooth boundary.

2C2—45 to 60 inches; brown (7.5YR 5/4) gravelly clay, brown (7.5YR 4/4) moist; massive; extremely hard, firm, sticky and plastic; pressure faces over 30 percent of material ranging from 3 to 5 centimeters; 10 percent gravel, 5 percent cobbles, 5 percent stones; neutral (pH 7.2).

#### Range in Characteristics

*A horizons:* The hue is 2.5Y or 10YR.

*2C horizons:* The hue is 10YR or 7.5YR. The texture is gravelly clay, cobbly clay, or clay. The content of rock fragments ranges from 5 to 35 percent.

### Mikim Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* valley floor

*Parent material:* alluvium derived from shale

*Elevation:* 5,100 to 6,600 feet

*Slope:* 1 to 6 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 46 to 48 degrees F.

*Frost-free period:* 90 to 120 days

*Taxonomic class:* Fine-loamy, mixed (calcareous), mesic Ustic Torriorthents

#### Typical Pedon

*Map unit in which located:* Mikim loam, 1 to 6 percent slopes

*Location in survey area:* about 1,500 feet east and 1,800 feet south of the northwest corner of Sec. 20, T. 44 N., R. 16 W.

A—0 to 6 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; slightly effervescent; slightly alkaline, clear smooth boundary.

AC—6 to 22 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; slightly hard,

friable, slightly sticky and slightly plastic; violently effervescent; moderately alkaline; clear smooth boundary.

C1—22 to 45 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable; violently effervescent; moderately alkaline; clear smooth boundary.

C2—45 to 60 inches; grayish brown (2.5Y 5/2) gravelly sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable; 25 percent gravel; violently effervescent; moderately alkaline.

#### Range in Characteristics

The content of rock fragments is 5 to 15 percent to a depth of about 40 inches, and 5 to 35 percent below that depth. The particle-size control section is loam, clay loam, or stratified below 24 inches with sandy loam, and the clay content is 18 to 30 percent.

*C horizons:* The hue is 5Y to 10YR.

### Minchey Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan, mesa, structural bench

*Parent material:* alluvium derived from sandstone

*Elevation:* 5,400 to 6,000 feet

*Slope:* 1 to 10 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 130 to 150 days

*Taxonomic class:* Fine-loamy, mixed, mesic Typic Calciorthids

#### Typical Pedon

*Map unit in which located:* Minchey fine sandy loam, 1 to 10 percent slopes

*Location in survey area:* about 2,000 feet west and 2,500 feet north of the southeast corner of Sec. 34, T. 44 N., R. 18 W.

A—0 to 5 inches; brown (7.5YR 5/4) fine sandy loam, brown (7.5YR 4/4) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; violently effervescent; moderately alkaline; clear smooth boundary.

Bk1—5 to 12 inches; light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 5/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and plastic; 20 percent

calcium carbonate equivalent; violently effervescent; moderately alkaline; clear smooth boundary.

Bk2—12 to 30 inches; pink (7.5YR 7/4) gravelly sandy clay loam, light brown (7.5YR 6/4) moist; massive; hard, friable, slightly sticky and plastic; calcium carbonate disseminated throughout; 40 percent calcium carbonate equivalent; violently effervescent; 20 percent gravel, 10 percent cobbles; strongly alkaline; abrupt wavy boundary.

2Bk3—30 to 60 inches; light brown (7.5YR 6/4) very gravelly sandy loam, brown (7.5YR 5/4) moist; massive; hard, friable; calcium carbonate disseminated throughout; 20 percent calcium carbonate equivalent; violently effervescent; 35 percent gravel and 10 percent cobbles; strongly alkaline.

#### Range in Characteristics

The content of rock fragments is 5 to 35 percent to a depth of about 30 inches, and 35 to 50 percent below that depth. The particle-size control section is sandy clay loam, gravelly sandy clay loam, very gravelly sandy loam, or clay loam, and the clay content is 20 to 35 percent; however, in the lower 2Bk horizon, the clay content may be as low as 10 percent.

*Bk and 2Bk horizons:* The reaction is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 18 to 40 percent. The hue is 7.5YR or 10YR.

#### Mitch Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* drainageway, valley floor

*Parent material:* alluvium derived from sandstone

*Elevation:* 6,800 to 7,400 feet

*Slope:* 1 to 6 percent

*Climatic data:*

*Average annual precipitation:* 15 to 17 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine-silty, mixed Cumulic Haploborolls

#### Typical Pedon

*Map unit in which located:* Mitch loam, 1 to 6 percent slopes

*Location in survey area:* about 2,200 feet east and 1,500 feet south of the northwest corner of Sec. 13, T. 44 N., R. 15 W.

A1—0 to 14 inches; brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; slightly effervescent; slightly alkaline; clear smooth boundary.

A2—14 to 28 inches; brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; slightly effervescent; slightly alkaline; clear wavy boundary.

C—28 to 60 inches; brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, sticky and plastic; few fine calcium carbonate mycelia; strongly effervescent; slightly alkaline.

#### Range in Characteristics

The content of rock fragments is 0 to 5 percent. The reaction is slightly alkaline or moderately alkaline. The hue is 7.5YR or 10YR.

#### Mivida Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan

*Parent material:* alluvium and outwash derived from sandstone

*Elevation:* 4,900 to 6,600 feet

*Slope:* 5 to 15 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 46 to 48 degrees F.

*Frost-free period:* 110 to 130 days

*Taxonomic class:* Coarse-loamy, mixed, mesic Ustollic Calciorthis

#### Typical Pedon

*Map unit in which located:* Mivida fine sandy loam, 5 to 15 percent slopes

*Location in survey area:* about 1,200 feet east and 2,000 feet north of the southwest corner of Sec. 11, T. 44 N., R. 18 W.

A—0 to 3 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 3/4) moist; weak fine granular structure; slightly hard, very friable; strongly effervescent; moderately alkaline; clear wavy boundary.

Bw—3 to 25 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard,

friable; strongly effervescent; moderately alkaline; clear wavy boundary.

Bk1—25 to 37 inches; pink (7.5YR 7/4) fine sandy loam, brown (7.5YR 5/4) moist; massive; slightly hard, friable; 23 percent calcium carbonate equivalent; violently effervescent; many calcium carbonate nodules; moderately alkaline; diffuse wavy boundary.

Bk2—37 to 60 inches; pink (7.5YR 7/4) fine sandy loam, brown (7.5YR 5/4) moist; massive; slightly hard, friable; 20 percent calcium carbonate equivalent; violently effervescent; few calcium carbonate nodules; moderately alkaline.

#### Range in Characteristics

The hue is 5YR or 7.5YR. The reaction is slightly alkaline or moderately alkaline. The content of rock fragments is 0 to 5 percent. The top of the calcic horizon is at a depth of 20 to 30 inches. The Bw horizon is absent in some pedons. The particle-size control section has a clay content of 14 to 18 percent.

*Bk horizons:* The calcium carbonate equivalent ranges from 15 to 40 percent, and decreases with depth.

### Monogram Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa, structural bench

*Parent material:* eolian deposits

*Elevation:* 6,800 to 7,300 feet

*Slope:* 1 to 8 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 90 to 120 days

*Taxonomic class:* Fine-silty, mixed, mesic Ustollic Haplargids

#### Typical Pedon

*Map unit in which located:* Monogram loam, 1 to 8 percent slopes

*Location in survey area:* about 1,624 feet east and 1,624 feet south of the northwest corner of Sec. 30, T. 46 N., R. 17 W.

A1—0 inches to 1 inch: reddish brown (5YR 5/4) loam, reddish brown (5YR 4/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

A2—1 inch to 3 inches; reddish brown (5YR 5/4)

loam, dark reddish brown (5YR 3/4) moist; moderate fine granular structure; slightly hard, very friable, nonsticky and plastic; neutral; clear smooth boundary.

BA—3 to 7 inches; light reddish brown (5YR 6/4) loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; slightly alkaline; clear smooth boundary.

Bt—7 to 14 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; strong medium subangular blocky structure; extremely hard, firm, sticky and plastic; slightly alkaline; clear wavy boundary.

Btk—14 to 20 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; extremely hard, firm, slightly sticky and plastic; lime segregated in common irregular medium sized concretions; strongly effervescent; 4 percent calcium carbonate equivalent; moderately alkaline; clear wavy boundary.

Bk—20 to 28 inches; pink (5YR 7/3) loam, reddish brown (5YR 5/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and plastic; calcium carbonate disseminated throughout; violently effervescent; 44 percent calcium carbonate equivalent; many cicada casts; moderately alkaline; clear wavy boundary.

2Ck1—28 to 42 inches; pinkish white (5YR 8/2) sandy clay loam, pink (5YR 7/4) moist; massive; hard, friable, slightly sticky and slightly plastic; calcium carbonate disseminated throughout; violently effervescent; 70 percent calcium carbonate equivalent; moderately alkaline; clear wavy boundary.

2Ck2—42 to 52 inches; pink (5YR 7/4) clay loam, light reddish brown (5YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; calcium carbonate disseminated throughout; violently effervescent; 44 percent calcium carbonate equivalent; moderately alkaline; clear wavy boundary.

2Ck3—52 to 60 inches; light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 5/4) moist; massive; hard, friable, slightly sticky and plastic; calcium carbonate disseminated throughout; violently effervescent; 23 percent calcium carbonate equivalent; moderately alkaline; abrupt wavy boundary.

#### Range in Characteristics

The thickness of the solum is 15 to 30 inches. The depth to secondary calcium carbonate is 6 to 26

inches. The content of rock fragments is 0 to 5 percent, and the fragments are predominantly gravel-sized.

*B horizons:* The texture is loam or clay loam. Reaction is slightly alkaline or moderately alkaline.

*2Ck horizons:* The texture is clay loam or sandy clay loam. The hue is 7.5YR or 5YR. The calcium carbonate equivalent is 20 to 70 percent, and decreases with depth.

This soil was characterized by the National Soil Survey Laboratory; pedon number 80P373 and soil survey sample number S80CO-085-001.

## Monticello Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* mesa, ridge

*Parent material:* eolian deposits derived from sandstone

*Elevation:* 6,800 to 7,400 feet

*Slope:* 1 to 12 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 100 to 120 days

*Taxonomic class:* Fine-silty, mixed, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Monticello-Witt loams, 3 to 6 percent slopes

*Location in survey area:* about 3,100 feet south and 300 feet east of the northwest corner of Sec. 34, T. 43 N., 19 W.

Ap1—0 to 4 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; weak fine and medium granular structure; slightly hard, very friable, neutral; abrupt smooth boundary.

Ap2—4 to 10 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; weak medium and fine subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; neutral; abrupt smooth boundary.

BA—10 to 15 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; hard, very friable, slightly sticky and plastic; few thin clay films on faces of peds; neutral; clear smooth boundary.

Bt1—15 to 24 inches; yellowish red (5YR 5/6) loam, yellowish red (5YR 4/6) moist; moderate fine

subangular blocky structure; hard, very friable, slightly sticky and plastic; common thin clay films on faces of peds; neutral; clear smooth boundary.

Bt2—24 to 30 inches; yellowish red (5YR 5/6) loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, very friable, slightly sticky and plastic; common and many moderately thick clay films on faces of peds; neutral; clear smooth boundary.

Btk—30 to 38 inches; reddish brown (5YR 5/4) loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, very friable, slightly sticky and plastic; few thin clay films on faces of peds; strongly effervescent; many seams and streaks and few masses of calcium carbonate; slightly alkaline; clear smooth boundary.

Bk—38 to 52 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; 6 percent calcium carbonate equivalent; strongly effervescent; many seams and streaks and few masses of calcium carbonate; moderately alkaline; clear smooth boundary.

C—52 to 60 inches; light reddish brown (5YR 6/4) loam, reddish brown (5YR 4/4) moist; massive; slightly hard, very friable; 7 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Btb—60 to 74 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; strongly effervescent; moderately alkaline.

### Range in Characteristics

The profile is noncalcareous to a depth of 15 to 30 inches. Secondary calcium carbonate is at a depth of 30 to 60 inches.

*BA and Bt horizons:* The texture is loam or silt loam. The clay content is 18 to 25 percent. The reaction is neutral or slightly alkaline.

*Btk horizon:* The texture is silt loam or loam. The reaction is slightly alkaline or moderately alkaline.

*Bk and C horizons:* The texture is silt loam, loam, or very fine sandy loam. The reaction is slightly alkaline or moderately alkaline. The calcium carbonate equivalent is 5 to 25 percent.

This soil was characterized by the National Soil Survey Laboratory; pedon number 83P0808 and soil survey sample number S83CO-113-003.

## Narraguinnep Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, hill, mountain slope

*Parent material:* alluvium derived from shale

*Elevation:* 7,200 to 8,500 feet

*Slope:* 1 to 50 percent

*Climatic data:*

*Average annual precipitation:* 17 to 22 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, montmorillonitic Pachic Haploborolls

### Typical Pedon

*Map unit in which located:* Narraguinnep-Dapoin complex, 1 to 15 percent slopes

*Location in survey area:* about 500 feet south and 1,000 feet east of the northwest corner of Sec. 27, T. 40 N., R. 14 W.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; neutral; clear smooth boundary.

A2—7 to 18 inches; dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; very hard, very firm, sticky and plastic; neutral; clear smooth boundary.

Bw—18 to 23 inches; grayish brown (10YR 5/2) clay, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; extremely hard, extremely firm, sticky and plastic; strongly effervescent; slightly alkaline; clear wavy boundary.

Bck—23 to 30 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; extremely hard, extremely firm, sticky and plastic; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline; clear wavy boundary.

Ck—30 to 60 inches; light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; massive; extremely hard, extremely firm, sticky and plastic; 25 percent shale chips; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline.

## Range in Characteristics

The mollic epipedon is 16 to 24 inches thick. The particle-size control section averages 35 to 50 percent clay.

*A1 horizon:* The texture is silty clay loam or clay loam. The reaction is neutral. The content of rock fragments is 0 to 10 percent.

*Bw horizon:* The texture is clay loam or clay. The hue is 10YR or 2.5Y.

*Ck horizon:* The texture is silty clay loam or clay loam. The reaction is moderately alkaline.

## Nordicol Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* mountain slope

*Parent material:* colluvium and residuum weathered from sandstone

*Elevation:* 8,800 to 10,000 feet

*Slope:* 5 to 40 percent

*Climatic data:*

*Average annual precipitation:* 24 to 26 inches

*Average annual temperature:* 35 to 37 degrees F.

*Frost-free period:* 40 to 60 days

*Taxonomic class:* Loamy-skeletal, mixed Cryic Paleborolls

### Typical Pedon

*Map unit in which located:* Baird Hollow-Nordicol-Ryman complex, 5 to 40 percent slopes

*Location in survey area:* about 200 feet east and 1,700 feet north of the southwest corner of Sec. 2, T. 42 N., R. 14 W.

A—0 to 15 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

E—15 to 24 inches; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 5/3) moist; moderate fine granular structure; hard, very friable, slightly sticky and slightly plastic; 20 percent gravel, 5 percent cobbles, and 1 percent stones; neutral; gradual wavy boundary.

E/B—24 to 32 inches; 60 percent E, pale brown (10YR 6/3), brown (10YR 5/3) moist; 40 percent Bt, brownish yellow (10YR 6/6), dark yellowish brown (10YR 4/4) moist, very cobbly sandy clay loam; moderate medium and fine subangular blocky;

hard, very friable, slightly sticky and slightly plastic; 20 percent gravel, 10 percent cobble, and 5 percent stones; neutral; gradual wavy boundary.

Bt—32 to 48 inches; brownish yellow (10YR 6/6) very cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; 20 percent gravel, 15 percent cobbles, and 10 percent stones; neutral; gradual wavy boundary.

C—48 to 60 inches; brownish yellow (10YR 6/6) very stony sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, very friable, slightly sticky and slightly plastic; 20 percent gravel, 15 percent cobbles, and 20 percent stones; neutral.

#### Range in Characteristics

The mollic epipedon is 10 to 19 inches thick. The particle-size control section is 35 to 60 percent rock fragments.

*A horizon:* The hue is 10YR or 7.5YR.

*Bt horizon:* The hue is 10YR or 7.5YR. The clay content is 18 to 35 percent.

#### Nordicol Variant

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa

*Parent material:* residuum weathered from sandstone

*Elevation:* 8,500 to 9,000 feet

*Slope:* 2 to 10 percent

*Climatic data:*

*Average annual precipitation:* 22 to 24 inches

*Average annual temperature:* 38 to 40 degrees F.

*Frost-free period:* 50 to 70 days

*Taxonomic class:* Fine-loamy, mixed Cryic Pachic Paleborolls

#### Typical Pedon

*Map unit in which located:* Bushvalley-Nordicol Variant complex, 2 to 10 percent slopes

*Location in survey area:* about 500 feet east and 700 feet south of the northwest corner of Sec. 18, T. 45 N., R. 10 W.

A1—0 to 5 inches; dark brown (10YR 3/3) loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; neutral; clear wavy boundary.

A2—5 to 14 inches; dark brown (10YR 3/3) loam, very dark brown (10YR 2/2) moist; moderate

medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; neutral; clear wavy boundary.

AB—14 to 28 inches; dark brown (10YR 3/3) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; strong medium subangular blocky structure; slightly hard, friable, sticky and plastic; 5 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

Bt—28 to 31 inches; dark yellowish brown (10YR 4/4) cobbly clay loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; hard, friable, sticky and plastic; many common moderately thick clay films on ped faces; 5 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

C—31 to 34 inches; strong brown (7.5YR 5/6) sandy clay loam, brown (7.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; neutral; abrupt smooth boundary.

R—34 inches; hard noncalcareous sandstone.

#### Range in Characteristics

The mollic epipedon is 21 to 32 inches thick.

Bedrock is at a depth of 20 to 40 inches.

*A horizons:* The hue is 10YR or 7.5YR.

*Bt horizon:* The clay content is 27 to 35 percent. The hue is 7.5YR or 10YR.

#### Nortez Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, structural bench

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 7,400 to 8,500 feet

*Slope:* 0 to 20 percent

*Climatic data:*

*Average annual precipitation:* 16 to 19 inches

*Average annual temperature:* 41 to 45 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, montmorillonitic Typic Argiborolls

#### Typical Pedon

*Map unit in which located:* Nortez-Fivepine loams, 1 to 12 percent slopes

*Location in survey area:* about 2,000 feet west and 100 feet north of the southeast corner of Sec. 11, T. 44 N., R. 13 W.

A—0 to 8 inches; brown (7.5YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; slightly alkaline; clear smooth boundary.

Bt—8 to 18 inches; brown (7.5YR 5/4) cobbly clay loam, brown (7.5YR 4/4) moist; moderate and strong medium subangular blocky structure; very hard, friable, sticky and plastic; 10 percent angular cobbles and 5 percent angular gravel; slightly alkaline; clear wavy boundary.

BCk—18 to 24 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; calcium carbonate disseminated throughout; strongly effervescent; slightly alkaline; clear wavy boundary.

Ck—24 to 32 inches; pinkish white (7.5YR 8/2) loam, light brown (7.5YR 6/4) moist; massive; hard, friable; lime disseminated throughout; violently effervescent; 5 percent angular cobbles and 5 percent angular gravel; moderately alkaline; abrupt wavy boundary.

R—32 inches; Dakota sandstone.

#### Range in Characteristics

The mollic epipedon is 7 to 12 inches thick. The depth to secondary calcium carbonate is 18 to 30 inches. Bedrock is at a depth of 20 to 40 inches. The content of rock fragments commonly is 0 to 20 percent, and the fragments are predominantly angular and gravel- and cobble-sized. The content of rock fragments in the C horizon is 35 percent.

*A horizon:* The hue is 7.5YR or 10YR.

*Bt horizon:* The texture is gravelly clay loam, cobbly clay loam, clay loam, or clay. The clay content is 35 to 45 percent. The reaction is slightly alkaline or moderately alkaline. The hue is 5YR or 7.5YR.

*Ck horizon:* The texture is gravelly loam, cobbly loam, loam, or clay loam. The reaction is slightly alkaline or moderately alkaline. The hue is 5YR to 10YR.

#### Nunemaker Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* drainageway, valley floor

*Parent material:* alluvium derived from shale

*Elevation:* 6,800 to 7,800 feet

*Slope:* 3 to 10 percent

#### Climatic data:

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 44 to 46 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine, montmorillonitic Borollic Camborthids

#### Typical Pedon

*Map unit in which located:* Nunemaker clay, 3 to 10 percent slopes

*Location in survey area:* about 1,100 feet south and 1,000 feet east of the northwest corner of Sec. 25, T. 43 N., R. 15 W.

A—0 to 3 inches; grayish brown (2.5Y 5/2) clay, very dark grayish brown (2.5Y 3/2) moist; moderate coarse granular structure; very hard, firm, sticky and plastic; 13 percent calcium carbonate equivalent; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw1—3 to 10 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate coarse angular blocky structure parting to moderate medium angular blocky; very hard, firm, sticky and plastic; 11 percent calcium carbonate equivalent; slightly effervescent; moderately alkaline; gradual smooth boundary.

Bw2—10 to 26 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate coarse prismatic structure parting to moderate medium angular blocky; very hard, friable, sticky and plastic; 14 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bky1—26 to 30 inches; light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; massive; very hard, firm, slightly sticky and plastic; many calcium carbonate crystals and gypsum nests; 10 percent calcium carbonate equivalent; violently effervescent; few relict medium distinct olive brown (2.5Y 4/4) masses of iron accumulation; moderately alkaline; clear smooth boundary.

Bky2—30 to 40 inches; light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; massive; very hard, firm, slightly sticky and plastic; many gypsum nests; 10 percent calcium carbonate equivalent; violently effervescent; few relict medium distinct olive brown (2.5Y 4/4) masses of iron accumulation; strongly alkaline; clear smooth boundary.

Bky3—40 to 50 inches; light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; massive; very hard, firm, slightly sticky and plastic; many

gypsum nests; 10 percent calcium carbonate equivalent; violently effervescent; few relict medium distinct olive brown (2.5Y 4/4) masses of iron accumulation; strongly alkaline; clear smooth boundary.

Bky4—50 to 60 inches; light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; massive; very hard, firm, sticky and plastic; many gypsum nests; 9 percent calcium carbonate equivalent; violently effervescent; strongly alkaline.

#### Range in Characteristics

The particle-size control section is clay or clay loam and the clay content is 35 to 50 percent.

*A horizon:* The reaction is moderately alkaline. The content of rock fragments is 0 to 5 percent.

*Bw horizons:* The reaction is moderately alkaline. The hue is 2.5Y.

*Bky horizons:* The reaction is strongly alkaline. The hue is 2.5Y. The calcium carbonate content is 5 to 10 percent.

### Nyswonger Series

*Depth class:* very deep

*Drainage class:* moderately well drained

*Permeability:* very slow

*Landform:* alluvial fan, terrace, valley floor

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 4,900 to 6,800 feet

*Slope:* 1 to 4 percent

*Climatic data:*

*Average annual precipitation:* 10 to 14 inches

*Average annual temperature:* 46 to 49 degrees F.

*Frost-free period:* 110 to 140 days

*Taxonomic class:* Fine-loamy, mixed, mesic

Torrifluventic Haplustolls

#### Typical Pedon

*Map unit in which located:* Nyswonger silty clay loam, 1 to 4 percent slopes

*Location in survey area:* about 900 feet west and 150 feet north of the southeast corner of Sec. 3, T. 47 N., R. 19 W.

Ap—0 to 3 inches; brown (7.5YR 4/2) silty clay loam, dark brown (7.5YR 3/2) moist; strong fine granular structure; hard, friable, sticky and plastic; strongly effervescent; moderately alkaline; abrupt smooth boundary.

A—3 to 11 inches; brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure parting to strong fine granular;

very hard, friable, sticky and plastic; strongly effervescent; moderately alkaline; abrupt wavy boundary.

AC—11 to 19 inches; brown (7.5YR 5/2) clay loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; very hard, friable, sticky and plastic; strongly effervescent; calcium carbonate inconsistently segregated as few threads; moderately alkaline; abrupt wavy boundary.

C1—19 to 41 inches; light reddish brown (5YR 6/3) sandy clay loam, dark reddish gray (5YR 4/2) moist; massive; very hard, friable, slightly sticky and plastic; strongly effervescent; calcium carbonate inconsistently segregated as threads; moderately alkaline; abrupt wavy boundary.

C2—41 to 60 inches; brown (7.5YR 5/2) clay, dark brown (7.5YR 3/2) moist; massive; extremely hard, firm, sticky and plastic; strongly effervescent; calcium carbonate inconsistently segregated as threads; common fine distinct gray (5YR 5/1) iron depletions and few fine prominent reddish yellow (5YR 6/6) masses of iron accumulation; moderately alkaline.

#### Range in Characteristics

The hue is 5YR or 7.5YR. The particle-size control section is sandy clay loam, clay, or clay loam, stratified with thin lenses of fine sandy loam in some pedons. The clay content averages 28 to 35 percent. The content of rock fragments is 0 to 10 percent, and the fragments are predominantly gravel-sized. The mollic epipedon is 10 to 19 inches thick.

### Orthents

*Depth class:* shallow to very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* canyon, mesa, structural bench

*Parent material:* colluvium and residuum from sandstone and shale

*Elevation:* 4,700 to 9,200 feet

*Slope:* 40 to 90 percent

*Climatic data:*

*Average annual precipitation:* 10 to 19 inches

*Average annual temperature:* 43 to 49 degrees F.

*Frost-free period:* 70 to 140 days

*Taxonomic class:* Orthents

#### Reference Pedon

*Map unit in which located:* Rock outcrop-Orthents complex, 40 to 90 percent slopes

*Location in survey area:* about 2,750 feet north and 1,300 feet west of the southeast corner of Sec. 17, T. 43 N., R. 10 W.

- A—0 inches to 1 inch; reddish brown (2.5YR 4/4) stony loam, dark red (2.5YR 3/6) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; 20 percent gravel, 5 percent cobbles, and 10 percent stones; violently effervescent; moderately alkaline; clear smooth boundary.
- Bw—1 inch to 8 inches; reddish brown (2.5YR 3/4) gravelly loam, dark reddish brown (2.5YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; 30 percent calcium carbonate equivalent; violently effervescent; 15 percent gravel and 5 percent cobbles; moderately alkaline; clear smooth boundary.
- Bk—8 to 14 inches; red (2.5YR 4/6) gravelly loam, dark red (2.5YR 3/6), moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; 20 percent calcium carbonate equivalent; violently effervescent; 10 percent gravel and 5 percent cobbles; moderately alkaline; clear smooth boundary.
- Ck1—14 to 24 inches; reddish brown (2.5YR 4/4) very cobbly loam, dark reddish brown (2.5YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; 22 percent calcium carbonate equivalent; violently effervescent; 25 percent gravel and 15 percent cobbles; moderately alkaline; clear wavy boundary.
- Ck2—24 to 35 inches; reddish brown (2.5YR 4/4) very cobbly sandy loam, dark reddish brown (2.5YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; 9 percent calcium carbonate equivalent; strongly effervescent; 10 percent gravel, 35 percent cobbles, and 5 percent stones; moderately alkaline; clear smooth boundary.
- Ck3—35 to 60 inches; red (2.5YR 4/6) very cobbly loam, dark red (2.5YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; 16 percent calcium carbonate equivalent; violently effervescent; 15 percent gravel, 25 percent cobbles, and 10 percent stones; moderately alkaline.

#### Range in Characteristics

Bedrock is at a depth of 10 to 60 inches or more. The particle-size control section is 15 to 50 percent rock fragments. The Bw horizon is absent in some pedons.

*A horizon:* The texture is stony loam, bouldery clay loam, and very gravelly clay loam. The hue is 7.5YR, 5YR, 2.5YR or 10YR.

*Ck horizons:* The texture is very cobbly loam, very cobbly sandy loam, cobbly clay loam, and very cobbly clay loam.

### Pagoda Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* hill

*Parent material:* residuum weathered from shale

*Elevation:* 7,200 to 8,100 feet

*Slope:* 10 to 30 percent

*Climatic data:*

*Average annual precipitation:* 16 to 18 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 80 to 100 days

*Taxonomic class:* Fine, montmorillonitic Pachic Argiborolls

#### Typical Pedon

*Map unit in which located:* Pagoda-Coulterg-Cabba complex, 10 to 60 percent slopes

*Location in survey area:* 2,800 feet west and 1,200 feet south of the northeast corner of Sec. 12, T. 41 N., R. 14 W.

- A—0 to 4 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; neutral; clear smooth boundary.
- Bt1—4 to 14 inches; brown (10YR 4/3) clay, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; very hard, friable, sticky and plastic; neutral; clear smooth boundary.
- Bt2—14 to 26 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong medium angular blocky structure; very hard, very firm, sticky and plastic; slightly alkaline; clear smooth boundary.
- Btk—26 to 36 inches; brown (10YR 5/3) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline; clear smooth boundary.
- Bk1—36 to 45 inches; pale brown (10YR 6/3) clay loam, dark grayish brown (10YR 4/2) moist; massive; very hard, friable, slightly sticky and slightly plastic; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline; clear wavy boundary.

Bk2—45 to 60 inches; brown (10YR 5/3) clay loam, very dark grayish brown (10YR 3/2) moist; massive; extremely hard, firm, slightly sticky and plastic; few fine calcium carbonate mycelia; violently effervescent; moderately alkaline.

#### Range in Characteristics

The mollic epipedon is 20 to 36 inches thick. The depth to secondary calcium carbonate is 25 to 40 inches. The content of rock fragments is 0 to 5 percent.

*A horizon:* The reaction is slightly acid or neutral. The hue is 5Y through 7.5YR.

*Bt horizons:* The texture is clay or clay loam. The hue is 5Y through 10YR.

*Bk horizons:* The hue is 5Y through 10YR. Soft shale fragments range from 0 to 25 percent.

### Paradox Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan, valley floor

*Parent material:* alluvium derived from sandstone

*Elevation:* 4,900 to 6,500 feet

*Slope:* 1 to 4 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Fine-loamy, mixed (calcareous), mesic Ustic Torriorthents

#### Typical Pedon

*Map unit in which located:* Paradox fine sandy loam, 1 to 4 percent slopes

*Location in survey area:* about 300 feet east and 100 feet south of the northwest corner of Sec. 6, T. 47 N., R. 18 W.

A—0 to 5 inches; red (2.5YR 5/6) fine sandy loam, dark reddish brown (2.5YR 3/4) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; slightly effervescent; slightly alkaline; clear smooth boundary.

AC—5 to 19 inches; red (2.5YR 5/6) fine sandy loam, reddish brown (2.5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; slightly alkaline; clear smooth boundary.

C1—19 to 28 inches; red (2.5YR 5/6) loam, dark red (2.5YR 3/6) moist; weak medium subangular

blocky structure; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; slightly alkaline; clear wavy boundary.

C2—28 to 51 inches; red (2.5YR 5/6) loam, reddish brown (2.5YR 4/4) moist; massive; hard, very friable, nonsticky and nonplastic; strongly effervescent; moderately alkaline; clear wavy boundary.

C3—51 to 60 inches; red (2.5YR 5/6) loam, dark red (2.5YR 3/6) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; strongly effervescent; moderately alkaline.

#### Range in Characteristics

The depth to calcium carbonate is 0 to 7 inches. The content of rock fragments is 0 to 10 percent, and the fragments are predominantly gravel-sized. The hue is 2.5YR or 5YR.

*C horizons:* The texture is sandy clay loam, loam, or fine sandy loam. The clay content is 18 to 27 percent.

### Persayo Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* slow

*Landform:* hill, terrace

*Parent material:* residuum weathered from shale

*Elevation:* 5,500 to 6,800 feet

*Slope:* 2 to 20 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 130 to 150 days

*Taxonomic class:* Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents

#### Typical Pedon

*Map unit in which located:* Persayo-Chipeta complex, 2 to 20 percent slopes

*Location in survey area:* about 1,100 feet west and 2,600 feet north of the southeast corner of Sec. 6, T. 42 N., R. 16 W.

A—0 to 2 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and plastic; strongly effervescent; moderately alkaline; clear smooth boundary.

C—2 to 14 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, friable, slightly sticky and plastic; strongly

effervescent; slightly alkaline; abrupt smooth boundary.

Cr—14 inches; gray, platy shale.

#### Range in Characteristics

Shale is at a depth of 10 to 20 inches. The hue is 10YR to 5Y.

*A horizon:* The content of rock fragments is 0 to 15 percent, and the fragments are predominantly gravel-sized. Shale fragments range from 0 to 15 percent.

*C horizon:* The texture is clay loam or silty clay loam. The clay content is 27 to 35 percent. The reaction is slightly alkaline or moderately alkaline.

Some pedons have visible accumulations of gypsum and/or calcium carbonate which are not concentrated into a definite horizon of secondary accumulation.

### Pino Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa

*Parent material:* residuum weathered from interbedded sandstone and shale

*Elevation:* 7,400 to 8,500 feet

*Slope:* 2 to 15 percent

*Climatic data:*

*Average annual precipitation:* 17 to 19 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, mixed Typic Argiborolls

#### Typical Pedon

*Map unit in which located:* Fivepine-Pino loams, 0 to 15 percent slopes

*Location in survey area:* about 60 feet north and 15 feet west of the southeast corner of Sec. 25, T. 44 N., R. 14 W.

Oi—1 inch to 0 inches; slightly decomposed ponderosa pine needles.

A—0 to 8 inches; grayish brown (10YR 5/2) loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.

BA—8 to 15 inches; brown (7.5YR 4/2) clay loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; slightly alkaline; clear smooth boundary.

Bt—15 to 24 inches; strong brown (7.5YR 5/6) clay loam, brown (7.5YR 4/4) moist; strong coarse

angular blocky structure parting to strong fine angular blocky; very hard, friable, sticky and plastic; neutral; clear wavy boundary.

BC—24 to 32 inches; reddish yellow (7.5YR 6/6) clay loam, brown (7.5YR 5/4) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; neutral; abrupt smooth boundary.

R—32 inches; hard sandstone.

#### Range in Characteristics

The depth to bedrock and the thickness of the solum are 20 to 40 inches. The reaction is neutral or slightly alkaline. A C horizon is present in some pedons. The hue is 10YR or 7.5YR. The content of rock fragments is 0 to 14 percent, and the fragments are predominantly gravel-sized.

*Bt horizon:* The texture is clay loam or silty clay loam. The clay content is 35 to 40 percent.

*BC horizon:* The texture is clay loam.

### Pinon Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* escarpment, hill, mesa, ridge, structural bench

*Parent material:* residuum weathered from interbedded sandstone and shale

*Elevation:* 5,400 to 7,400 feet

*Slope:* 1 to 30 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 48 degrees F.

*Frost-free period:* 90 to 130 days

*Taxonomic class:* Loamy, mixed, mesic Lithic Ustollic Calciorthids

#### Typical Pedon

*Map unit in which located:* Pinon-Bowdish-Rock outcrop complex, 3 to 30 percent slopes

*Location in survey area:* about 400 feet west and 2,400 feet north of the southeast corner of Sec. 12, T. 48 N., R. 18 W.

A—0 to 5 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; strongly effervescent; slightly alkaline; clear smooth boundary.

Bk—5 to 16 inches; pinkish white (7.5YR 8/2) loam; light brown (7.5YR 6/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 40 percent

calcium carbonate equivalent; violently effervescent; moderately alkaline; abrupt smooth boundary.

R—16 inches; hard sandstone and interbedded shale.

### Range in Characteristics

The particle-size control section is sandy clay loam, gravelly loam, or loam. The clay content is 18 to 27 percent. Bedrock is at a depth of 10 to 20 inches.

*A horizon:* The content of rock fragments is 0 to 10 percent, and the fragments are predominantly gravel-sized. The hue is 5YR or 7.5YR.

*Bk horizon:* The content of rock fragments is 0 to 25 percent, and the fragments are predominantly gravel-sized. The calcium carbonate equivalent is 15 to 40 percent.

Pinon soils in this area have a mean annual soil temperature of 47 to 50 degrees F and a frost-free season of 90 to 130 days. These characteristics reflect a cooler climate than is defined for the series at its type location, but they do not affect the taxonomic classification. Use or behavior of the soils is not significantly affected.

## Pojoaque Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan

*Parent material:* alluvium and colluvium derived from sandstone

*Elevation:* 5,400 to 5,900 feet

*Slope:* 5 to 15 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 47 to 49 degrees F.

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Fine-loamy, mixed (calcareous), mesic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Pojoaque-Chilton complex, 5 to 30 percent slopes, extremely stony

*Location in survey area:* about 1,800 feet east and 200 feet north of the southwest corner of Sec. 22, T. 48 N., R. 19 W.

A—0 to 4 inches; reddish brown (2.5YR 5/4) very stony loam, reddish brown (2.5YR 4/4) moist; weak fine granular structure; slightly hard, very friable; 15 percent stones, 5 percent cobbles, 20 percent gravel; strongly effervescent; slightly alkaline; gradual wavy boundary.

AC—4 to 15 inches; reddish brown (2.5YR 5/4) gravelly loam; reddish brown (2.5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable; 15 percent gravel, 5 percent cobbles; strongly effervescent; slightly alkaline; gradual wavy boundary.

C1—15 to 45 inches; reddish brown (5YR 5/4) gravelly fine sandy loam, reddish brown (5YR 4/4) moist; massive; slightly hard, very friable; 15 percent gravel, 5 percent cobble; strongly effervescent; slightly alkaline; gradual wavy boundary.

C2—45 to 60 inches; red (2.5YR 5/6) gravelly loam, reddish brown (2.5YR 4/4) moist; massive; hard, very friable; 15 percent gravel, 5 percent cobble; strongly effervescent; slightly alkaline.

### Range in Characteristics

The hue is 5YR or 2.5YR. The particle-size control section is gravelly fine sandy loam, gravelly loam, or gravelly sandy loam. The content of rock fragments is 15 to 30 percent. The clay content is 18 to 25 percent.

## Progresso Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* hill, mesa, ridge, structural bench, terrace

*Parent material:* alluvium derived from sandstone

*Elevation:* 5,300 to 7,400 feet

*Slope:* 1 to 12 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 48 degrees F.

*Frost-free period:* 90 to 130 days

*Taxonomic class:* Fine-loamy, mixed, mesic Ustollic Haplargids

### Typical Pedon

*Map unit in which located:* Barx-Progresso complex, 3 to 12 percent slopes

*Location in survey area:* about 100 feet east and 2,300 feet north of the southwest corner of Sec. 16, T. 48 N., R. 17 W.

A—0 to 7 inches; reddish brown (5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and plastic; slightly alkaline; clear smooth boundary.

Bt—7 to 14 inches; reddish brown (5YR 5/4) clay loam; reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; hard, friable, slightly

sticky and plastic; slightly alkaline; clear smooth boundary.

Btk—14 to 24 inches; reddish brown (5YR 5/4) clay loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; calcium carbonate segregated in common fine irregularly shaped soft masses; 20 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

Bk—24 to 36 inches; white (5YR 8/1) sandy loam, pink (5YR 7/4) moist; massive; hard, very friable, slightly sticky and plastic; 10 percent gravel; calcium carbonate disseminated throughout and on the gravel as thick pendants; 31 percent calcium carbonate equivalent; violently effervescent; moderately alkaline; abrupt wavy boundary.

R—36 inches; hard sandstone.

#### Range in Characteristics

Bedrock is at a depth of 20 to 40 inches. The hue is 5YR or 7.5YR. The depth to secondary calcium carbonate is 8 to 17 inches. The content of rock fragments is 0 to 10 percent, and the fragments are predominantly gravel-sized.

*Bt horizon:* The clay content is 28 to 35 percent.

*Bk horizon:* The texture is loam or sandy loam. The calcium carbonate equivalent is 15 to 35 percent.

### Pulpit Series

*Depth class:* moderately deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa

*Parent material:* eolian deposits derived from sandstone

*Elevation:* 6,800 to 7,400 feet

*Slope:* 1 to 6 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 100 to 120 days

*Taxonomic class:* Fine-silty, mixed, mesic Ustollic Haplargids

#### Typical Pedon

*Map unit in which located:* Pulpit-Bond, cool complex, 1 to 6 percent slopes

*Location in survey area:* about 1,800 feet west and 100 feet south of the northeast corner of Sec. 10, T. 42 N., R. 19 W.

A—0 to 8 inches; reddish brown (5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; slightly alkaline; clear smooth boundary.

Bt—8 to 20 inches; reddish brown (5YR 5/3) clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; slightly alkaline; clear smooth boundary.

Bk—20 to 25 inches; light reddish brown (5YR 6/3) loam, dark reddish gray (5YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; 19 percent calcium carbonate equivalent; strongly effervescent; slightly alkaline; abrupt smooth boundary.

R—25 inches; hard sandstone.

#### Range in Characteristics

Bedrock is at a depth of 20 to 40 inches. The content of rock fragments is 0 to 5 percent. Secondary calcium carbonate is at a depth of 20 to 30 inches. The hue is 5YR or 7.5YR in the A and Bk horizons. The particle-size control section is clay loam or loam, and the clay content is 18 to 30 percent. The particle-size control section is less than 15 percent fine and coarser sand.

### Radersburg Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa, ridge, terrace

*Parent material:* alluvium, outwash, and till derived from igneous rock

*Elevation:* 7,000 to 8,100 feet

*Slope:* 1 to 30 percent

*Climatic data:*

*Average annual precipitation:* 14 to 16 inches

*Average annual temperature:* 41 to 44 degrees F.

*Frost-free period:* 70 to 110 days

*Taxonomic class:* Clayey-skeletal, mixed Aridic Argiborolls

#### Typical Pedon

*Map unit in which located:* Radersburg gravelly loam, 6 to 30 percent slopes

*Location in survey area:* about 2,500 feet north and 500 feet west of the southeast corner of Sec. 10, T. 45 N., R. 13 W.

- A—0 to 7 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; 25 percent gravel and 10 percent cobbles; neutral; clear smooth boundary.
- Bt—7 to 12 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; 20 percent gravel, 25 percent cobbles, and 5 percent stones; strongly effervescent; 35 percent calcium carbonate equivalent; slightly alkaline; clear smooth boundary.
- Ck—12 to 60 inches; very pale brown (10YR 8/2) extremely cobbly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; 15 percent gravel, 40 percent cobbles, and 15 percent stones; calcium carbonate disseminated throughout; violently effervescent; 33 percent calcium carbonate equivalent; moderately alkaline.

#### Range in Characteristics

The mollic epipedon is 7 to 12 inches thick. Secondary calcium carbonate is at a depth of 10 to 15 inches. The particle-size control section is 35 to 80 percent rock fragments.

*A and Bt horizons:* The hue is 7.5YR or 10YR.

*Ck horizon:* The hue is 10YR.

### Redlands Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan, terrace

*Parent material:* alluvium derived from sandstone

*Elevation:* 5,580 to 5,800 feet

*Slope:* 1 to 6 percent

*Climatic data:*

*Average annual precipitation:* 8 to 10 inches

*Average annual temperature:* 49 to 51 degrees F.

*Frost-free period:* 130 to 150 days

*Taxonomic class:* Fine-loamy, mixed, mesic Typic Haplargids

#### Typical Pedon

*Map unit in which located:* Redlands sandy loam, 1 to 6 percent slopes

*Location in survey area:* about 2,400 feet west and 125 feet south of the northeast corner of Sec. 35, T. 44 N., R. 18 W.

- A—0 to 5 inches; reddish brown (5YR 5/4) sandy loam, reddish brown (5YR 4/3) moist; weak fine granular structure; slightly hard, very friable; slightly effervescent; moderately alkaline; clear smooth boundary.
- Bt—5 to 12 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bk1—12 to 24 inches; reddish brown (5YR 5/3) clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, sticky and plastic; calcium carbonate segregated in a few fine irregularly shaped soft masses; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bk2—24 to 32 inches; light reddish brown (5YR 6/3) sandy loam, reddish brown (5YR 5/3) moist; massive; slightly hard, friable; calcium carbonate disseminated throughout; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bk3—32 to 60 inches; pinkish gray (5YR 7/2) sandy loam, reddish gray (5YR 5/2) moist; massive; slightly hard, friable; calcium carbonate disseminated throughout; slightly effervescent; moderately alkaline.

#### Range in Characteristics

The depth to calcium carbonate is 0 to 10 inches. The content of rock fragments is 0 to 10 percent, and the fragments are predominantly gravel-sized. The hue is 5YR or 7.5YR.

*A horizon:* The reaction is slightly alkaline or moderately alkaline.

*Bt horizon:* The texture is loam or sandy clay loam. The clay content is 18 to 27 percent.

*Bk horizons:* The texture is loam, sandy loam, or clay loam. The calcium carbonate equivalent is 5 to 15 percent. The reaction is moderately alkaline or strongly alkaline.

### Ryman Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, mountain slope, structural bench

*Parent material:* residuum weathered from interbedded sandstone and shale

*Elevation:* 8,500 to 10,500 feet

*Slope:* 1 to 40 percent

*Climatic data:*

*Average annual precipitation:* 22 to 30 inches  
*Average annual temperature:* 35 to 40 degrees F.  
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Fine, mixed Pachic Cryoborolls

**Typical Pedon**

*Map unit in which located:* Ryman-Adel, moist complex, 1 to 15 percent slopes

*Location in survey area:* about 200 feet west and 750 feet south of the northeast corner of Sec. 25, T. 41 N., R. 13 W.

Oe—2 inches to 0; partially decomposed organic material.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; neutral; clear smooth boundary.

A2—6 to 17 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; neutral; clear wavy boundary.

A3—17 to 23 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; 10 percent gravel; neutral; clear wavy boundary.

C1—23 to 27 inches; yellowish brown (10YR 5/6) cobbly clay loam, dark yellowish brown (10YR 4/6) moist; massive; very hard, friable, slightly sticky and plastic; 15 percent gravel, 15 percent cobbles; neutral; clear smooth boundary.

C2—27 to 34 inches; light yellowish brown (10YR 6/4) cobbly clay, yellowish brown (10YR 5/6) moist; massive; extremely hard, very firm, sticky and plastic; 10 percent gravel, 15 percent cobbles, 5 percent stones; neutral; clear wavy boundary.

C3—34 to 39 inches; light yellowish brown (10YR 6/4) stony clay, yellowish brown (10YR 5/4) moist; massive; extremely hard, very firm, sticky and plastic; 5 percent gravel, 15 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

C4—39 to 60 inches; brownish yellow (10YR 6/6) cobbly clay, yellowish brown (10YR 5/4) moist; massive; extremely hard, friable, sticky and plastic; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral.

**Range in Characteristics**

The particle-size control section is 5 to 35 percent rock fragments.

*A horizons:* The hue is 10YR or 2.5Y.

*C horizons:* The hue is 10YR or 2.5Y. The content of rock fragments is 5 to 35 percent.

**Sagedale Series**

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* flood plain

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 7,400 to 8,500 feet

*Slope:* 3 to 20 percent

*Climatic data:*

*Average annual precipitation:* 18 to 20 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 80 to 90 days

*Taxonomic class:* Fine, montmorillonitic, frigid Typic Ustochrepts

**Typical Pedon**

*Map unit in which located:* Sagedale clay loam, 3 to 20 percent slopes

*Location in survey area:* about 600 feet east and 200 feet south of the northwest corner of Sec. 2, T. 44 N., R. 11 W.

A—0 to 7 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; strong medium granular structure; hard, firm, sticky and plastic; slightly alkaline; clear smooth boundary.

Bw—7 to 18 inches; light yellowish brown (2.5Y 6/3) clay loam, olive brown (2.5Y 4/3) moist; moderate fine and medium subangular blocky structure; very hard, firm, sticky and plastic; slightly alkaline; clear smooth boundary.

Bky1—18 to 41 inches; light yellowish brown (2.5Y 6/4) clay, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure; extremely hard, very firm, sticky and plastic; small masses of soft powdery calcium carbonates and a few nests of small gypsum crystals; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bky2—41 to 60 inches; light gray (2.5Y 7/2) clay loam, grayish brown (2.5Y 5/2) moist; massive; extremely hard, very firm, sticky and plastic; small masses of soft powdery calcium carbonate and a few nests of small gypsum crystals; strongly effervescent; moderately alkaline.

**Range in Characteristics**

Paralithic contact is at a depth of 60 inches or more.

The solum is 10 to 18 inches thick. The depth to calcareous material ranges from 0 to 18 inches. The depth to gypsum accumulation ranges from 18 to 36 inches.

The particle-size control section is clay loam or clay, and the clay content averages 38 to 45 percent. The content of rock fragments in the particle-size control section ranges from 0 to 20 percent stable fragments.

*A horizon:* The hue is 10YR or 2.5Y.

*Bw horizon:* The hue is 10YR or 2.5Y. The reaction is neutral or slightly alkaline.

*Bky horizons:* The hue is 2.5Y or 5Y.

## Sapeha Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa

*Parent material:* alluvium and colluvium derived from igneous rock

*Elevation:* 7,600 to 8,900 feet

*Slope:* 15 to 50 percent

*Climatic data:*

*Average annual precipitation:* 16 to 18 inches

*Average annual temperature:* 42 to 44 degrees F.

*Frost-free period:* 75 to 100 days

*Taxonomic class:* Clayey-skeletal, mixed Typic Haploborolls

### Typical Pedon

*Map unit in which located:* Sapeha very cobbly loam, 15 to 50 percent slopes

*Location in survey area:* about 2,350 feet north and 500 feet east of the southwest corner of Sec. 15, T. 43 N., R. 14 W.

A1—0 to 5 inches; gray (10YR 5/1) very cobbly loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; 15 percent gravel, 35 percent cobbles, and 10 percent stones; neutral; clear smooth boundary.

A2—5 to 12 inches; gray (10YR 5/1) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and plastic; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

Bw—12 to 32 inches; yellowish brown (10YR 5/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and

plastic; 15 percent gravel, 35 percent cobbles, and 10 percent stones; neutral; gradual smooth boundary.

C—32 to 60 inches; brown (10YR 5/3) extremely cobbly clay, brown (10YR 4/3) moist; massive; very hard, friable, slightly sticky and plastic; 15 percent gravel, 35 percent cobbles, and 15 percent stones; neutral.

### Range in Characteristics

The particle-size control section averages 35 to 65 percent rock fragments.

*Bw horizon:* The texture is cobbly, very cobbly, or extremely cobbly; clay or clay loam.

*C horizon:* The texture is very cobbly clay loam, very stony clay, or extremely cobbly clay.

## Seitz Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mountain slope

*Parent material:* colluvium from mixed sediments

*Elevation:* 9,000 to 10,500 feet

*Slope:* 10 to 60 percent

*Climatic data:*

*Average annual precipitation:* 24 to 28 inches

*Average annual temperature:* 34 to 36 degrees F.

*Frost-free period:* 40 to 60 days

*Taxonomic class:* Clayey-skeletal, montmorillonitic Typic Cryoboralfs

### Typical Pedon

*Map unit in which located:* Seitz gravelly loam, 10 to 60 percent slopes

*Location in survey area:* about 300 feet north and 3,100 feet east of the southwest corner of Sec. 13, T. 44 N., R. 10 W.

Oe—2 inches to 0; partially decomposed leaves, twigs, and roots.

E1—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and slightly plastic; 15 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary.

E2—3 to 11 inches; light gray (10YR 7/2) gravelly clay loam, brown (10YR 5/3) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and plastic; 20 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

Bt1—11 to 23 inches; light gray (10YR 7/2) very gravelly clay, brown (10YR 5/3) moist; moderate coarse angular blocky structure; very hard, firm, sticky and plastic; 25 percent gravel, 15 percent cobble, and 5 percent stones; neutral; clear wavy boundary.

Bt2—23 to 30 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark grayish brown (10YR 5/2) moist; moderate coarse angular blocky structure; very hard, very firm, sticky and plastic; 30 percent gravel, 15 percent cobble, and 5 percent stones; neutral; gradual wavy boundary.

Bt3—30 to 60 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark grayish brown (10YR 5/2) moist; weak coarse angular blocky structure; extremely hard, extremely firm, sticky and plastic; 30 percent gravel, 15 percent cobbles, and 5 percent stones; neutral.

#### Range in Characteristics

The particle-size control section is very gravelly clay and the clay content is 40 to 50 percent.

*E horizons:* The content of rock fragments is 15 to 35 percent.

*Bt horizons:* The content of rock fragments is 35 to 55 percent.

### Skein Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* canyon, mesa, terrace

*Parent material:* residuum weathered from interbedded sandstone and shale

*Elevation:* 6,800 to 7,400 feet

*Slope:* 3 to 40 percent

*Climatic data:*

*Average annual precipitation:* 13 to 17 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Loamy, mixed Borollic Lithic Calciorthids

#### Typical Pedon

*Map unit in which located:* Skein-Rock outcrop complex, 3 to 65 percent slopes

*Location in survey area:* about 500 feet east and 1,200 feet south of the northwest corner of Sec. 9, T. 48 N., R. 16 W.

A—0 to 6 inches; reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/4) moist; weak fine granular

structure; slightly hard, very friable, slightly sticky and slightly plastic; slightly effervescent; moderately alkaline; clear wavy boundary.

Bk1—6 to 13 inches; reddish brown (5YR 5/3) loam, dark reddish gray (5YR 4/2) moist; moderate medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; 20 percent calcium carbonate equivalent; violently effervescent; calcium carbonate disseminated throughout; moderately alkaline; clear wavy boundary.

Bk2—13 to 19 inches; white (5YR 8/0) very gravelly loam, pinkish white (5YR 8/2) moist; massive; hard, very friable; calcium carbonate disseminated throughout; 40 percent calcium carbonate equivalent; violently effervescent; 35 percent gravel and 15 percent cobbles; moderately alkaline; abrupt wavy boundary.

2R—19 inches; calcium carbonate coated hard sandstone.

#### Range in Characteristics

Bedrock is at a depth of 10 to 20 inches. The particle-size control section averages 5 to 35 percent rock fragments, and the fragments are predominantly gravel-sized. The hue is 5YR or 7.5YR. The clay content is 18 to 27 percent. Calcium carbonate is at a depth of 0 to 4 inches. The reaction is slightly alkaline or moderately alkaline.

*Bk horizons:* The texture is loam, gravelly loam, or very gravelly loam. The calcium carbonate equivalent ranges from 15 to 40 percent.

### Skisams Series

*Depth class:* very shallow and shallow

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* plateau, structural bench

*Parent material:* residuum weathered from sandstone

*Elevation:* 8,500 to 9,500 feet

*Slope:* 2 to 30 percent

*Climatic data:*

*Average annual precipitation:* 20 to 24 inches

*Average annual temperature:* 37 to 40 degrees F.

*Frost-free period:* 50 to 70 days

*Taxonomic class:* Loamy, mixed Lithic Cryoborolls

#### Typical Pedon

*Map unit in which located:* Skisams-Bushvalley-Cryoborolls, moderately deep complex, 2 to 15 percent slopes

*Location in survey area:* about 1,000 feet west and 1,350 feet north of the southeast corner of Sec. 28, T. 45 N., R. 10 W.

A—0 to 4 inches; grayish brown (10YR 5/2) loam, very dark brown (10YR 2/2) moist; strong fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; neutral; clear smooth boundary.

Bw—4 to 11 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, very friable, nonsticky and nonplastic; 10 percent gravel; neutral; abrupt smooth boundary.

R—11 inches; hard sandstone.

#### Range in Characteristics

The mollic epipedon is 8 to 15 inches thick. Bedrock is at a depth of 8 to 20 inches.

The particle-size control section is loam or gravelly loam, and the clay content is 18 to 27 percent.

*A horizon:* The hue is 7.5YR or 10YR. The reaction is neutral. The content of rock fragments is 0 to 10 percent.

*Bw horizon:* The hue is 7.5YR or 10YR. The reaction is neutral. The content of rock fragments is 0 to 20 percent.

#### Specie Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* moderate

*Landform:* alluvial fan, mesa, terrace

*Parent material:* colluvium derived from sandstone

*Elevation:* 7,000 to 9,000 feet

*Slope:* 5 to 60 percent

*Climatic data:*

*Average annual precipitation:* 16 to 22 inches

*Average annual temperature:* 41 to 43 degrees F.

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Loamy-skeletal, mixed (calcareous), frigid Typic Ustorthents

#### Typical Pedon

*Map unit in which located:* Specie gravelly loam, 5 to 15 percent slopes

*Location in survey area:* about 1,100 feet west and 100 feet north of the southeast corner of Sec. 23, T. 44 N., R. 11 W.

Oi—1 inch to 0 inches; pine needles and twigs.

A—0 to 3 inches; dark reddish brown (5YR 3/4) gravelly loam, dark reddish brown (5YR 3/2) moist;

moderate medium granular structure; slightly hard, friable, nonsticky and nonplastic; 15 percent gravel and 5 percent cobbles; 5 percent calcium carbonate equivalent; slightly effervescent; neutral; clear smooth boundary.

C1—3 to 16 inches; reddish brown (2.5YR 5/4) very stony loam, dark reddish brown (2.5YR 3/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; 15 percent gravel, 10 percent cobbles, 30 percent stones; 9 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline; clear smooth boundary.

C2—16 to 60 inches; reddish brown (2.5YR 5/4) extremely gravelly loam, dark reddish brown (2.5YR 3/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; 45 percent gravel, 10 percent cobbles, and 10 percent stones; 14 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline.

#### Range in Characteristics

The clay percentage in the particle-size control section is 18 to 25 percent.

*A horizon:* The texture is gravelly loam. The reaction is neutral or slightly alkaline. The content of rock fragments is 15 to 35 percent.

*C horizons:* The texture is very stony loam, extremely stony loam, extremely gravelly loam, very cobbly sandy loam, or very cobbly loam. The reaction is moderately alkaline. The hue is 2.5YR. The content of rock fragments is 35 to 70 percent.

#### Spectacle Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* mesa, mountain slope

*Parent material:* till and colluvium from mixed sources

*Elevation:* 8,000 to 8,800 feet

*Slope:* 5 to 30 percent

*Climatic data:*

*Average annual precipitation:* 18 to 20 inches

*Average annual temperature:* 40 to 42 degrees F.

*Frost-free period:* 60 to 80 days

*Taxonomic class:* Clayey-skeletal, mixed Pachic Argiborolls

#### Typical Pedon

*Map unit in which located:* Spectacle-Kinesava loams, 5 to 30 percent slopes

*Location in survey area:* about 700 feet east and 1,350 feet south of the northwest corner of Sec. 8, T. 42 N., R. 13 W.

- A—0 to 10 inches; very dark grayish brown (10YR 3/2) loam, black (10YR 2/1) moist; strong fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral; clear smooth boundary.
- BA—10 to 23 inches; very dark grayish brown (10YR 3/2) very cobbly clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; 10 percent gravel and 25 percent cobbles; neutral; clear smooth boundary.
- Bt—23 to 34 inches; yellowish brown (10YR 5/6) very cobbly clay loam, yellowish brown (10YR 5/4) moist; moderate medium angular blocky structure; extremely hard, firm, sticky and plastic; 10 percent gravel, 40 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.
- C—34 to 60 inches; very pale brown (10YR 7/4) clay, light yellowish brown (10YR 6/4) moist; massive; extremely hard, firm, sticky and plastic; 5 percent gravel; neutral.

#### Range in Characteristics

The mollic epipedon is 16 to 24 inches thick. The solum is 26 to 38 inches thick. The particle-size control section is 35 to 60 percent rock fragments.

*A horizon:* The hue is 2.5Y or 10YR.

*BA horizon:* The hue is 2.5Y or 10YR. The texture is loam, clay loam, and very cobbly clay loam.

*Bt horizon:* The hue is 10YR or 7.5YR. The texture is very cobbly clay, very gravelly clay loam, and very cobbly clay loam. The content of rock fragments is 35 to 60 percent. The clay content is 35 to 45 percent.

*C horizon:* The hue is 2.5Y or 10YR. The texture is clay, extremely cobbly clay loam, and very cobbly clay loam; the glacial drift source material is heterogeneous.

#### Tellura Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, mountain slope, structural bench

*Parent material:* till, outwash, and colluvium from mixed sources

*Elevation:* 8,500 to 10,500 feet

*Slope:* 5 to 40 percent

*Climatic data:*

*Average annual precipitation:* 20 to 26 inches

*Average annual temperature:* 35 to 40 degrees F.

*Frost-free period:* 40 to 70 days

*Taxonomic class:* Clayey-skeletal, montmorillonitic Argic Cryoborolls

#### Typical Pedon

*Map unit in which located:* Tellura-Leaps clay loams, 5 to 40 percent slopes

*Location in survey area:* about 600 feet north and 1,600 feet east of the southwest corner of Sec. 15, T. 44 N., R. 10 W.

- A—0 to 10 inches, dark gray (10YR 4/1) clay loam, black (10YR 2/1) moist; strong fine granular structure; soft, very friable, slightly plastic, slightly sticky; 5 percent gravel and 5 percent cobble; neutral; clear smooth boundary.
- BA—10 to 14 inches, dark gray (10YR 4/1) clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure parting to coarse granular; slightly hard, very friable, slightly sticky and slightly plastic; glossy patches on some faces of peds and in some root channels and pores; 5 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.
- Bt—14 to 30 inches, yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; thin continuous clay films on peds and as coatings on the inside of root channels and pores; clay films also coat the outside of many rock fragments; 30 percent gravel and 10 percent cobbles; neutral; gradual smooth boundary.
- BC—30 to 36 inches, yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; weak coarse angular blocky structure; hard, firm, sticky and plastic; few thin clay films on faces of peds and in root channels and pores; 35 percent gravel and 15 percent cobbles; neutral; gradual smooth boundary.
- C—36 to 60 inches, brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; massive; extremely hard, very firm, sticky and plastic; 35 percent gravel and 15 percent cobbles; neutral.

#### Range in Characteristics

The particle-size control section is 35 to 60 percent rock fragments. Calcium carbonate may occur at a depth of 40 to 60 inches. Bedrock is at a depth of 60 inches or more.

*A horizon:* The hue is 5Y through 7.5YR.

*Bt horizon:* The hue is 5Y through 7.5YR. The clay content is 35 to 50 percent.

*C horizon:* The hue is 5Y through 7.5YR. The texture is very gravelly clay and very gravelly clay loam.

## Typic Torriorthents

*Depth class:* very shallow to moderately deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* hill, ridge

*Parent material:* residuum weathered from shale

*Elevation:* 6,300 to 7,600 feet

*Slope:* 3 to 80 percent

*Climatic data:*

*Average annual precipitation:* 8 to 11 inches

*Average annual temperature:* 43 to 47 degrees F.

*Frost-free period:* 80 to 120 days

*Taxonomic class:* Typic Torriorthents

### Reference Pedon

*Map unit in which located:* Typic Torriorthents, 3 to 80 percent slopes

*Location in survey area:* about 2,000 feet west and 150 feet north of the southeast corner of Sec. 25, T. 42 N., R. 15 W.

A—0 to 2 inches; light brownish gray (10YR 6/2) channery silty clay loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to moderate very fine granular; slightly hard, very friable, slightly sticky and plastic; 15 percent gray shale chips; violently effervescent; slightly alkaline; abrupt smooth boundary.

C—2 to 4 inches; light brownish gray (10YR 6/2) very channery silty clay loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and plastic; 40 percent gray shale chips; violently effervescent; slightly alkaline; abrupt smooth boundary.

Cr—4 inches; calcareous gray soft shale.

### Range in Characteristics

These soils are extremely variable in characteristics. The depth to shale ranges from 2 to 40 inches. The clay content ranges from 18 to 40 percent.

*C horizon:* Soft shale fragments range from 15 to 50 percent.

## Ustic Torriorthents

*Depth class:* shallow to very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* break, hill, landslide, mesa, ridge, structural bench, terrace

*Parent material:* colluvium and residuum derived from sandstone and shale, colluvium and residuum weathered from sandstone and shale, mass

movement deposits and residuum weathered from sandstone and shale, residuum weathered from sandstone and shale

*Elevation:* 5,400 to 6,800 feet

*Slope:* 3 to 50 percent

*Climatic data:*

*Average annual precipitation:* 10 to 14 inches

*Average annual temperature:* 46 to 48 degrees F.

*Frost-free period:* 100 to 130 days

*Taxonomic class:* Ustic Torriorthents

### Reference Pedon

*Map unit in which located:* Bodot, dry-Ustic

Torriorthents complex, 5 to 50 percent slopes

*Location in survey area:* about 2,000 feet north and 1,200 feet east of the southwest corner of Sec. 15, T. 46 N., R. 17 W.

A—0 to 4 inches; light brown (7.5YR 6/4) bouldery clay loam, brown (7.5YR 4/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; 10 percent gravel, 5 percent cobbles, 15 percent stones and boulders; strongly effervescent; moderately alkaline; clear wavy boundary.

C—4 to 31 inches; light gray (2.5Y 7/2) cobbly clay loam, light olive brown (2.5Y 5/4) moist; massive; hard, friable, sticky and plastic; 10 percent gravel, 15 percent cobbles, 5 percent stones; violently effervescent; moderately alkaline; clear wavy boundary.

Cr—31 inches; gray shale.

### Range in Characteristics

These soils are extremely variable in characteristics. The depth to shale ranges from 10 to 60 inches or more. The particle-size control section is 15 to 35 percent rock fragments, and the clay content is 27 to 60 percent.

*A horizon:* The hue is 7.5YR, 2.5YR, 2.5Y, 10YR. The texture is bouldery clay loam, stony loam, bouldery sandy loam, very gravelly clay loam, or clay loam.

*C horizon:* The hue is 2.5YR, 2.5Y, 5Y, 5YR. The texture is cobbly clay loam, silty clay loam, clay, or clay loam.

## Ustochreptic Calciorthids

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* terrace

*Parent material:* mass movement deposits and residuum weathered from sandstone and shale

*Elevation:* 6,000 to 6,800 feet

*Slope:* 3 to 30 percent

*Climatic data:*

*Average annual precipitation:* 12 to 14 inches

*Average annual temperature:* 46 to 48 degrees F.

*Frost-free period:* 100 to 130 days

*Taxonomic class:* Ustochreptic Calciorthids

#### Reference Pedon

*Map unit in which located:* Ustic Torriorthents-

Ustochreptic Calciorthids complex, 3 to 30 percent slopes

*Location in survey area:* about 2,200 feet west and 200 feet south of the northeast corner of Sec. 2, T. 43 N., R. 17 W.

A—0 to 9 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable, sticky and slightly plastic; 22 percent calcium carbonate equivalent; strongly effervescent; 45 percent gravel, 5 percent cobbles; moderately alkaline; clear smooth boundary.

2Bk1—9 to 24 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; moderate fine subangular blocky structure; hard, friable, sticky and slightly plastic; 30 percent calcium carbonate equivalent; visible few medium soft masses of calcium carbonates; strongly effervescent; moderately alkaline; clear smooth boundary.

3Bk2—24 to 60 inches; light reddish brown (5YR 6/3) gravelly clay, reddish brown (5YR 5/3) moist; massive; very hard, very firm, sticky and plastic; 11 percent calcium carbonate equivalent; visible few medium soft masses of calcium carbonates; strongly effervescent; 10 percent gravel, 5 percent cobbles, 5 percent stones; moderately alkaline.

#### Range in Characteristics

The particle-size control section averages 10 to 20 percent rock fragments. Some pedons have a Bw horizon.

*A horizon:* The hue is 10YR or 7.5YR. The content of rock fragments is 35 to 55 percent.

*Bk horizons:* The hue is 2.5Y, 10YR, 7.5YR, or 5YR.

#### Vananda Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, terrace, valley floor

*Parent material:* alluvium derived from shale

*Elevation:* 5,500 to 6,800 feet

*Slope:* 1 to 6 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine, montmorillonitic (calcareous), mesic Ustic Torriorthents

#### Typical Pedon

*Map unit in which located:* Vananda silty clay, 1 to 6 percent slopes

*Location in survey area:* about 200 feet east and 400 feet north of the southwest corner of Sec. 16, T. 44 N., R. 16 W.

A—0 to 6 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and plastic; strongly effervescent; slightly alkaline; clear smooth boundary.

AC—6 to 17 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; very hard, friable, slightly sticky and plastic; strongly effervescent; moderately alkaline; clear wavy boundary.

C1—17 to 45 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; massive; very hard, friable, slightly sticky and plastic; strongly effervescent; moderately alkaline; clear wavy boundary.

C2—45 to 60 inches; light brownish gray (2.5Y 6/2) silty clay, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and plastic; slightly effervescent; moderately alkaline.

#### Range in Characteristics

The hue is 10YR or 2.5Y. Coarse fragments in the particle-size control section range from 0 to 10 percent, and are predominantly channer-sized. The particle-size control section is silty clay or clay, and the clay content is 40 to 50 percent.

#### Winnett Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* extremely slow

*Landform:* drainageway, valley floor

*Parent material:* alluvium derived from shale

*Elevation:* 6,300 to 6,700 feet

*Slope:* 1 to 3 percent

*Climatic data:*

*Average annual precipitation:* 10 to 12 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine, montmorillonitic, mesic

Ustollic Natrargids

### Typical Pedon

*Map unit in which located:* Winnett silty clay loam, 1 to 3 percent slopes

*Location in survey area:* about 2,200 feet east and 2,600 feet north of the southwest corner of Sec. 8, T. 44 N., R. 16 W.

- E—0 inches to 1 inch; light brown (7.5YR 6/4) silty clay loam, brown (7.5YR 5/4) moist; strong fine granular structure; very hard, friable, sticky and plastic; common discontinuous random vesicular pores; violently effervescent; moderately alkaline; abrupt smooth boundary.
- Btn1—1 inch to 2 inches; pink (7.5YR 7/4) silty clay, brown (7.5YR 4/4) moist; strong medium columnar structure parting to strong fine angular blocky; extremely hard, firm, sticky and plastic; common discontinuous random vesicular pores; violently effervescent; very strongly alkaline; clear smooth boundary.
- Btn2—2 to 6 inches; light brown (7.5YR 6/4) silty clay, brown (7.5YR 5/4) moist; strong fine angular blocky structure; very hard, friable, sticky and plastic; many fine roots; violently effervescent; very strongly alkaline; clear smooth boundary.
- C—6 to 37 inches; light brown (7.5YR 6/4) silty clay loam, brown (7.5YR 5/4) moist; massive; hard, very friable, very sticky and plastic; violently effervescent; strongly alkaline; clear wavy boundary.
- Ck—37 to 60 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; massive; very hard, firm, sticky and plastic; common fine calcium carbonate threads; violently effervescent; moderately alkaline.

### Range in Characteristics

The solum is 6 to 12 inches thick. The hue is 7.5YR or 10YR. An A horizon is present in some pedons.

*Btn horizons:* The clay content is 35 to 50 percent.

*C horizons:* The texture is silty clay or silty clay loam.

### Winz Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa

*Parent material:* colluvium

*Elevation:* 8,000 to 9,200 feet

*Slope:* 20 to 70 percent

*Climatic data:*

*Average annual precipitation:* 20 to 24 inches

*Average annual temperature:* 37 to 39 degrees F.

*Frost-free period:* 50 to 80 days

*Taxonomic class:* Clayey-skeletal, montmorillonitic

Mollic Cryoboralfs

### Typical Pedon

*Map unit in which located:* Winz-Rock outcrop complex, 20 to 90 percent slopes, very stony

*Location in survey area:* about 1,150 feet south and 400 feet west of the northeast corner of Sec. 35, T. 43 N., R. 10 W.

- Oi—3 to 2 inches; partially decomposed leaves and twigs.
- Oe—2 inches to 0; intermediately decomposed leaves and twigs.
- A—0 to 9 inches; very dark grayish brown (10YR 3/2) extremely stony loam, black (10YR 2/1) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; 30 percent cobbles and 35 percent stones; neutral; abrupt smooth boundary.
- E—9 to 17 inches; light gray (10YR 7/2) extremely stony clay loam, grayish brown (10YR 5/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and plastic; 10 percent gravel, 25 percent cobbles, and 40 percent stones; neutral; abrupt smooth boundary.
- BE—17 to 23 inches; brown (10YR 5/3) extremely stony clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; very hard, friable, sticky and plastic; 10 percent gravel, 25 percent cobbles, and 35 percent stones; neutral; clear smooth boundary.
- Bt1—23 to 31 inches; brown (10YR 5/3) very stony clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, friable, sticky and plastic; 30 percent cobbles and 30 percent stones; neutral; clear smooth boundary.
- Bt2—31 to 53 inches; brown (10YR 5/3) very stony clay, brown (10YR 4/3) moist; strong coarse subangular blocky structure; extremely hard, very firm, slightly sticky and plastic; 35 percent cobbles and 25 percent stones; neutral; clear wavy boundary.

Bt3—53 to 60 inches; brown (10YR 5/3) extremely stony clay loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure; extremely hard, very firm, slightly sticky and plastic; 35 percent cobbles and 40 percent stones; neutral.

#### Range in Characteristics

The particle-size control section is clay or clay loam in the fine earth fraction, and the clay content is 35 to 50 percent. The content of rock fragments is 50 to 75 percent.

*A horizon:* The texture is extremely stony loam or very stony clay loam.

*Bt horizons:* The hue is 10YR or 2.5Y. The texture is extremely stony clay, extremely stony clay loam, very stony clay, or very stony clay loam.

### Witt Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* slow

*Landform:* mesa, ridge, structural bench

*Parent material:* eolian deposits derived from sandstone, eolian deposits derived from sandstone, reworked by water

*Elevation:* 6,000 to 7,400 feet

*Slope:* 1 to 12 percent

*Climatic data:*

*Average annual precipitation:* 11 to 15 inches

*Average annual temperature:* 45 to 48 degrees F.

*Frost-free period:* 100 to 130 days

*Taxonomic class:* Fine-silty, mixed, mesic Ustollic Haplargids

#### Typical Pedon

*Map unit in which located:* Witt loam, dry, 1 to 12 percent slopes

*Location in survey area:* about 1,200 feet west and 2,000 feet north of the southeast corner of Sec. 16, T. 46 N., R. 18 W.

A—0 to 9 inches; reddish brown (5YR 5/3) loam, reddish brown (5YR 4/3) moist; moderate medium granular structure; slightly hard, very friable, nonsticky and slightly plastic; slightly alkaline; clear smooth boundary.

BA—9 to 12 inches; reddish brown (5YR 5/3) clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; slightly alkaline; clear wavy boundary.

Bt1—12 to 19 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate

medium and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; slightly effervescent; moderately alkaline; clear smooth boundary.

Bt2—19 to 31 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 5/4) moist; moderate medium subangular blocky structure; very hard, firm, sticky and slightly plastic; few fine calcium carbonate masses as seams; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk1—31 to 35 inches; pink (5YR 7/4) loam, reddish brown (5YR 5/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; 28 percent calcium carbonate equivalent; violently effervescent; calcium carbonate disseminated throughout; moderately alkaline; clear smooth boundary.

Bk2—35 to 42 inches; pink (5YR 8/3) loam, pink (5YR 7/3) moist; massive; hard, friable, slightly sticky and slightly plastic; 33 percent calcium carbonate equivalent; violently effervescent; calcium carbonate disseminated throughout; moderately alkaline; clear smooth boundary.

C—42 to 60 inches; pink (5YR 7/4) loam, reddish brown (5YR 5/4) moist; massive; very hard, friable, slightly sticky and slightly plastic; 16 percent calcium carbonate equivalent; violently effervescent; calcium carbonate disseminated throughout; moderately alkaline.

#### Range in Characteristics

The solum is 30 to 48 inches thick. Calcareous material is at a depth of 8 to 20 inches. Secondary calcium carbonate is at a depth of 30 to 55 inches. The particle-size control section is clay loam or silty clay loam, and the clay content is 27 to 35 percent.

*Bk horizons:* The texture is loam or silt loam. The calcium carbonate equivalent is 15 to 45 percent.

### Wrayha Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* ridge

*Parent material:* residuum weathered from shale

*Elevation:* 7,000 to 7,800 feet

*Slope:* 3 to 40 percent

*Climatic data:*

*Average annual precipitation:* 14 to 16 inches

*Average annual temperature:* 43 to 45 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Fine, montmorillonitic (calcareous), frigid Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Wrayha stony clay loam, 3 to 40 percent slopes

*Location in survey area:* about 1,200 feet east and 2,300 feet north of the southwest corner of Sec. 9, T. 48 N., R. 19 W.

A—0 to 7 inches; brown (7.5YR 5/2) stony clay loam, brown (7.5YR 4/2) moist; moderate medium fine granular structure; slightly hard, very friable, sticky and plastic; 5 percent gravel and 15 percent stones; slightly alkaline; clear wavy boundary.

C—7 to 60 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; massive; very hard, firm, sticky and plastic; violently effervescent; moderately alkaline.

### Range in Characteristics

*A horizon:* The hue is 7.5YR or 5YR. The content of rock fragments is 15 to 30 percent.

*C horizon:* The hue is 7.5YR to 2.5Y. The texture is clay or clay loam. The clay content is 35 to 50 percent.

## Zoltay Series

*Depth class:* very deep

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, canyon, mesa

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 6,800 to 8,500 feet

*Slope:* 0 to 15 percent

*Climatic data:*

*Average annual precipitation:* 16 to 19 inches

*Average annual temperature:* 41 to 45 degrees F.

*Frost-free period:* 70 to 110 days

*Taxonomic class:* Fine, montmorillonitic Pachic Argiborolls

### Typical Pedon

*Map unit in which located:* Zoltay loam, 3 to 15 percent slopes

*Location in survey area:* about 1,700 feet west and 800 feet north of the southeast corner of Sec. 36, T. 44 N., R. 14 W.

A—0 to 6 inches; brown (10YR 4/3) loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable; slightly alkaline; clear smooth boundary.

BA—6 to 14 inches; dark grayish brown (10YR 4/2) clay loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; neutral; gradual smooth boundary.

Bt1—14 to 23 inches; very dark grayish brown (10YR 3/2) cobbly clay, very dark gray (10YR 3/1) moist; weak moderate prismatic structure parting to strong medium angular blocky; very hard, firm, sticky and plastic; 10 percent gravel, 10 percent cobble; neutral; clear wavy boundary.

Bt2—23 to 29 inches; yellowish brown (10YR 5/4) cobbly clay, brown (7.5YR 4/4) moist; medium coarse angular blocky structure parting to strong medium angular blocky; very hard, firm, sticky and plastic; 10 percent gravel, 15 percent cobble, 5 percent stones; slightly effervescent; slightly alkaline; clear wavy boundary.

Bk1—29 to 46 inches; yellowish brown (10YR 5/6) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; hard, firm, sticky and plastic; 25 percent gravel, 15 percent cobble, 10 percent stones; strongly effervescent; slightly alkaline; gradual wavy boundary.

Bk2—46 to 60 inches; light yellowish brown (10YR 6/4) cobbly clay loam, yellowish brown (10YR 5/4) moist; weak medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; 10 percent gravel, 20 percent cobble, 5 percent flagstones; calcium carbonate disseminated throughout; violently effervescent; moderately alkaline.

### Range in Characteristics

The mollic epipedon is 16 to 26 inches thick.

Calcium carbonate is at a depth of 23 to 31 inches.

*A horizon:* The hue is 10YR or 7.5YR. The texture is loam or clay loam. The content of rock fragments is 0 to 5 percent, and the fragments are predominantly gravel-sized. The reaction is neutral or slightly alkaline.

*Bt horizons:* The hue is 10YR or 7.5YR. The texture is cobbly clay, cobbly clay loam, clay loam, silty clay loam, or clay. The clay content is 35 to 45 percent. The content of rock fragments is 5 to 35 percent, and the fragments are predominantly gravel- and cobble-sized. The reaction is neutral to moderately alkaline.

*Bk horizons:* The hue is 10YR or 2.5Y. The texture is very cobbly clay loam, cobbly clay loam, silty clay loam, clay loam, or clay. The content of rock fragments is 5 to 55 percent, and the fragments are predominantly gravel- and cobble-sized.

## Zyme Series

*Depth class:* shallow

*Drainage class:* well drained

*Permeability:* very slow

*Landform:* alluvial fan, hill, ridge

*Parent material:* residuum weathered from shale

*Elevation:* 6,300 to 7,500 feet

*Slope:* 3 to 30 percent

*Climatic data:*

*Average annual precipitation:* 10 to 15 inches

*Average annual temperature:* 45 to 47 degrees F.

*Frost-free period:* 90 to 110 days

*Taxonomic class:* Clayey, montmorillonitic  
(calcareous), mesic, shallow Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Bodot-Zyme silty clay loams, dry, 3 to 20 percent slopes

*Location in survey area:* about 2,250 feet west and

2,100 feet south of the northeast corner of Sec. 21, T. 44 N., R. 16 W.

A—0 to 6 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; strongly effervescent; slightly alkaline; clear smooth boundary.

C—6 to 15 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, sticky and plastic; 15 percent shale fragments; slightly effervescent; slightly alkaline; clear wavy boundary.

Cr—15 inches; weathered gray shale.

### Range in Characteristics

The hue is 2.5Y or 10YR. Shale is at a depth of 10 to 20 inches.

*C horizons:* Shale fragments range from 5 to 15 percent. The texture is clay loam, clay, or silty clay loam. The clay content is 35 to 45 percent.



# Formation of the Soils

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Soil formation involves a complex set of internal and external processes. The internal processes involve additions of organic and mineral material to the soil as solids, liquids, and gases; losses of these from the soil; translocation of material from one point to another within the soil; and transformation of mineral and organic substances within the soil (Buol, 1980).

The character and development of soils are controlled by external factors (Buol, 1980). Almost from the beginning of soil science in 1883, five general external factors of soil formation have been used as a basis for organizing pedological investigations and the gathered data. These are parent material, climate, plant and animal life, relief, and relative age of the soil. These factors are considered to be interdependent. In the following paragraphs, these factors are discussed separately as they relate to the formation of the soils in this survey area.

## Climate

Climate influences the kind of vegetation that grows on soils, the level of biological activity in soils, and the physical and chemical weathering of parent material. Precipitation and air temperature are important factors of soil formation. Wind velocity and humidity also have an influence.

The survey area has a wide climatic range. The Disappointment Valley has a desert climate. The average annual air temperature is 49 to 51 degrees F., and the average annual precipitation is 8 to 10 inches. The higher mesas and mountains have an average annual air temperature of 35 to 40 degrees F., and an average annual precipitation of 22 to 30 inches. Assuming the same relief and water intake rates with increasing precipitation, the acidity of the soil increases, the depth to carbonates increases, and the content of clay in the subsoil increases.

## Living Organisms

Living organisms are an active factor in soil formation. The kinds of organisms that live on and in

the soil are determined by climate, parent material, topography, and age of the soil.

Organic matter accumulation, profile mixing, nutrient cycling, and structural stability are all made possible by the presence of organisms in the soil. Nitrogen is added to the soil by microorganisms. Plant cover reduces the natural erosion rate and slows the rate of removal of mineral surface material.

The effects of vegetation on soil formation can be seen by comparing the properties of forest soils with those of grassland soils. The subsurface organic matter content of the grassland soils is much higher than that of the forest soils. The grass litter has a higher base status than the forest litter, and leaching occurs less often in grassland soils as compared with forest soils.

## Relief

The relief of the land may either hasten or diminish the influence of climate. In smooth, flat country, the excess water is removed more slowly than in hilly terrain. The hilly relief encourages some natural erosion of the surface layer. In flat relief, water may stand for a period of time and negate the climatic influence on soil development.

Aspect and elevation affect soil formation by varying the heating of the soil surface by the sun; the exposure of the soil to wind; the exposure of the soil to precipitation, including snowfall and snowdrifts; conditions for natural drainage; the conditions for runoff and erosion; and the conditions for accumulation and removal of deposits by the wind.

## Parent Material

Parent material is a very significant factor in soil formation. The soils in this survey area formed in many different types of parent material. The varying physical and chemical properties of the different types of parent material result in the formation of different soils. Texture, color, consistence, and other soil properties are largely determined by the type of parent material.

Following is a description of the major types of parent material in the survey area.

### **Residuum Derived Dominantly From Sandstone or Interbedded Sandstone and Shale.**

Soils that formed in this parent material commonly are shallow or moderately deep. The texture is moderately coarse, medium, or moderately fine. Fivepine, Gladel, Gurley, Beje, Pinon, and Skein soils are some of the soils that formed in this parent material. These soils occur throughout most of the survey area, except in the higher elevations.

### **Residuum Derived From Shale.**

These soils are fine textured, are relatively impermeable, and have colors similar to those of the parent shale. Bodot, Chipeta, Deaver, Killpack, Persayo, and Zyme soils developed in this type of parent material.

### **Alluvium.**

Soils forming in alluvium are on valley floors and on the higher terraces. Some of the soils that formed in this parent material are Abra, Acree, Barx, Begay, Callan, Clapper, Delson, Evanston, Fruitland, Minchey, Nyswonger, Paradox, Redlands, Vananda, and Winnett soils. These soils commonly are very deep and have a wide range of textures.

### **Eolian Deposits.**

Soils forming in this parent material commonly have much sand and silt. They have few rock fragments. The western edge of the survey area has this parent material, which is characterized by a high percentage of very fine sand. These are the Witt and Monticello soils.

## **Time**

Time zero for soils is the point at which a pedologically catastrophic event is completed, initiating a new cycle of soil development. The catastrophe may be a sudden change in topography of land surface caused by geologic uplift, erosion, or human-initiated accelerated erosion. Sudden changes in vegetation may occur with the felling of a forest and the introduction of cropping. A change in the initial material may be caused by a significant sedimentary deposit.

The actual length of time that soil is subjected to weathering greatly influences soil formation. Soils that formed in alluvial materials generally have not had as much time to develop as have those on the surrounding uplands.

The interaction among the soil-forming factors is always at work. The time it takes for a soil to develop is related to the parent material, the climate, and the vegetation.

Soil characteristics reflect the length of time a landform has been stable. Soil development or aging is reflected by such characteristics as degree of structure, evidence of clay movement, depth to calcium carbonate accumulations, thickness of the solum, and stratification. A good example of soil aging is illustrated by comparing Mikim and Barx soils. Mikim soils are younger; this determination is based primarily upon the less stable landscape upon which these soils occur. As a result, the calcium carbonate is not leached from the surface layer and there is little evidence of clay movement. Some Mikim soils also have stratification. The Barx soils, on the other hand, occur on a more stable upland landscape. The calcium carbonate is leached from the surface layer of the Barx soils, and there is evidence of clay movement. The Barx soils have stronger structure and a deeper solum than the Mikim soils.

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# Glossary

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**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**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.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction in which a slope faces.

**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. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**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.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded,

or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.
- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- 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.
- Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- 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 has 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 has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See Linear extensibility.

**Colluvium.** Soil material or 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.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of 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.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to

penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**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.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**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.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

**Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either

through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the "Soil Survey Manual."

**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.

**Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological 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 ecological sites in kind and/or proportion of species or in total production.

**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.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture.

Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**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.

**Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**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.

**Glacial drift.** Pulverized and other rock material transported by glacial ice and then deposited.

Also, the sorted and unsorted material deposited by streams flowing from glaciers.

**Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the

subdivisions is given in the "Soil Survey Manual."

The major horizons of mineral soil are as follows:

*O horizon*.—An organic layer of fresh and decaying plant residue.

*A horizon*.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon*.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon*.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon*.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon*.—Soft, consolidated bedrock beneath the soil.

*R layer*.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**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.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasesers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

**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.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the 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.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin*.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border*.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Controlled flooding*.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation*.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle)*.—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow*.—Water is applied in small ditches made by

cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**$K_{sat}$ .** Saturated hydraulic conductivity. (See Permeability.)

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**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.** The soil is not strong enough to support loads.

**Major Land Resource Area.** A geographic area, usually several million acres in extent, that is characterized by a particular pattern of soils, climate, water resources, and land uses. It is a category in a USDA system of land classification that is applied to all land of the United States. Identification of these areas is important in

statewide resource planning and has value in interstate, regional, and national planning.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Mesa.** A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

**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.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**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. 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. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**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.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**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.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**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 movement of water through the soil.

**Percolates slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this

rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow .....	0.0 to 0.01 inch
Very slow .....	0.01 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, 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.** See Climax plant community.

**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.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**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.

**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:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly 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

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**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.

**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.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Salinity (in map unit descriptions).** The degree to which a soil is affected by soluble salts. Salinity is expressed as the electrical conductivity of the saturation extract in millimhos per centimeter at 25 degrees C. The degrees of salinity and their respective conductivities in millimhos per centimeter are:

Nonsaline .....	0 to 2
Very slightly saline .....	2 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.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**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 (in tables).** The movement of water through the soil. Seepage adversely affects the specified use.

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture

of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell potential (in map unit descriptions).**

A measure of the potential expansion of a soil upon wetting, also termed "linear extensibility". It is the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is expressed as the volume change, as a percent of the whole soil, from the water content of a clod at  $\frac{1}{3}$ -bar tension (33kPa) to oven dryness. As used in the map unit descriptions, classes of shrink swell potential are based on the thickest layer between a depth of 10 and 60 inches. The classes and their respective values of percent linear extensibility are:

Low .....	0 to 3
Moderate .....	3 to 6
High .....	6 to 9
Very high .....	more than 9

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

**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.

**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 based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75. Site index is expressed in a different way for species of pinyon and juniper. For these tree species site index is the basal area attained when trees in a stand average 5 inches in diameter.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip

surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

**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.

**Slope (in tables).** Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slow intake (in tables).** The slow movement of water into the soil.

**Slow refill (in tables).** The slow filling of ponds, resulting from restricted permeability in 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 .....	0
Slight .....	0 to 13:1
Moderate .....	13 to 30:1
Strong .....	more than 30:1

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and

sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

- Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. In the San Miguel Area, Bk horizons were not considered part of the solum. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. 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 15 to 24 inches (38 to 60 centimeters) in length if flat.
- Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.
- Strippcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.
- 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 grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).
- Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.
- 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.
- Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where

annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

- Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.
- Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”
- Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.
- 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. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- Terrace (geologic).** An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.
- 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.”
- Thin layer (in tables).** Otherwise suitable soil material that is too thin for the specified use.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.
- Too arid (in tables).** The soil is dry most of the time, and vegetation is difficult to establish.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily

rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**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.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The uprooting and tipping over of trees by the wind.



# Tables

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Table 1.--Temperature and precipitation

(Recorded in the period 1961-90 at Norwood, CO)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In		In	
January-----	36.9	8.2	22.5	53	-19	0	0.95	0.44	1.39	3	12.5
February----	41.7	14.2	27.9	58	-13	4	0.80	0.37	1.17	3	9.9
March-----	48.0	21.4	34.7	67	-5	36	1.18	0.41	1.81	4	11.8
April-----	57.6	27.2	42.4	75	6	133	1.06	0.54	1.57	3	6.2
May-----	67.4	35.0	51.2	82	17	341	1.08	0.44	1.68	3	0.8
June-----	78.4	42.7	60.6	92	27	604	0.87	0.30	1.39	2	0.0
July-----	83.4	49.2	66.3	93	37	800	1.96	1.00	2.79	5	0.0
August-----	80.7	48.0	64.3	91	34	744	1.78	0.75	2.76	5	0.0
September---	72.7	41.0	56.8	86	23	495	1.76	0.50	2.77	4	0.0
October-----	61.3	31.0	46.2	78	9	216	1.61	0.70	2.49	3	3.4
November----	47.7	20.7	34.2	66	-3	29	1.23	0.65	1.81	3	6.3
December----	38.1	11.2	24.7	55	-16	1	1.14	0.52	1.67	4	12.3
Yearly:											
Average---	59.5	29.1	44.3	---	---	---	---	---	---	---	---
Extreme---	97	-31	---	94	-22	---	---	---	---	---	---
Total-----	---	---	---	---	---	3403	15.40	12.80	17.67	42	63.2

\* 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 1.--Temperature and precipitation

(Recorded in the period 1961-90 at Telluride, CO)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In		In	
January-----	37.6	6.2	21.9	55	-22	0	1.54	0.79	2.20	5	29.5
February----	40.3	9.2	24.7	58	-17	0	1.48	0.77	2.11	5	25.9
March-----	43.7	15.3	29.5	62	-10	7	2.07	1.14	2.89	6	36.1
April-----	52.4	22.9	37.7	70	2	57	1.89	1.06	2.63	5	24.2
May-----	62.5	30.4	46.5	78	15	219	1.79	0.86	2.59	5	8.8
June-----	73.3	36.3	54.8	87	24	445	1.30	0.47	1.99	3	0.9
July-----	77.9	42.6	60.2	88	32	626	2.60	1.72	3.40	8	0.0
August-----	75.2	41.7	58.4	87	30	571	2.86	1.56	4.00	8	0.0
September---	68.9	35.0	52.0	83	19	358	2.42	1.10	3.55	6	0.7
October-----	60.2	26.0	43.1	77	7	143	2.21	0.91	3.31	5	11.4
November----	46.4	16.5	31.5	67	-8	13	1.75	0.88	2.51	5	25.8
December----	38.2	8.4	23.3	56	-17	0	1.72	0.75	2.55	5	31.0
Yearly:											
Average---	56.4	24.2	40.3	---	---	---	---	---	---	---	---
Extreme---	93	-32	---	89	-24	---	---	---	---	---	---
Total-----	---	---	---	---	---	2440	23.64	20.16	26.99	66	194.2

\* 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 1.--Temperature and precipitation

(Recorded in the period 1961-90 at Uravan, CO)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In		In	
January-----	41.1	14.3	27.7	57	-10	3	0.89	0.33	1.42	3	4.5
February----	49.4	21.7	35.6	67	1	28	0.62	0.25	1.01	2	0.6
March-----	57.9	28.8	43.4	77	14	145	1.00	0.36	1.59	3	0.4
April-----	67.7	35.5	51.6	85	19	349	1.01	0.39	1.53	3	0.3
May-----	78.2	44.2	61.2	94	30	641	1.00	0.35	1.59	3	0.0
June-----	89.2	52.0	70.6	103	38	885	0.45	0.13	0.80	1	0.0
July-----	94.9	59.0	77.0	105	48	1118	1.35	0.58	2.01	4	0.0
August-----	92.0	57.7	74.8	103	46	1062	1.42	0.56	2.14	4	0.0
September---	83.5	48.0	65.7	98	33	754	1.30	0.39	2.04	3	0.0
October-----	71.7	36.8	54.2	88	23	432	1.53	0.45	2.41	3	0.2
November----	54.8	26.9	40.9	72	10	97	1.09	0.63	1.56	3	0.8
December----	42.7	17.9	30.3	59	-4	6	0.95	0.32	1.46	3	3.7
Yearly:											
Average---	68.6	36.9	52.7	---	---	---	---	---	---	---	---
Extreme---	110	-23	---	105	-12	---	---	---	---	---	---
Total-----	---	---	---	---	---	5521	12.60	9.91	14.93	35	10.3

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F)

Table 2.--Freeze dates in spring and fall

(Recorded in the period 1961-90 at Norwood, CO)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 29	June 16	July 1
2 years in 10 later than--	May 23	June 8	June 24
5 years in 10 later than--	May 10	May 26	June 12
First freezing temperature in fall:			
1 year in 10 earlier than--	September 17	September 14	August 25
2 years in 10 earlier than--	September 24	September 19	September 1
5 years in 10 earlier than--	October 6	September 29	September 15

Table 2.--Freeze dates in spring and fall

(Recorded in the period 1961-90 at Telluride, CO)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	June 13	June 27	July 9
2 years in 10 later than--	June 6	June 21	July 4
5 years in 10 later than--	May 24	June 12	June 24
First freezing temperature in fall:			
1 year in 10 earlier than--	September 12	August 27	August 12
2 years in 10 earlier than--	September 18	September 2	August 18
5 years in 10 earlier than--	September 27	September 3	August 31

Table 2.--Freeze dates in spring and fall

(Recorded in the period 1961-90 at Uravan, CO)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 18	April 29	May 18
2 years in 10 later than--	April 12	April 24	May 13
5 years in 10 later than--	April 1	April 14	May 3
First freezing temperature in fall:			
1 year in 10 earlier than--	October 24	October 20	September 28
2 years in 10 earlier than--	October 29	October 22	October 3
5 years in 10 earlier than--	November 6	October 28	October 11

Table 3.--Growing season

(Recorded for the period 1961-90 at Norwood, CO)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	119	98	68
8 years in 10	129	107	78
5 years in 10	147	125	96
2 years in 10	166	143	113
1 year in 10	175	153	123

Table 3.--Growing season

(Recorded for the period 1961-90 at Telluride, CO)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	99	69	40
8 years in 10	108	77	49
5 years in 10	125	93	67
2 years in 10	143	109	85
1 year in 10	152	117	94

Table 3.--Growing season

(Recorded for the period 1961-90 at Uravan, CO)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	197	180	144
8 years in 10	204	185	150
5 years in 10	217	196	162
2 years in 10	231	207	173
1 year in 10	238	212	179

Table 4.--Acreage and proportionate extent of the soils

Map symbol	Soil name	Dolores	Montrose	San Miguel	Total	
		County	County	County	Area	Extent
		Acres	Acres	Acres	Acres	Pct
1	Abra loam, 1 to 3 percent slopes-----	0	293	793	1,086	*
2	Abra loam, 3 to 6 percent slopes-----	0	683	3,732	4,415	0.3
3	Abra loam, 6 to 12 percent slopes-----	0	364	299	663	*
4	Ackmen silt loam, 1 to 3 percent slopes-----	0	0	858	858	*
5	Acree loam, 1 to 6 percent slopes-----	0	98	8,090	8,188	0.6
6	Acree loam, 6 to 12 percent slopes-----	0	787	1,798	2,585	0.2
7	Acree-Zoltay-Nortez complex, 0 to 15 percent slopes-----	859	0	5,003	5,862	0.5
8	Adel loam, 5 to 30 percent slopes-----	1,785	0	740	2,525	0.2
9	Adel loam, moist, 15 to 50 percent slopes----	7,785	0	6,014	13,799	1.1
10	Aquolls, 0 to 3 percent slopes-----	0	2,145	366	2,511	0.2
11	Badland-----	3,416	0	3,732	7,148	0.6
12	Baird hollow-Nordicol-Ryman complex, 5 to 40 percent slopes-----	2,865	0	9,472	12,337	1.0
13	Barkelew-Emmons complex, 5 to 40 percent slopes-----	0	0	7,100	7,100	0.6
14	Barx fine sandy loam, 1 to 3 percent slopes--	0	6,087	10,415	16,502	1.3
15	Barx fine sandy loam, 3 to 6 percent slopes--	98	8,153	8,067	16,318	1.3
16	Barx fine sandy loam, 6 to 12 percent slopes-	48	861	111	1,020	*
17	Barx-Progresso complex, 3 to 12 percent slopes-----	323	19,159	5,649	25,131	1.9
18	Begay fine sandy loam, 1 to 6 percent slopes-	0	4,269	1,760	6,029	0.5
19	Beje fine sandy loam, 3 to 25 percent slopes-	486	10,117	5,431	16,034	1.2
20	Billings silt loam, 1 to 4 percent slopes----	0	0	7,171	7,171	0.6
21	Billings clay loam, moist, 1 to 4 percent slopes-----	3,123	0	1,428	4,551	0.4
22	Bodot silty clay loam, dry, 3 to 12 percent slopes-----	39	0	2,130	2,169	0.2
23	Bodot, dry-Ustic Torriorthents complex, 5 to 50 percent slopes-----	0	43,187	17,154	60,341	4.7
24	Bodot-Zyme silty clay loams, dry, 3 to 20 percent slopes-----	67	154	2,555	2,776	0.2
25	Bond-Progresso complex, 3 to 30 percent slopes-----	469	5,444	674	6,587	0.5
26	Borolls-Rock outcrop complex, 40 to 90 percent slopes-----	6,366	376	20,316	27,058	2.1
27	Burnac-Delson sandy loams, 3 to 20 percent slopes-----	0	4,685	0	4,685	0.4
28	Burnac-Delson-Falcon sandy loams, 20 to 50 percent slopes-----	0	713	0	713	*
29	Bushvalley-Nordicol Variant complex, 2 to 10 percent slopes-----	39	1,713	2,075	3,827	0.3
30	Callan loam, 1 to 3 percent slopes-----	0	436	101	537	*
31	Callan loam, 3 to 6 percent slopes-----	0	3,632	8,802	12,434	1.0
32	Callan loam, 6 to 12 percent slopes-----	0	1,663	1,059	2,722	0.2
33	Callan-Gurley loams, 3 to 20 percent slopes--	0	1,879	1,831	3,710	0.3
34	Ceek very flaggy clay loam, 10 to 40 percent slopes-----	145	106	13,505	13,756	1.1
35	Clapper loam, 1 to 8 percent slopes-----	0	1,714	413	2,127	0.2
36	Clapper-Ustic Torriorthents complex, 5 to 40 percent slopes-----	0	3,442	1,941	5,383	0.4
37	Cryaquolls, 0 to 3 percent slopes-----	170	0	817	987	*
38	Evanston fine sandy loam, 2 to 8 percent slopes-----	568	1,106	270	1,944	0.2
39	Falcon-Burnac-Rock outcrop complex, 3 to 20 percent slopes-----	0	3,229	0	3,229	0.3
40	Farb-Rock outcrop complex, 1 to 30 percent slopes-----	0	0	6,051	6,051	0.5
41	Fivepine-Nortez-Rock outcrop complex, 12 to 30 percent slopes-----	138	357	6,310	6,805	0.5

See footnote at end of table.

Table 4.--Acreage and proportionate extent of the soils--continued

Map symbol	Soil name	Dolores	Montrose	San Miguel	Total	
		County	County	County	Area	Extent
		Acre	Acre	Acre	Acre	Pct
42	Fivepine-Pino loams, 0 to 15 percent slopes--	1,404	805	17,904	20,113	1.6
43	Fluvaquents, 0 to 6 percent slopes, frequently flooded-----	0	1,857	514	2,371	0.2
44	Fruitland loam, 1 to 8 percent slopes-----	0	0	5,278	5,278	0.4
45	Gladel-Bond-Rock outcrop complex, 1 to 50 percent slopes-----	766	55,303	18,086	74,155	5.7
46	Gladel-Bond-Rock outcrop complex, cool, 3 to 25 percent slopes-----	0	96	6,399	6,495	0.5
47	Gurley loam, 1 to 8 percent slopes-----	0	549	2,343	2,892	0.2
48	Gurley-Skein loams, 3 to 20 percent slopes---	0	1,834	9,247	11,081	0.9
49	Gypsiorthids, 3 to 25 percent slopes-----	0	3,045	1,437	4,482	0.3
50	Gypsum land-----	0	1,233	2,584	3,817	0.3
51	Haplaquolls, 0 to 3 percent slopes-----	262	864	1,037	2,163	0.2
52	Killpack-Deaver loams, 2 to 15 percent slopes	145	0	8,300	8,445	0.7
53	Leaps-Hofly loams, 5 to 40 percent slopes----	8,916	2,551	10,572	22,039	1.7
54	Leaps-Tellura complex, 5 to 20 percent slopes	29	0	4,451	4,480	0.3
55	Lillylands loam, 15 to 50 percent slopes-----	719	0	8,753	9,472	0.7
56	Mikim loam, 1 to 6 percent slopes-----	142	1,827	4,976	6,945	0.5
57	Minchey fine sandy loam, 1 to 10 percent slopes-----	0	0	2,975	2,975	0.2
58	Mitch loam, 1 to 6 percent slopes-----	731	106	2,836	3,673	0.3
59	Mivida fine sandy loam, 5 to 15 percent slopes-----	0	756	2,439	3,195	0.2
60	Monogram loam, 1 to 8 percent slopes-----	0	6,372	5,470	11,842	0.9
61	Monticello-Witt loams, 1 to 3 percent slopes-	0	470	7,174	7,644	0.6
62	Monticello-Witt loams, 3 to 6 percent slopes-	0	0	7,725	7,725	0.6
63	Monticello-Witt loams, 6 to 12 percent slopes	0	0	802	802	*
64	Narraguinnep clay loam, moist, 15 to 50 percent slopes-----	21,799	0	10,205	32,004	2.5
65	Narraguinnep-Dapoin complex, 1 to 15 percent slopes-----	10,858	0	4,247	15,105	1.2
66	Nortez loam, 1 to 6 percent slopes-----	0	0	2,133	2,133	0.2
67	Nortez loam, 6 to 12 percent slopes-----	0	0	737	737	*
68	Nortez-Acree loams, 1 to 12 percent slopes---	815	560	10,797	12,172	0.9
69	Nortez-Fivepine loams, 1 to 12 percent slopes	2,603	1,385	16,277	20,265	1.6
70	Nunemaker clay, 3 to 10 percent slopes-----	0	0	1,995	1,995	0.2
71	Nyswonger silty clay loam, 1 to 4 percent slopes-----	0	3,655	623	4,278	0.3
72	Pagoda-Coulterg-Cabba complex, 10 to 60 percent slopes-----	15,942	0	778	16,720	1.3
73	Paradox fine sandy loam, 1 to 4 percent slopes-----	0	23,710	8,293	32,003	2.5
74	Persayo-Chipeta complex, 2 to 20 percent slopes-----	29	0	10,412	10,441	0.8
75	Pinon-Bowdish-Progresso loams, cool, 1 to 12 percent slopes-----	0	7,819	13,139	20,958	1.6
76	Pinon-Bowdish-Rock outcrop complex, 3 to 30 percent slopes-----	1,314	106,373	25,402	133,089	10.3
77	Pinon-Progresso loams, 3 to 12 percent slopes	0	2,017	386	2,403	0.2
78	Pinon-Ustic Torriorthents complex, 5 to 30 percent slopes-----	39	2,959	8,469	11,467	0.9
79	Pojoaque-Chilton complex, 5 to 30 percent slopes, extremely stony-----	0	9,936	328	10,264	0.8
80	Progresso loam, 1 to 3 percent slopes-----	0	87	385	472	*
81	Progresso loam, 3 to 6 percent slopes-----	0	3,142	1,278	4,420	0.3
82	Progresso loam, 6 to 12 percent slopes-----	0	358	0	358	*
83	Pulpit-Bond, cool complex, 1 to 6 percent slopes-----	0	0	2,197	2,197	0.2
84	Radersburg gravelly loam, 1 to 6 percent slopes-----	0	0	1,786	1,786	0.1
85	Radersburg gravelly loam, 6 to 30 percent slopes-----	0	39	3,027	3,066	0.2

See footnote at end of table.

Table 4.--Acreage and proportionate extent of the soils--continued

Map symbol	Soil name	Dolores	Montrose	San Miguel	Total	
		County	County	County	Area	Extent
		Acre	Acre	Acre	Acre	Pct
86	Redlands sandy loam, 1 to 6 percent slopes---	0	0	2,728	2,728	0.2
87	Rock outcrop-----	422	39,247	13,874	53,543	4.1
88	Rock outcrop-Orthents complex, 40 to 90 percent slopes-----	605	75,349	56,819	132,773	10.3
89	Ryman loam, dry, 2 to 20 percent slopes-----	1,812	1,635	4,683	8,130	0.6
90	Ryman loam, warm, 2 to 20 percent slopes-----	12,771	3,978	14,180	30,929	2.4
91	Ryman-Adel, moist complex, 1 to 15 percent slopes-----	7,924	0	4,029	11,953	0.9
92	Sagedale clay loam, 3 to 20 percent slopes---	4,589	0	6,805	11,394	0.9
93	Sapeha very cobbly loam, 15 to 50 percent slopes-----	0	0	3,146	3,146	0.2
94	Seitz gravelly loam, 10 to 60 percent slopes-	684	0	1,509	2,193	0.2
95	Skein-Rock outcrop complex, 3 to 65 percent slopes-----	993	14,583	19,406	34,982	2.7
96	Skisams-Bushvalley-Cryoborolls, moderately deep complex, 2 to 15 percent slopes-----	58	3,890	9,152	13,100	1.0
97	Skisams-Cryoborolls, moderately deep complex, 5 to 30 percent slopes-----	0	0	8,421	8,421	0.7
98	Specie gravelly loam, 5 to 15 percent slopes-	0	0	583	583	*
99	Specie, moist-Rock outcrop complex, 15 to 60 percent slopes-----	0	0	2,392	2,392	0.2
100	Spectacle-Kinesava loams, 5 to 30 percent slopes-----	1,080	0	7,912	8,992	0.7
101	Tellura-Leaps clay loams, 5 to 40 percent slopes-----	77	0	9,490	9,567	0.7
102	Typic Torriorthents, 3 to 80 percent slopes--	8,680	0	2,334	11,014	0.9
103	Ustic Torriorthents-Ustochreptic Calciorthids, 3 to 30 percent slopes-----	0	460	2,790	3,250	0.3
104	Vananda silty clay, 1 to 6 percent slopes---	357	444	7,239	8,040	0.6
105	Winnett silty clay loam, 1 to 3 percent slopes-----	96	158	3,952	4,206	0.3
106	Winz-Rock outcrop complex, 20 to 90 percent slopes, very stony-----	0	0	8,762	8,762	0.7
107	Witt loam, dry, 1 to 12 percent slopes-----	0	2,951	702	3,653	0.3
108	Wrayha stony clay loam, 3 to 40 percent slopes-----	1,426	5,745	5,558	12,729	1.0
109	Zoltay loam, 3 to 15 percent slopes-----	650	0	5,589	6,239	0.5
110	Zoltay clay loam, 1 to 3 percent slopes-----	270	0	1,106	1,376	0.1
111	Zyme-Bodot-Rock outcrop complex, 15 to 30 percent slopes-----	2,264	0	68	2,332	0.2
112	Water-----	340	1,700	2,042	4,082	0.3
	Total-----	140,400	516,700	633,500	1,290,600	100.0

\* Less than 0.1 percent.



Table 5A.--Land capability and yields per acre of crops and pasture--continued

Soil name and map symbol	Land capability		Alfalfa hay		Barley		Corn silage		Grass hay		Oats	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	Tons	Tons	Bu	Bu
17: Progreso-----	6c	---	---	---	---	---	---	---	---	---	---	---
18: Begay-----	4c	3e	---	5.50	---	---	---	16.00	---	---	---	---
19: Beje-----	6s	---	---	---	---	---	---	---	---	---	---	---
20: Billings-----	6s	4s	---	5.50	---	---	---	---	---	2.50	---	---
21: Billings, moist----	6s	4s	---	5.50	---	---	---	---	---	2.50	---	---
22: Bodot, dry-----	6e	---	---	---	---	---	---	---	---	---	---	---
23: Bodot, dry-----	7e	---	---	---	---	---	---	---	---	---	---	---
Ustic Torriorthents	7e	---	---	---	---	---	---	---	---	---	---	---
24: Bodot, dry-----	4e	---	---	---	---	---	---	---	---	---	---	---
Zyme, dry-----	6e	---	---	---	---	---	---	---	---	---	---	---
25: Bond-----	7s	---	---	---	---	---	---	---	---	---	---	---
Progreso-----	6c	---	---	---	---	---	---	---	---	---	---	---
26: Borolls-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---	---	---
27: Burnac-----	6e	---	---	---	---	---	---	---	---	---	---	---
Delson-----	6e	---	---	---	---	---	---	---	---	---	---	---
28: Burnac-----	7e	---	---	---	---	---	---	---	---	---	---	---
Delson-----	7e	---	---	---	---	---	---	---	---	---	---	---
Falcon-----	7e	---	---	---	---	---	---	---	---	---	---	---
29: Bushvalley-----	6s	---	---	---	---	---	---	---	---	---	---	---
Nordicol Variant---	6c	---	---	---	---	---	---	---	---	---	---	---
30: Callan-----	3c	3c	---	4.50	---	100.00	---	18.00	---	2.50	---	100.00
31: Callan-----	3e	3e	---	4.50	---	90.00	---	18.00	---	2.50	---	100.00
32: Callan-----	4e	4e	---	4.00	---	85.00	---	16.00	---	2.00	---	90.00











Table 5A.--Land capability and yields per acre of crops and pasture--continued

Soil name and map symbol	Land capability		Alfalfa hay		Barley		Corn silage		Grass hay		Oats	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	Tons	Tons	Bu	Bu
109: Zoltay-----	6e	---	---	---	---	---	---	---	---	---	---	---
110: Zoltay-----	4c	3e	---	4.50	---	85.00	---	---	---	2.00	---	100.00
111: Zyme-----	7e	---	---	---	---	---	---	---	---	---	---	---
Bodot-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---	---	---
112: Water-----	---	---	---	---	---	---	---	---	---	---	---	---

Table 5B.--Land capability and yields per acre of crops and pasture

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Dry pinto beans		Winter wheat	
	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu
4: Ackmen-----	3c	---	300.00	---	20.00	---
61: Monticello-----	3c	---	400.00	---	20.00	---
Witt-----	6c	---	400.00	---	20.00	---
62: Monticello-----	3e	---	400.00	---	20.00	---
Witt-----	6c	---	400.00	---	20.00	---
63: Monticello-----	4e	---	350.00	---	18.00	---
Witt-----	6c	---	350.00	---	18.00	---

Table 6.--Prime farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
1	Abra loam, 1 to 3 percent slopes (Prime farmland if irrigated)
2	Abra loam, 3 to 6 percent slopes (Prime farmland if irrigated)
5	Acree loam, 1 to 6 percent slopes (Prime farmland if irrigated)
14	Barx fine sandy loam, 1 to 3 percent slopes (Prime farmland if irrigated)
15	Barx fine sandy loam, 3 to 6 percent slopes (Prime farmland if irrigated)
18	Begay fine sandy loam, 1 to 6 percent slopes (Prime farmland if irrigated)
20	Billings silt loam, 1 to 4 percent slopes (Prime farmland if irrigated)
21	Billings clay loam, moist, 1 to 4 percent slopes (Prime farmland if irrigated)
30	Callan loam, 1 to 3 percent slopes (Prime farmland if irrigated)
31	Callan loam, 3 to 6 percent slopes (Prime farmland if irrigated)
38	Evanston fine sandy loam, 2 to 8 percent slopes (Prime farmland if irrigated)
44	Fruitland loam, 1 to 8 percent slopes (Prime farmland if irrigated)
56	Mikim loam, 1 to 6 percent slopes (Prime farmland if irrigated)
57	Minchey fine sandy loam, 1 to 10 percent slopes (Prime farmland if irrigated)
58	Mitch loam, 1 to 6 percent slopes (Prime farmland if irrigated)
60	Monogram loam, 1 to 8 percent slopes (Prime farmland if irrigated)
61	Monticello-witt loams, 1 to 3 percent slopes (Prime farmland if irrigated)
62	Monticello-witt loams, 3 to 6 percent slopes (Prime farmland if irrigated)
71	Nyswonger silty clay loam, 1 to 4 percent slopes (Prime farmland if irrigated)
73	Paradox fine sandy loam, 1 to 4 percent slopes (Prime farmland if irrigated)
86	Redlands sandy loam, 1 to 6 percent slopes (Prime farmland if irrigated)
107	Witt loam, dry, 1 to 12 percent slopes (Prime farmland if irrigated)
110	Zoltay clay loam, 1 to 3 percent slopes (Prime farmland if irrigated)

Table 7.--Ecological sites and characteristic native vegetation

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
1: Abra-----	Semidesert Loam	Favorable	900	Wyoming big sagebrush	15		---	---
		Normal	700	needleandthread	15			
		Unfavorable	500	blue grama bottlebrush squirreltail galleta	5 5 5			
2: Abra-----	Semidesert Loam	Favorable	900	Wyoming big sagebrush	15		---	---
		Normal	700	needleandthread	15			
		Unfavorable	500	blue grama bottlebrush squirreltail galleta	5 5 5			
3: Abra-----	Semidesert Loam	Favorable	900	Wyoming big sagebrush	15		---	---
		Normal	700	needleandthread	15			
		Unfavorable	500	blue grama bottlebrush squirreltail galleta	5 5 5			
4: Ackmen-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush bottlebrush squirreltail yellow rabbitbrush	5 5 5			
5: Acree-----	Mountain Loam	Favorable	2,000	Arizona fescue	35		---	---
		Normal	1,600	Parry's danthonia	15			
		Unfavorable	1,400	mountain muhly	15			
				western wheatgrass	15			
				mountain big sagebrush	10			
				nodding brome slender wheatgrass	5 5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
6: Acree-----	Mountain Loam	Favorable	2,000	Arizona fescue	35		---	---
		Normal	1,600	Parry's danthonia	15			
		Unfavorable	1,400	mountain muhly	15			
				western wheatgrass	15			
				mountain big sagebrush	10			
				nodding brome	5			
				slender wheatgrass	5			
7: Acree-----	Mountain Loam	Favorable	2,000	Arizona fescue	35		---	---
		Normal	1,600	Parry's danthonia	15			
		Unfavorable	1,400	mountain muhly	15			
				western wheatgrass	15			
				mountain big sagebrush	10			
				nodding brome	5			
				slender wheatgrass	5			
Zoltay-----	Mountain Clay Loam	Favorable	1,500	Arizona fescue	20		---	---
		Normal	1,000	Gambel's oak	15			
		Unfavorable	750	mountain muhly	15			
				western wheatgrass	15			
				Letterman's needlegrass	10			
				muttongrass	5			
Nortez-----	Pine Grasslands	Favorable	1,400	Arizona fescue	25		ponderosa pine	---
		Normal	1,200	needleandthread	15			
		Unfavorable	900	Parry's danthonia	10			
				mountain muhly	10			
				western wheatgrass	10			
				Gambel's oak	5			
				antelope bitterbrush	5			
				mountain big sagebrush	5			
				mountain brome	5			
				ponderosa pine	5			
				prairie Junegrass	5			
8: Adel-----	Subalpine Loam	Favorable	3,500	Thurber's fescue	40		---	---
		Normal	2,800	Parry's danthonia	30			
		Unfavorable	2,000	Arizona fescue	10			
				nodding brome	5			
				silver sagebrush	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
9: Adel-----	Quaking Aspen	Favorable	3,500	slender wheatgrass		15	quaking aspen	66
		Normal	3,000	elk sedge		10		
		Unfavorable	2,500	Arizona fescue		5		
				Thurber's fescue		5		
				blue wildrye		5		
				mountain brome		5		
				mountain snowberry		5		
				nodding brome		5		
10: Aqulls-----	Salt Meadow	Favorable	2,500	alkali sacaton	20		---	---
		Normal	2,000	inland saltgrass	10			
		Unfavorable	1,500	sedge	10			
				western wheatgrass	10			
				fourwing saltbush	5			
				greasewood	5			
				tall rabbitbrush	5			
11: Badland-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
12: Baird hollow----	Spruce-Fir	Favorable	300	elk sedge		20	quaking aspen	52
		Normal	250	common juniper		10		
		Unfavorable	200	dwarf blueberry		10		
				kinnikinnick		10		
				tufted hairgrass		10		
				Fendler's ceanothus		5		
				Oregongrape		5		
				boxleaf myrtle		5		
				nodding brome		5		
Nordicol-----	Spruce-Fir	Favorable	300	slender wheatgrass		15	quaking aspen	65
		Normal	250	elk sedge		10		
		Unfavorable	200	Arizona fescue		5		
				Thurber's fescue		5		
				blue wildrye		5		
				mountain brome		5		
				mountain snowberry		5		
				nodding brome		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
12: Ryman-----	Quaking Aspen	Favorable	300	slender wheatgrass		15	quaking aspen	67
		Normal	250	elk sedge		10		
		Unfavorable	200	slender wheatgrass		10		
				Arizona fescue		5		
				Thurber's fescue		5		
				blue wildrye		5		
				mountain brome		5		
				mountain snowberry		5		
				nodding brome		5		
13: Barkelw-----	Pinyon-Juniper	Favorable	650	Gambel's oak		15	Utah juniper	---
		Normal	500	muttongrass		15	twoneedle pinyon	---
		Unfavorable	350	Indian ricegrass		10		
				elk sedge		10		
				Saskatoon serviceberry		5		
				true mountain mahogany		5		
Emmons-----	Pinyon-Juniper	Favorable	650	Gambel's oak		15	Utah juniper	---
		Normal	500	muttongrass		15	twoneedle pinyon	---
		Unfavorable	350	Indian ricegrass		10		
				elk sedge		10		
				Saskatoon serviceberry		5		
				true mountain mahogany		5		
14: Barx-----	Semidesert Sandy Loam	Favorable	1,000	Wyoming big sagebrush	15		---	---
		Normal	850	galleta	15			
		Unfavorable	650	needleandthread	15			
				Indian ricegrass	10			
				western wheatgrass	10			
15: Barx-----	Semidesert Sandy Loam	Favorable	1,000	Wyoming big sagebrush	15		---	---
		Normal	850	galleta	15			
		Unfavorable	650	needleandthread	15			
				Indian ricegrass	10			
				western wheatgrass	10			
16: Barx-----	Semidesert Sandy Loam	Favorable	1,000	Wyoming big sagebrush	15		---	---
		Normal	850	galleta	15			
		Unfavorable	650	needleandthread	15			
				Indian ricegrass	10			
				western wheatgrass	10			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range-land	Forest		
			Lb/acre		Pct	Pct		
17: Barx-----	Semidesert Sandy Loam	Favorable	1,000	Wyoming big sagebrush	15		---	---
Normal		850	galleta	15				
Unfavorable		650	needleandthread Indian ricegrass western wheatgrass	15 10 10				
Progresso-----	Semidesert Loam	Favorable	800	galleta	15		---	---
Normal		600	Indian ricegrass	10				
Unfavorable		400	Wyoming big sagebrush muttongrass western wheatgrass rabbitbrush	10 10 10 5				
18: Begay-----	Semidesert Sandy Loam	Favorable	1,000	galleta	20		---	---
Normal		850	Wyoming big sagebrush	15				
Unfavorable		650	Indian ricegrass needleandthread blue grama bottlebrush squirreltail sand dropseed	10 10 5 5 5				
19: Beje-----	Pinyon-Juniper	Favorable	600	black sagebrush		10	Utah juniper	135
Normal		400	blue grama		10		twoneedle pinyon	---
Unfavorable		200	bottlebrush squirreltail muttongrass true mountain mahogany Gambel's oak Utah serviceberry antelope bitterbrush hairy goldenaster prairie Junegrass		10 10 10 5 5 5 5 5			
20: Billings-----	Salt Flats	Favorable	900	alkali sacaton	20		---	---
Normal		630	inland saltgrass	15				
Unfavorable		450	Wyoming big sagebrush basin wildrye fourwing saltbush greasewood shadscale saltbush western wheatgrass	10 10 10 5 5 5				

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
21: Billings-----	Basin Shale	Favorable	600	black sagebrush	15		---	---
		Normal	400	galleta	15			
		Unfavorable	300	western wheatgrass	15			
				winterfat	10			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				fourwing saltbush	5			
				greasewood	5			
				shadscale saltbush	5			
22: Bodot-----	Basin Shale	Favorable	600	black sagebrush	15		---	---
		Normal	400	galleta	15			
		Unfavorable	300	western wheatgrass	15			
				winterfat	10			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				shadscale saltbush	5			
23: Bodot-----	Basin Shale	Favorable	600	black sagebrush	15		---	---
		Normal	400	galleta	15			
		Unfavorable	300	western wheatgrass	15			
				winterfat	10			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				fourwing saltbush	5			
				shadscale saltbush	5			
Ustic Torriorthents--	Pinyon-Juniper	Favorable	---	Indian ricegrass		15	Utah juniper	---
		Normal	---	Wyoming big sagebrush		15	twoneedle pinyon	---
		Unfavorable	---	blue grama		15		
				bottlebrush squirreltail		10		
				galleta		10		
				saline wildrye		10		
24: Bodot-----	Basin Shale	Favorable	600	galleta	15		---	---
		Normal	400	western wheatgrass	15			
		Unfavorable	300	winterfat	10			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				shadscale saltbush	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
24: Zyme-----	Basin Shale	Favorable	600	galleta	15		---	---
		Normal	400	western wheatgrass	15			
		Unfavorable	300	winterfat	10			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				fourwing saltbush	5			
				shadscale saltbush	5			
				Indian ricegrass				
				saline wildrye				
25: Bond-----	Pinyon-Juniper	Favorable	500	galleta		15	twoneedle pinyon	40
		Normal	250	Indian ricegrass		10	Utah juniper	---
		Unfavorable	100	Wyoming big sagebrush		10		
				blue grama		10		
				true mountain mahogany		10		
				Utah juniper		5		
				antelope bitterbrush		5		
				big sagebrush		5		
				singleleaf ash		5		
				squaw apple		5		
				twoneedle pinyon		5		
Progresso-----	Semidesert Loam	Favorable	800	galleta	15		---	---
		Normal	600	Indian ricegrass	10			
		Unfavorable	400	Wyoming big sagebrush	10			
				muttongrass	10			
				western wheatgrass	10			
				rabbitbrush	5			
26: Borolls-----	Douglas-fir	Favorable	---	Gambel's oak		15	Rocky Mountain Douglas-fir	---
		Normal	---	Arizona fescue		10	twoneedle pinyon	---
		Unfavorable	---	Utah serviceberry		10		
				western wheatgrass		10		
				Indian ricegrass		5		
				Utah snowberry		5		
				elk sedge		5		
				prairie Junegrass		5		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
27:								
Burnac-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	54
		Normal	1,200	mountain muhly		15		
		Unfavorable	1,000	muttongrass		15		
				elk sedge		10		
Delson-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	57
		Normal	1,200	mountain muhly		15		
		Unfavorable	1,000	prairie Junegrass		15		
				elk sedge		10		
				muttongrass		10		
28:								
Burnac-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	54
		Normal	1,200	mountain muhly		15		
		Unfavorable	1,000	muttongrass		15		
				elk sedge		10		
Delson-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	57
		Normal	1,200	mountain muhly		15		
		Unfavorable	1,000	prairie Junegrass		15		
				elk sedge		10		
				muttongrass		10		
Falcon-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	64
		Normal	1,200	other perennial forbs		15		
		Unfavorable	1,000	elk sedge		10		
				mountain brome		10		
				slender wheatgrass		10		
				mountain snowberry		5		
				needlegrass		5		
29:								
Bushvalley----	Pine Grasslands	Favorable	1,200	Arizona fescue	15		ponderosa pine	---
		Normal	900	Parry's danthonia	15			
		Unfavorable	750	mountain muhly	10			
				elk sedge	5			
				kinnikinnick	5			
				pine dropseed	5			
				western snowberry	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range-land	Forest		
			Lb/acre		Pct	Pct		
29: Nordicol Variant-----	Pine Grasslands	Favorable	1,200	Arizona fescue	20		ponderosa pine	---
		Normal	900	Parry's danthonia	20			
		Unfavorable	750	other trees	15			
				mountain muhly	10			
				other perennial forbs	10			
				elk sedge	5			
				other shrubs	5			
		pine dropseed	5					
30: Callan-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
		yellow rabbitbrush	5					
31: Callan-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
		yellow rabbitbrush	5					
32: Callan-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
		yellow rabbitbrush	5					

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index				
		Kind of year	Dry weight		Range- land	Forest						
									Lb/acre	Pct	Pct	
33: Callan-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---				
		Normal	1,100	western wheatgrass	20							
		Unfavorable	800	Wyoming big sagebrush	10							
				Indian ricegrass	5							
				Utah serviceberry	5							
				black sagebrush	5							
				bottlebrush squirreltail	5							
				yellow rabbitbrush	5							
		Gurley-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---		
Normal	1,100			western wheatgrass	20							
Unfavorable	800			Wyoming big sagebrush	10							
				Indian ricegrass	5							
				Utah serviceberry	5							
				black sagebrush	5							
				bottlebrush squirreltail	5							
				green rabbitbrush	5							
34: Ceek-----	Ponderosa Pine			Favorable	1,500	Arizona fescue		20	ponderosa pine	73		
		Normal	1,200	Parry's danthonia		10	Rocky Mountain juniper	---				
		Unfavorable	1,000	mountain muhly		10						
				Gambel's oak		5						
				Indian ricegrass		5						
				big bluegrass		5						
				bottlebrush squirreltail		5						
				muttongrass		5						
				pine dropseed		5						
				slender wheatgrass		5						
				slender wheatgrass		5						
				western wheatgrass		5						
				35: Clapper-----	Stony Foothills	Favorable	800	western wheatgrass	15		Utah juniper	---
						Normal	600	Wyoming big sagebrush	10		twoneedle pinyon	---
		Unfavorable	400			galleta	10					
Indian ricegrass	5											
black sagebrush	5											
bottlebrush squirreltail	5											
needleandthread	5											
prairie Junegrass	5											

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index		
		Kind of year	Dry weight		Range- land	Forest				
			Lb/acre		Pct	Pct				
36: Clapper-----	Stony Foothills	Favorable	800	western wheatgrass	15		Utah juniper	---		
		Normal	600	Wyoming big sagebrush	10		twoneedle pinyon	---		
		Unfavorable	400	galleta	10					
				Indian ricegrass	5					
				black sagebrush	5					
				bottlebrush squirreltail	5					
				needleandthread	5					
				prairie Junegrass	5					
		Ustic Torriorthents--	Pinyon-Juniper	Favorable	---	Indian ricegrass		15	Utah juniper	---
				Normal	---	blue grama		15	twoneedle pinyon	---
Unfavorable	---			bluebunch wheatgrass		10				
				bottlebrush squirreltail		10				
		galleta		10						
37: Cryaquolls-----	Mountain Meadow	Favorable	3,500	tufted hairgrass	35		---	---		
		Normal	2,500	sedge	20					
		Unfavorable	1,500	clover	10					
				slender wheatgrass	10					
				other perennial forbs	5					
				other perennial grasses	5					
				shrubby cinquefoil	5					
				willow	5					
38: Evanston-----	Loamy Foothills	Favorable	1,500	western wheatgrass	20		---	---		
		Normal	1,100	muttongrass	15					
		Unfavorable	800	Wyoming big sagebrush	10					
				needleandthread	10					
				Indian ricegrass	5					
				Utah serviceberry	5					
				black sagebrush	5					
		bottlebrush squirreltail	5							
		green rabbitbrush	5							
39: Falcon-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	64		
		Normal	1,200	other perennial forbs		15				
		Unfavorable	1,000	elk sedge		10				
				greenleaf manzanita		10				
				mountain brome		10				
				slender wheatgrass		10				
				mountain snowberry		5				
		needlegrass		5						

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
39: Burnac-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	54
		Normal	1,200	mountain muhly		15		
		Unfavorable	1,000	muttongrass		15		
				elk sedge		10		
				greenleaf manzanita		10		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
40: Farb-----	Pinyon-Juniper	Favorable	200	Indian ricegrass		15	twoneedle pinyon	20
		Normal	100	galleta		15	Utah juniper	---
		Unfavorable	50	blue grama		10		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
41: Fivepine-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	67
		Normal	1,200	mountain muhly		15	Rocky Mountain juniper	---
		Unfavorable	800	prairie Junegrass		15	twoneedle pinyon	---
				elk sedge		10		
				muttongrass		10		
Nortez-----	Pine Grasslands	Favorable	1,200	Arizona fescue	25		ponderosa pine	---
		Normal	900	needleandthread	15			
		Unfavorable	750	Parry's danthonia	10			
				mountain muhly	10			
				western wheatgrass	10			
				Gambel's oak	5			
				antelope bitterbrush	5			
				mountain big sagebrush	5			
				mountain brome	5			
				ponderosa pine	5			
				prairie Junegrass	5			
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range-land	Forest		
			Lb/acre		Pct	Pct		
42: Fivepine-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	67
		Normal	1,200	mountain muhly		15	Rocky Mountain juniper	---
		Unfavorable	800	prairie Junegrass		15	twoneedle pinyon	---
				elk sedge		10		
				muttongrass		10		
Pino-----	Ponderosa Pine	Favorable	1,500	Arizona fescue		15	ponderosa pine	55
		Normal	1,200	needlegrass		15		
		Unfavorable	800	Gambel's oak		10		
				mountain brome		10		
				mountain muhly		10		
				western wheatgrass		10		
				bottlebrush squirreltail		5		
				pine dropseed		5		
		prairie Junegrass		5				
43: Fluvaquents-----	---	Favorable	2,500	inland saltgrass		10	narrowleaf cottonwood	---
		Normal	2,000	rush		10		
		Unfavorable	1,500	sedge		10		
				willow		10		
				tamarisk		5		
44: Fruitland-----	Alkaline Slopes	Favorable	650	Wyoming big sagebrush	20		---	---
		Normal	400	greasewood	20			
		Unfavorable	200	shadscale saltbush	15			
				galleta	10			
				winterfat	10			
				Indian ricegrass	5			
				bottlebrush squirreltail	5			
				sand dropseed	5			
		western wheatgrass	5					
45: Gladel-----	Pinyon-Juniper	Favorable	300	Indian ricegrass		15	twoneedle pinyon	30
		Normal	200	bluebunch wheatgrass		15	Utah juniper	---
		Unfavorable	50	galleta		15		
				blue grama		10		
				bottlebrush squirreltail		10		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index	
		Kind of year	Dry		Range- land	Forest			
			weight						Pct
			Lb/acre						
45: Bond-----	Pinyon-Juniper	Favorable	600	galleta		15	twoneedle pinyon	40	
		Normal	400	Indian ricegrass		10	Utah juniper	---	
		Unfavorable	200	Wyoming big sagebrush		10			
				blue grama		10			
				true mountain mahogany		10			
				Utah juniper		5			
				antelope bitterbrush		5			
				big sagebrush		5			
				singleleaf ash		5			
				squaw apple		5			
				twoneedle pinyon		5			
Rock outcrop----	---	Favorable	---				---	---	
		Normal	---						
		Unfavorable	---						
46: Gladel-----	Pinyon-Juniper	Favorable	300	Indian ricegrass		15	twoneedle pinyon	30	
		Normal	200	bluebunch wheatgrass		15	Utah juniper	---	
		Unfavorable	50	galleta		15			
				blue grama		10			
				bottlebrush squirreltail		10			
Bond-----	Pinyon-Juniper	Favorable	600	galleta		15	twoneedle pinyon	40	
		Normal	400	Indian ricegrass		10	Utah juniper	---	
		Unfavorable	200	Wyoming big sagebrush		10			
				blue grama		10			
				true mountain mahogany		10			
				antelope bitterbrush		5			
				big sagebrush		5			
				squaw apple		5			
				twoneedle pinyon		5			
Rock outcrop----	---	Favorable	---				---	---	
		Normal	---						
		Unfavorable	---						

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
47: Gurley-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				green rabbitbrush	5			
48: Gurley-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				green rabbitbrush	5			
Skein-----	Pinyon-Juniper	Favorable	500	black sagebrush		20	twoneedle pinyon	80
		Normal	400	Indian ricegrass		15	Utah juniper	---
		Unfavorable	300	other shrubs		10		
				western wheatgrass		10		
				galleta		5		
				other perennial forbs		5		
				saline wildrye		5		
49: Gypsiorthids----	---	Favorable	400	Indian ricegrass	20		---	---
		Normal	250	Greene's rabbitbrush	10			
		Unfavorable	100	sand dropseed	10			
				New Mexico feathergrass	5			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				cryptantha	5			
				fourwing saltbush	5			
				galleta	5			
				scarlet globemallow	5			
				winterfat	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
50: Gypsum land-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
51: Haplaquolls-----	Mountain Meadow	Favorable	4,000	tufted hairgrass	30		---	---
		Normal	3,000	Nebraska sedge	20			
		Unfavorable	2,000	slender wheatgrass sedge	10 5			
52: Killpack-----	Silty Saltdesert	Favorable	650	galleta	40		---	---
		Normal	500	shadscale saltbush	20			
		Unfavorable	400	bud sagebrush	10			
				Indian ricegrass	5			
				bottlebrush squirreltail	5			
				mat saltbush	5			
				saline wildrye	5			
Deaver-----	Silty Saltdesert	Favorable	650	galleta	40		---	---
		Normal	500	shadscale saltbush	20			
		Unfavorable	400	bud sagebrush	10			
				Indian ricegrass	5			
				bottlebrush squirreltail	5			
				fourwing saltbush	5			
				other perennial grasses	5			
				saline wildrye	5			
53: Leaps-----	Deep Clay Loam	Favorable	3,000	western wheatgrass	30		---	---
		Normal	2,500	Letterman's needlegrass	15			
		Unfavorable	2,000	muttongrass	10			
				slender wheatgrass	10			
				mountain big sagebrush	5			
				mule-ears	5			
				nodding brome	5			
				scarlet Indian paintbrush	5			
				silvery lupine	5			
				sulphur wildbuckwheat	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest Pct		
53: Hofly-----	Brushy Loam	Favorable	3,200	Gambel's oak	30		---	---
Normal		2,200	Utah serviceberry	15				
Unfavorable		1,700	elk sedge	10				
			slender wheatgrass	10				
			western wheatgrass	10				
			Letterman's needlegrass	5				
			mountain brome	5				
			nodding brome	5				
			prairie Junegrass	5				
54: Leaps-----	Deep Clay Loam	Favorable	2,500	western wheatgrass	40		---	---
Normal		2,000	Arizona fescue	10				
Unfavorable		1,500	muttongrass	10				
			mountain big sagebrush	5				
			nodding brome	5				
		common snowberry	3					
Tellura-----	Subalpine Clay	Favorable	2,800	Thurber's fescue	25		---	---
Normal		2,300	Letterman's needlegrass	10				
Unfavorable		1,800	nodding brome	10				
			slender wheatgrass	10				
			mule-ears	5				
		shrubby cinquefoil	5					
55: Lillylands-----	Brushy Loam	Favorable	3,000	Gambel's oak	15		---	---
Normal		2,000	Saskatoon serviceberry	10				
Unfavorable		1,500	elk sedge	10				
			mountain brome	10				
			other perennial forbs	10				
			mountain snowberry	5				
			needlegrass	5				
			slender wheatgrass	5				
			western wheatgrass	5				
56: Mikim-----	Semidesert Loam	Favorable	800	Wyoming big sagebrush	15		---	---
Normal		600	galleta	15				
Unfavorable		400	needleandthread	15				
			Indian ricegrass	5				
				bottlebrush squirreltail	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
57: Minchey-----	Loamy Salt desert	Favorable	800	Indian ricegrass	15		---	---
		Normal	600	galleta	15			
		Unfavorable	400	shadscale saltbush	15			
				winterfat	10			
				Wyoming big sagebrush	5			
				bottlebrush squirreltail	5			
				bud sagebrush	5			
				needleandthread	5			
				other perennial forbs	5			
58: Mitch-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Truckee rabbitbrush	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
59: Mivida-----	Semidesert Sandy Loam	Favorable	1,000	Indian ricegrass	20		---	---
		Normal	850	fourwing saltbush	15			
		Unfavorable	650	needleandthread	15			
				Wyoming big sagebrush	10			
				ephedra	10			
				galleta	10			
				sand dropseed	10			
60: Monogram-----	Loamy Foothills	Favorable	1,500	muttongrass	20		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				needleandthread	5			
				prairie Junegrass	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry		Range- land	Forest		
			weight					
			Lb/acre		Pct	Pct		
61: Monticello-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				green rabbitbrush	5			
Witt-----	Loamy Foothills	Favorable	1,500	western wheatgrass	25		---	---
		Normal	1,100	muttongrass	20			
		Unfavorable	800	Indian ricegrass	15			
				Wyoming big sagebrush	15			
				needleandthread	5			
62: Monticello-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				green rabbitbrush	5			
Witt-----	Loamy Foothills	Favorable	1,500	western wheatgrass	25		---	---
		Normal	1,100	muttongrass	20			
		Unfavorable	800	Indian ricegrass	15			
				Wyoming big sagebrush	15			
				needleandthread	5			
63: Monticello-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				green rabbitbrush	5			
Witt-----	Loamy Foothills	Favorable	1,500	western wheatgrass	25		---	---
		Normal	1,100	muttongrass	20			
		Unfavorable	800	Indian ricegrass	15			
				Wyoming big sagebrush	15			
				needleandthread	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre					
64: Narraguinnep----	Brushy Loam	Favorable	3,000	Gambel's oak	15		---	---
		Normal	2,000	big bluegrass	10			
		Unfavorable	1,500	elk sedge	10			
				mountain brome	10			
				other perennial forbs	10			
				Saskatoon serviceberry	5			
				mountain snowberry	5			
				needlegrass	5			
				slender wheatgrass	5			
				western wheatgrass	5			
65: Narraguinnep----	Deep Clay Loam	Favorable	2,500	western wheatgrass	40		---	---
		Normal	2,000	Letterman's needlegrass	15			
		Unfavorable	1,500	mountain big sagebrush	10			
				Saskatoon serviceberry	5			
				muttongrass	5			
				slender wheatgrass	5			
Dapoin-----	Deep Clay Loam	Favorable	2,500	western wheatgrass	40		---	---
		Normal	2,000	Letterman's needlegrass	15			
		Unfavorable	1,500	mountain big sagebrush	10			
				Saskatoon serviceberry	5			
				muttongrass	5			
				slender wheatgrass	5			
66: Nortez-----	Pine Grasslands	Favorable	1,200	Arizona fescue	25		ponderosa pine	---
		Normal	900	needleandthread	15			
		Unfavorable	750	Parry's danthonia	10			
				mountain muhly	10			
				western wheatgrass	10			
				Gambel's oak	5			
				antelope bitterbrush	5			
				mountain big sagebrush	5			
				mountain brome	5			
				ponderosa pine	5			
				prairie Junegrass	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range-land	Forest		
			Lb/acre		Pct	Pct		
67: Nortez-----	Pine Grasslands	Favorable	1,200	Arizona fescue	25		ponderosa pine	---
		Normal	900	needleandthread	15			
		Unfavorable	750	Parry's danthonia	10			
				mountain muhly	10			
				western wheatgrass	10			
				Gambel's oak	5			
				antelope bitterbrush	5			
				mountain big sagebrush	5			
				mountain brome	5			
				ponderosa pine	5			
prairie Junegrass	5							
68: Nortez-----	Pine Grasslands	Favorable	1,200	Arizona fescue	25		ponderosa pine	---
		Normal	900	needleandthread	15			
		Unfavorable	750	Parry's danthonia	10			
				mountain muhly	10			
				western wheatgrass	10			
				Gambel's oak	5			
				antelope bitterbrush	5			
				mountain big sagebrush	5			
				mountain brome	5			
				ponderosa pine	5			
prairie Junegrass	5							
Acree-----	Mountain Loam	Favorable	1,800	Arizona fescue	35		---	---
		Normal	1,500	Parry's danthonia	15			
		Unfavorable	1,200	mountain muhly	15			
				western wheatgrass	15			
				mountain big sagebrush	10			
nodding brome	5							
slender wheatgrass	5							
69: Nortez-----	Pine Grasslands	Favorable	1,200	Arizona fescue	25		ponderosa pine	---
		Normal	900	needleandthread	15			
		Unfavorable	750	Parry's danthonia	10			
				mountain muhly	10			
				western wheatgrass	10			
				Gambel's oak	5			
				antelope bitterbrush	5			
				mountain big sagebrush	5			
				mountain brome	5			
				ponderosa pine	5			
prairie Junegrass	5							

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry		Range- land	Forest		
			weight			Pct		
			Lb/acre		Pct	Pct		
69: Fivepine-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	67
		Normal	1,200	mountain muhly		15	Rocky Mountain juniper	---
		Unfavorable	600	prairie Junegrass		15	twoneedle pinyon	---
				elk sedge		10		
				muttongrass		10		
70: Nunemaker-----	Clayey Foothills	Favorable	1,200	Wyoming big sagebrush	20		---	---
		Normal	900	Indian ricegrass	5			
		Unfavorable	600	bottlebrush squirreltail	5			
				fourwing saltbush	5			
				muttongrass	5			
				yellow rabbitbrush	5			
71: Nyswonger-----	Foothill Swale	Favorable	3,000	basin wildrye	30		---	---
		Normal	2,500	basin big sagebrush	20			
		Unfavorable	2,000	streambank wheatgrass	10			
				western wheatgrass	10			
				fourwing saltbush	5			
72: Pagoda-----	Ponderosa Pine	Favorable	1,500	Arizona fescue		15	ponderosa pine	66
		Normal	1,200	Gambel's oak		15		
		Unfavorable	1,000	western wheatgrass		15		
				pine dropseed		10		
				prairie Junegrass		10		
				Fendler's meadowrue		5		
				Utah serviceberry		5		
				bluegrass		5		
				bottlebrush squirreltail		5		
				common snowberry		5		
				mountain muhly		5		
				nodding brome		5		
Coulterg-----	Ponderosa Pine	Favorable	300	Gambel's oak		20	ponderosa pine	68
		Normal	275	elk sedge		10		
		Unfavorable	250	mountain brome		10		
				slender wheatgrass		10		
				Letterman's needlegrass		5		
				Saskatoon serviceberry		5		
				mountain snowberry		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
72: Cabba-----	Ponderosa Pine	Favorable	1,500	Gambel's oak		20	ponderosa pine	70
		Normal	1,200	elk sedge		10		
		Unfavorable	1,000	mountain brome		10		
				slender wheatgrass		10		
				Letterman's needlegrass		5		
				Saskatoon serviceberry		5		
				mountain snowberry		5		
73: Paradox-----	Semidesert Sandy Loam	Favorable	1,000	Indian ricegrass	20		---	---
		Normal	850	fourwing saltbush	15			
		Unfavorable	650	needleandthread	15			
				Wyoming big sagebrush	10			
				galleta	10			
				sand dropseed	10			
74: Persayo-----	Silty Saltdesert	Favorable	650	galleta	35		---	---
		Normal	500	shadscale saltbush	15			
		Unfavorable	400	Indian ricegrass	5			
				blue grama	5			
				bottlebrush squirreltail	5			
				bud sagebrush	5			
				fourwing saltbush	5			
				saline wildrye	5			
				spiny phlox	5			
				western wheatgrass	5			
				yellow rabbitbrush	5			
Chipeta-----	Clayey Saltdesert	Favorable	500	fourwing saltbush	15		---	---
		Normal	350	Indian ricegrass	10			
		Unfavorable	200	galleta	10			
				mat saltbush	10			
				shadscale saltbush	10			
				western wheatgrass	5			
75: Pinon-----	Pinyon-Juniper	Favorable	650	Gambel's oak		15	twoneedle pinyon	75
		Normal	500	muttongrass		15	Utah juniper	---
		Unfavorable	350	twoneedle pinyon		15		
				Indian ricegrass		10		
				elk sedge		10		
				oneseed juniper		10		
				Saskatoon serviceberry		5		
				true mountain mahogany		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
75:								
Bowdish-----	Pinyon-Juniper	Favorable	900	western wheatgrass		30	twoneedle pinyon	75
		Normal	700	Wyoming big sagebrush		15	Utah juniper	---
		Unfavorable	300	Indian ricegrass		10		
				bottlebrush squirreltail		10		
				blue grama		5		
				muttongrass		5		
				needleandthread		5		
				prairie Junegrass		5		
Progresso-----	Loamy Foothills	Favorable	1,500	muttongrass	30		---	---
		Normal	1,100	western wheatgrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				Indian ricegrass	5			
				Utah serviceberry	5			
				black sagebrush	5			
				bottlebrush squirreltail	5			
				rabbitbrush	5			
76:								
Pinon-----	Pinyon-Juniper	Favorable	500	oneseed juniper		20	twoneedle pinyon	75
		Normal	300	galleta		15	Utah juniper	---
		Unfavorable	100	twoneedle pinyon		15		
				Indian ricegrass		5		
				Wyoming big sagebrush		5		
				saline wildrye		5		
Bowdish-----	Pinyon-Juniper	Favorable	900	western wheatgrass		30	twoneedle pinyon	75
		Normal	700	Wyoming big sagebrush		15	Utah juniper	---
		Unfavorable	300	Indian ricegrass		10		
				bottlebrush squirreltail		10		
				blue grama		5		
				muttongrass		5		
				needleandthread		5		
				prairie Junegrass		5		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
77:								
Pinon-----	Pinyon-Juniper	Favorable	500	oneseed juniper		20	twoneedle pinyon	75
		Normal	300	galleta		15	Utah juniper	---
		Unfavorable	100	twoneedle pinyon		15		
				Indian ricegrass		5		
		Wyoming big sagebrush		5				
		saline wildrye		5				
Progresso-----	Semidesert Loam	Favorable	800	galleta	15		---	---
		Normal	600	Indian ricegrass	10			
		Unfavorable	400	Wyoming big sagebrush	10			
				muttongrass	10			
				western wheatgrass	10			
		rabbitbrush	5					
78:								
Pinon-----	Pinyon-Juniper	Favorable	500	oneseed juniper		20	twoneedle pinyon	75
		Normal	300	galleta		15	Utah juniper	---
		Unfavorable	100	twoneedle pinyon		15		
				Indian ricegrass		5		
				Wyoming big sagebrush		5		
				saline wildrye		5		
Ustic Torriorthents--	Pinyon-Juniper	Favorable	500	oneseed juniper		20	Utah juniper	---
		Normal	300	Indian ricegrass		15	twoneedle pinyon	---
		Unfavorable	100	twoneedle pinyon		15		
				blue grama		10		
bottlebrush squirreltail				10				
		Wyoming big sagebrush		5				
79:								
Pojoaque-----	Pinyon-Juniper	Favorable	500	Utah serviceberry		20	Utah juniper	60
		Normal	300	true mountain mahogany		20	twoneedle pinyon	---
		Unfavorable	100	other shrubs		10		
				Indian ricegrass		5		
				New Mexico feathergrass		5		
				blue grama		5		
				galleta		5		
				other perennial forbs		5		
				other perennial grasses		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
79: Chilton-----	Pinyon-Juniper	Favorable	500	Utah serviceberry		20	Utah juniper	---
		Normal	300	true mountain mahogany		20	twoneedle pinyon	---
		Unfavorable	100	other shrubs		10		
				Indian ricegrass		5		
				New Mexico feathergrass		5		
				blue grama		5		
				galleta		5		
				other perennial forbs		5		
				other perennial grasses		5		
80: Progresso-----	Semidesert Loam	Favorable	800	galleta	15		---	---
		Normal	600	Indian ricegrass	10			
		Unfavorable	400	Wyoming big sagebrush	10			
				muttongrass	10			
				western wheatgrass	10			
				rabbitbrush	5			
81: Progresso-----	Semidesert Loam	Favorable	800	galleta	15		---	---
		Normal	600	Indian ricegrass	10			
		Unfavorable	400	Wyoming big sagebrush	10			
				muttongrass	10			
				western wheatgrass	10			
				rabbitbrush	5			
82: Progresso-----	Semidesert Loam	Favorable	800	galleta	15		---	---
		Normal	600	Indian ricegrass	10			
		Unfavorable	400	Wyoming big sagebrush	10			
				muttongrass	10			
				western wheatgrass	10			
				rabbitbrush	5			
83: Pulpit-----	Loamy Foothills	Favorable	1,500	western wheatgrass	30		---	---
		Normal	1,100	muttongrass	20			
		Unfavorable	800	Wyoming big sagebrush	10			
				bottlebrush squirreltail	5			
				needleandthread	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index	
		Kind of year	Dry weight		Range-land	Forest			
			Lb/acre		Pct	Pct			
83: Bond-----	Pinyon-Juniper	Favorable	600	galleta		15	twoneedle pinyon	40	
		Normal	400	Indian ricegrass		10	Utah juniper	---	
		Unfavorable	200	Wyoming big sagebrush		10			
				blue grama		10			
				saline wildrye		10			
				true mountain mahogany		10			
				squaw apple		5			
twoneedle pinyon		5							
84: Radersburg-----	Loamy Slopes	Favorable	1,200	antelope bitterbrush	15		---	---	
		Normal	900	true mountain mahogany	15				
		Unfavorable	500	Indian ricegrass		10			
				Saskatoon serviceberry		10			
				bluebunch wheatgrass		10			
				mountain big sagebrush		10			
				western wheatgrass		10			
85: Radersburg-----	Loamy Slopes	Favorable	1,200	antelope bitterbrush	15		---	---	
		Normal	900	true mountain mahogany	15				
		Unfavorable	500	Indian ricegrass		10			
				Saskatoon serviceberry		10			
				bluebunch wheatgrass		10			
				mountain big sagebrush		10			
				western wheatgrass		10			
86: Redlands-----	Loamy Saltdesert	Favorable	800	Indian ricegrass	20		---	---	
		Normal	500	galleta	20				
		Unfavorable	300	other shrubs		10			
				winterfat		10			
				shadscale saltbush		8			
				bottlebrush squirreltail		3			
				fourwing saltbush		3			
				spiny phlox		3			
				longflower rabbitbrush		2			
				mat saltbush		2			
				saline wildrye		2			
				scarlet globemallow		2			
				87: Rock outcrop----	---	Favorable	---		
Normal	---								
Unfavorable	---								

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
88: Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
Orthents-----	Douglas-fir	Favorable	---	Indian ricegrass		15	Rocky Mountain Douglas-fir	---
		Normal	---	saline wildrye		15	Utah juniper	---
		Unfavorable	---	Bigelow's sagebrush		10	ponderosa pine	---
				bottlebrush squirreltail		10	twoneedle pinyon	---
				galleta		10		
				blue grama		5		
				bluebunch wheatgrass		5		
89: Ryman-----	Subalpine Loam	Favorable	3,500	Thurber's fescue	30		---	---
		Normal	2,800	Parry's danthonia	15			
		Unfavorable	2,000	Arizona fescue	10			
				Columbia needlegrass	10			
				big bluegrass	10			
				nodding brome	5			
				slender wheatgrass	5			
90: Ryman-----	Deep Clay Loam	Favorable	3,000	western wheatgrass	30		---	---
		Normal	2,500	Letterman's needlegrass	15			
		Unfavorable	2,000	muttongrass	10			
				slender wheatgrass	10			
				mountain big sagebrush	5			
				mule-ears	5			
				nodding brome	5			
				scarlet Indian paintbrush	5			
				silvery lupine	5			
				sulphur wildbuckwheat	5			
91: Ryman-----	Quaking Aspen	Favorable	4,000	elk sedge		10	quaking aspen	67
		Normal	3,000	slender wheatgrass		10		
		Unfavorable	2,000	Arizona fescue		5		
				Thurber's fescue		5		
				blue wildrye		5		
				mountain brome		5		
				mountain snowberry		5		
				nodding brome		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range-land	Forest		
			Lb/acre		Pct	Pct		
91: Adel-----	Quaking Aspen	Favorable	4,000	elk sedge		10	quaking aspen	66
		Normal	3,000	slender wheatgrass		10		
		Unfavorable	2,000	Arizona fescue		5		
				Thurber's fescue		5		
				blue wildrye		5		
				mountain brome		5		
				mountain snowberry		5		
				nodding brome		5		
92: Sagedale-----	Mountain Clay Loam	Favorable	1,500	western wheatgrass	20		---	---
		Normal	1,000	Arizona fescue	15			
		Unfavorable	750	Gambel's oak	10			
				mountain muhly	10			
				needlegrass	10			
93: Sapeha-----	Loamy Slopes	Favorable	1,200	antelope bitterbrush	15		---	---
		Normal	900	true mountain mahogany	15			
		Unfavorable	500	Indian ricegrass	10			
				Saskatoon serviceberry	10			
				bluebunch wheatgrass	10			
				mountain big sagebrush	10			
				prairie Junegrass	10			
				western wheatgrass	10			
94: Seitz-----	Spruce-Fir	Favorable	300	slender wheatgrass		30	subalpine fir	72
		Normal	250	elk sedge		20	Engelmann's spruce	61
		Unfavorable	200	boxleaf myrtle		10	white fir	35
				common juniper		10	Rocky Mountain Douglas-fir	---
							quaking aspen	---
95: Skein-----	Pinyon-Juniper	Favorable	500	black sagebrush		20	twoneedle pinyon	80
		Normal	400	Indian ricegrass		15	Utah juniper	---
		Unfavorable	300	other shrubs		10		
				saline wildrye		10		
				western wheatgrass		10		
				other perennial forbs		5		
				other perennial grasses		5		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
96: Skisams-----	Shallow Loam	Favorable	900	Arizona fescue	15		---	---
		Normal	700	Parry's danthonia	10			
		Unfavorable	500	mountain muhly	10			
				needlegrass	10			
				mountain snowberry	5			
				prairie Junegrass	5			
				sheep fescue	5			
				true mountain mahogany	5			
				western wheatgrass	5			
Bushvalley-----	Pine Grasslands	Favorable	1,200	Arizona fescue	15		ponderosa pine	---
		Normal	900	Parry's danthonia	15			
		Unfavorable	750	mountain muhly	10			
				elk sedge	5			
				kinnikinnick	5			
				pine dropseed	5			
				western snowberry	5			
Cryoborolls-----	---	Favorable	1,200	Arizona fescue	15		---	---
		Normal	1,000	Parry's danthonia	15			
		Unfavorable	800	mountain muhly	15			
				western wheatgrass	15			
				needlegrass	10			
				Gambel's oak	5			
97: Skisams-----	Shallow Loam	Favorable	900	Arizona fescue	15		---	---
		Normal	700	Parry's danthonia	10			
		Unfavorable	500	mountain muhly	10			
				needlegrass	10			
				mountain snowberry	5			
				prairie Junegrass	5			
				sheep fescue	5			
				true mountain mahogany	5			
				western wheatgrass	5			
Cryoborolls-----	---	Favorable	1,200	Arizona fescue	15		---	---
		Normal	1,000	mountain muhly	15			
		Unfavorable	800	western wheatgrass	15			
				Gambel's oak	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range-land	Forest		
			Lb/acre		Pct	Pct		
98: Specie-----	Loamy Slopes	Favorable	1,200	antelope bitterbrush	15		---	---
		Normal	900	true mountain mahogany	15			
		Unfavorable	500	Indian ricegrass	10			
				Saskatoon serviceberry	10			
				bluebunch wheatgrass	10			
				mountain big sagebrush	10			
				prairie Junegrass	10			
				western wheatgrass	10			
99: Specie-----	Douglas-fir	Favorable	350	elk sedge		25	Rocky Mountain Douglas-fir	50
		Normal	250	common juniper		15	ponderosa pine	---
		Unfavorable	100	mountain snowberry		10		
				slender wheatgrass		10		
				Oregongrape		5		
				nodding brome		5		
				silvery lupine		5		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
100: Spectacle-----	Mountain Loam	Favorable	1,800	Arizona fescue	15		---	---
		Normal	1,500	mountain muhly	15			
		Unfavorable	1,200	Parry's danthonia	10			
				bluegrass	10			
				mountain big sagebrush	10			
				wheatgrass	10			
				brome	5			
				needlegrass	5			
Kinesava-----	Mountain Clay Loam	Favorable	1,500	Arizona fescue	15		---	---
		Normal	1,000	Gambel's oak	10			
		Unfavorable	750	Thurber's fescue	10			
				mountain muhly	10			
				needlegrass	10			
				western wheatgrass	10			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
101: Tellura-----	Subalpine Clay	Favorable	2,800	shrubby cinquefoil	20		---	---
		Normal	2,200	Thurber's fescue	15			
		Unfavorable	1,800	slender wheatgrass	15			
				Columbia needlegrass	10			
				nodding brome	10			
				Letterman's needlegrass	5			
				bottlebrush squirreltail	5			
				longflower rabbitbrush	5			
Leaps-----	Deep Clay Loam	Favorable	3,000	western wheatgrass	30		---	---
		Normal	2,500	Letterman's needlegrass	15			
		Unfavorable	2,000	muttongrass	10			
				slender wheatgrass	10			
				mountain big sagebrush	5			
				mule-ears	5			
				nodding brome	5			
				scarlet Indian paintbrush	5			
				silvery lupine	5			
				sulphur wildbuckwheat	5			
102: Typic Torriorthents--	Pinyon-Juniper	Favorable	---	galleta		20	Utah juniper	---
		Normal	---	blue grama		15	twoneedle pinyon	---
		Unfavorable	---	Indian ricegrass		10		
				bottlebrush squirreltail		10		
				black sagebrush		5		
103: Ustic Torriorthents--	---	Favorable	300	Indian ricegrass	15		---	---
		Normal	200	blue grama	15			
		Unfavorable	150	bottlebrush squirreltail	10			
				galleta	10			
				needleandthread	10			
Ustochreptic Calciorthids---	---	Favorable	300	Indian ricegrass	15		---	---
		Normal	200	blue grama	15			
		Unfavorable	150	bottlebrush squirreltail	10			
				galleta	10			
				needleandthread	10			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
104: Vananda-----	Basin Shale	Favorable	600	black sagebrush	15		---	---
		Normal	400	galleta	15			
		Unfavorable	300	western wheatgrass	15			
				Wyoming big sagebrush	10			
				Indian ricegrass	5			
105: Winnett-----	Salt Flats	Favorable	1,000	alkali sacaton	20		---	---
		Normal	700	other shrubs	20			
		Unfavorable	500	inland saltgrass	15			
				basin wildrye	10			
				fourwing saltbush	10			
				Sandberg bluegrass	5			
				greasewood	5			
				western wheatgrass	5			
106: Winz-----	Douglas-fir	Favorable	350	elk sedge		20	Rocky Mountain Douglas-fir	60
		Normal	250	common juniper		15	Engelmann's spruce	---
		Unfavorable	100	kinnikinnick		15	quaking aspen	---
				boxleaf myrtle		10	subalpine fir	---
				slender wheatgrass		10		
				Oregongrape		5		
				Woods' rose		5		
				nodding brome		5		
				silvery lupine		5		
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
107: Witt-----	Semidesert Loam	Favorable	800	Wyoming big sagebrush	15		---	---
		Normal	600	galleta	15			
		Unfavorable	400	needleandthread	15			
				Indian ricegrass	5			
				blue grama	5			
				muttongrass	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
108: Wrayha-----	Pinyon-Juniper	Favorable	650	Gambel's oak		15	twoneedle pinyon	120
		Normal	500	muttongrass		15	Utah juniper	---
		Unfavorable	300	Indian ricegrass		10		
				elk sedge		10		
				Saskatoon serviceberry		5		
				true mountain mahogany		5		
109: Zoltay-----	Mountain Clay Loam	Favorable	1,500	Arizona fescue	20		---	---
		Normal	1,000	Gambel's oak	15			
		Unfavorable	750	mountain muhly	15			
				western wheatgrass	15			
				Letterman's needlegrass	10			
				muttongrass	5			
110: Zoltay-----	Mountain Clay Loam	Favorable	1,500	Arizona fescue	20		---	---
		Normal	1,000	Gambel's oak	15			
		Unfavorable	750	mountain muhly	15			
				western wheatgrass	15			
				Letterman's needlegrass	10			
				muttongrass	5			
111: Zyme-----	Pinyon-Juniper	Favorable	600	Indian ricegrass		15	twoneedle pinyon	90
		Normal	400	Wyoming big sagebrush		15	Rocky Mountain juniper	---
		Unfavorable	300	Gambel's oak		10		
				true mountain mahogany		10		
				western wheatgrass		10		
				antelope bitterbrush		5		
				bottlebrush squirreltail		5		
				muttongrass		5		
				needleandthread		5		
				serviceberry		5		
Bodot-----	Clayey Foothills	Favorable	1,000	western wheatgrass	45		---	---
		Normal	800	Wyoming big sagebrush	15			
		Unfavorable	600	Indian ricegrass	5			
				Utah juniper	5			
				prairie Junegrass	5			
				rabbitbrush	5			
				twoneedle pinyon	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct	Pct		
111: Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
112: Water-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					

Table 8.--Forest productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  cu ft/ac	
7: Nortez-----	ponderosa pine-----	---	---	---
9: Adel, moist-----	quaking aspen-----	66	36	quaking aspen
12: Baird Hollow-----	quaking aspen-----	52	26	quaking aspen
Nordicol-----	quaking aspen-----	65	36	quaking aspen
Ryman-----	quaking aspen-----	67	37	quaking aspen
13: Barkelew-----	Utah juniper----- twoneedle pinyon----	--- ---	--- ---	twoneedle pinyon
Emmons-----	Utah juniper----- twoneedle pinyon----	--- ---	--- ---	---
19: Beje-----	Utah juniper----- twoneedle pinyon----	135 ---	29 ---	---
23: Ustic Torriorthents----	Utah juniper----- twoneedle pinyon----	--- ---	--- ---	---
25: Bond-----	Utah juniper----- twoneedle pinyon----	--- 40	--- ---	---
26: Borolls-----	Rocky Mountain Douglas-fir----- twoneedle pinyon----	--- --- ---	--- --- ---	---
27: Burnac-----	ponderosa pine-----	54	41	ponderosa pine
Delson-----	ponderosa pine-----	57	43	ponderosa pine
28: Burnac-----	ponderosa pine-----	54	41	ponderosa pine
Delson-----	ponderosa pine-----	57	43	ponderosa pine
Falcon-----	ponderosa pine-----	64	50	ponderosa pine
29: Bushvalley-----	ponderosa pine-----	---	---	---
Nordicol Variant-----	ponderosa pine-----	---	---	---
34: Ceek-----	Rocky Mountain juniper----- ponderosa pine-----	--- --- 73	--- --- 59	ponderosa pine

Table 8.--Forest productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
35: Clapper-----	Utah juniper----- twoneedle pinyon----	--- ---	--- ---	---
36: Clapper-----	Utah juniper----- twoneedle pinyon----	--- ---	--- ---	---
Ustic Torriorthents-----	Utah juniper----- twoneedle pinyon----	--- ---	--- ---	---
39: Falcon-----	ponderosa pine-----	64	50	ponderosa pine
Burnac-----	ponderosa pine-----	54	41	ponderosa pine
40: Farb-----	Utah juniper----- twoneedle pinyon----	--- 20	--- ---	---
41: Fivepine-----	Rocky Mountain juniper----- ponderosa pine----- twoneedle pinyon----	--- 67 ---	--- 52 ---	ponderosa pine
Nortez-----	ponderosa pine-----	---	---	---
42: Fivepine-----	Rocky Mountain juniper----- ponderosa pine----- twoneedle pinyon----	--- 67 ---	--- 52 ---	ponderosa pine
Pino-----	ponderosa pine-----	55	42	ponderosa pine
43: Fluvaquents-----	narrowleaf cottonwood-----	--- ---	--- ---	---
45: Gladel-----	Utah juniper----- twoneedle pinyon----	--- 30	--- ---	---
Bond-----	Utah juniper----- twoneedle pinyon----	--- 40	--- ---	---
46: Gladel, cool-----	Utah juniper----- twoneedle pinyon----	--- 30	--- ---	---
Bond, cool-----	Utah juniper----- twoneedle pinyon----	--- 40	--- ---	---
48: Skein-----	Utah juniper----- twoneedle pinyon----	--- 80	--- 14	---
66: Nortez-----	ponderosa pine-----	---	---	---

Table 8.--Forest productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  cu ft/ac	
67: Nortez-----	ponderosa pine-----	---	---	---
68: Nortez-----	ponderosa pine-----	---	---	---
69: Nortez-----	ponderosa pine-----	---	---	---
Fivepine-----	Rocky Mountain juniper-----	---	---	ponderosa pine
	ponderosa pine-----	67	52	
	twoneedle pinyon----	---	---	
72: Pagoda-----	ponderosa pine-----	66	51	ponderosa pine
Coulterg-----	ponderosa pine-----	68	53	ponderosa pine
Cabba-----	ponderosa pine-----	70	55	ponderosa pine
75: Pinon, cool-----	Utah juniper-----	---	---	Utah juniper,
	twoneedle pinyon----	75	14	twoneedle pinyon
Bowdish, cool-----	Utah juniper-----	---	---	---
	twoneedle pinyon----	75	14	
76: Pinon-----	Utah juniper-----	---	---	Utah juniper,
	twoneedle pinyon----	75	14	twoneedle pinyon
Bowdish-----	Utah juniper-----	---	---	---
	twoneedle pinyon----	75	14	
77: Pinon-----	Utah juniper-----	---	---	Utah juniper,
	twoneedle pinyon----	75	14	twoneedle pinyon
78: Pinon-----	Utah juniper-----	---	---	Utah juniper,
	twoneedle pinyon----	75	14	twoneedle pinyon
Ustic Torriorthents----	Utah juniper-----	---	---	---
	twoneedle pinyon----	---	---	
79: Pojoaque-----	Utah juniper-----	60	---	---
	twoneedle pinyon----	---	---	
Chilton-----	Utah juniper-----	---	---	---
	twoneedle pinyon----	---	---	
83: Bond, cool-----	Utah juniper-----	---	---	---
	twoneedle pinyon----	40	---	

Table 8.--Forest productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
88: Orthents-----	Rocky Mountain Douglas-fir----- Utah juniper----- ponderosa pine----- twoneedle pinyon---	--- --- --- --- ---	--- --- --- --- ---	---
91: Ryman-----	quaking aspen-----	67	37	quaking aspen
Adel, moist-----	quaking aspen-----	66	36	quaking aspen
94: Seitz-----	Engelmann's spruce-- Rocky Mountain Douglas-fir----- quaking aspen----- subalpine fir----- white fir-----	61 --- --- --- 72 35	51 --- --- --- 65 57	Engelmann's spruce, Rocky Mountain Douglas-fir
95: Skein-----	Utah juniper----- twoneedle pinyon---	--- 80	--- 14	---
96: Bushvalley-----	ponderosa pine-----	---	---	---
99: Specie, moist-----	Rocky Mountain Douglas-fir----- ponderosa pine-----	50 --- ---	38 --- ---	Rocky Mountain Douglas-fir
102: Typic Torriorthents----	Utah juniper----- twoneedle pinyon---	--- ---	--- ---	---
106: Winz-----	Engelmann's spruce-- Rocky Mountain Douglas-fir----- quaking aspen----- subalpine fir-----	--- 60 --- --- ---	--- 46 --- --- ---	---
108: Wrayha-----	Utah juniper----- twoneedle pinyon---	--- 120	--- 29	---
111: Zyme-----	Rocky Mountain juniper----- twoneedle pinyon---	--- --- 90	--- --- 14	---

Table 9A.--Forestland management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table. Only soils with potential for forestland are listed.)

Map symbol and soil name	Pct of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Nortez-----	20	Moderate Restrictive layer Strength	0.50 0.50	Moderately suited Slope Strength	0.50 0.50	Severe Strength	1.00
9: Adel, moist-----	90	Severe Slope Strength	1.00 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
12: Baird Hollow-----	35	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50
Nordicol-----	25	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Ryman-----	20	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
13: Barkelew-----	50	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50
Emmons-----	30	Moderate Strength	0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50
19: Beje-----	80	Severe Restrictive layer	1.00	Poorly suited Slope	1.00	Moderate Strength	0.50
23: Ustic Torriorthents-	40	Moderate Slope Restrictive layer Strength	0.50 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50
25: Bond-----	45	Severe Restrictive layer Slope Strength	1.00 0.50 0.50	Poorly suited Slope	1.00	Severe Strength	1.00
26: Borolls-----	45	Severe Slope Strength	1.00 0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50

Table 9A.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27:							
Burnac-----	55	Severe Stoniness Strength	1.00 0.50	Moderately suited Slope	0.50	Moderate Strength	0.50
Delson-----	25	Slight		Moderately suited Slope	0.50	Moderate Strength	0.50
28:							
Burnac-----	45	Severe Slope Strength	1.00 0.50	Poorly suited Slope	1.00	Moderate Strength	0.50
Delson-----	30	Severe Slope Strength	1.00 0.50	Poorly suited Slope	1.00	Moderate Strength	0.50
Falcon-----	15	Severe Slope	1.00	Poorly suited Slope	1.00	Moderate Strength	0.50
29:							
Bushvalley-----	50	Severe Restrictive layer	1.00	Moderately suited Strength Slope	0.50 0.50	Moderate Strength	0.50
Nordicol Variant----	30	Moderate Strength Restrictive layer	0.50 0.50	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
34:							
Ceek-----	85	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50
35:							
Clapper-----	85	Moderate Strength	0.50	Moderately suited Strength	0.50	Severe Strength	1.00
36:							
Clapper-----	45	Moderate Slope	0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Ustic Torriorthents-	40	Moderate Slope Restrictive layer Strength	0.50 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Moderate Strength	0.50
39:							
Falcon-----	55	Severe Restrictive layer	1.00	Moderately suited Slope	0.50	Moderate Strength	0.50
Burnac-----	25	Severe Stoniness Strength	1.00 0.50	Moderately suited Slope	0.50	Moderate Strength	0.50

Table 9A.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40: Farb-----	45	Severe Restrictive layer Slope	1.00 0.50	Poorly suited Slope	1.00	Moderate Strength	0.50
41: Fivepine-----	40	Severe Restrictive layer Slope Strength	1.00 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Nortez-----	30	Moderate Restrictive layer Slope Strength	0.50 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
42: Fivepine-----	50	Severe Restrictive layer	1.00	Moderately suited Slope Strength	0.50 0.50	Severe Strength	1.00
Pino-----	35	Moderate Restrictive layer Strength	0.50 0.50	Moderately suited Slope Strength	0.50 0.50	Severe Strength	1.00
43: Fluvaquents-----	90	Severe Flooding Strength	1.00 0.50	Poorly suited Flooding Strength	1.00 0.50	Severe Strength	1.00
45: Gladel-----	35	Severe Restrictive layer Slope Strength	1.00 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Bond-----	30	Severe Restrictive layer Slope Strength	1.00 0.50 0.50	Poorly suited Slope	1.00	Severe Strength	1.00
46: Gladel, cool-----	35	Severe Restrictive layer Strength	1.00 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Bond, cool-----	30	Severe Restrictive layer Strength	1.00 0.50	Poorly suited Slope	1.00	Severe Strength	1.00
48: Skein-----	40	Severe Restrictive layer Strength	1.00 0.50	Moderately suited Slope Strength	0.50 0.50	Severe Strength	1.00
66: Nortez-----	85	Moderate Strength Restrictive layer	0.50 0.50	Moderately suited Strength	0.50	Severe Strength	1.00

Table 9A.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
67: Nortez-----	85	Moderate Strength Restrictive layer	0.50 0.50	Moderately suited Slope Strength	0.50 0.50	Severe Strength	1.00
68: Nortez-----	50	Moderate Strength Restrictive layer	0.50 0.50	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
69: Nortez-----	45	Moderate Strength Restrictive layer	0.50 0.50	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
Fivepine-----	40	Severe Restrictive layer	1.00	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
72: Pagoda-----	35	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Coulterg-----	30	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Cabba-----	20	Severe Slope	1.00	Poorly suited Slope	1.00	Slight Strength	0.10
75: Pinon, cool-----	35	Severe Restrictive layer Strength	1.00 0.50	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
Bowdish, cool-----	30	Moderate Strength Restrictive layer	0.50 0.50	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
76: Pinon-----	30	Severe Restrictive layer Slope Strength	1.00 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
Bowdish-----	25	Moderate Restrictive layer Strength	0.50 0.50	Moderately suited Slope Strength	0.50 0.50	Severe Strength	1.00
77: Pinon-----	55	Severe Restrictive layer Strength	1.00 0.50	Moderately suited Strength Slope	0.50 0.50	Severe Strength	1.00
78: Pinon-----	50	Severe Restrictive layer Slope Strength	1.00 0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00

Table 9A.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78: Ustic Torriorthents-	35	Moderate Restrictive layer	0.50	Poorly suited Slope	1.00	Moderate Strength	0.50
		Slope	0.50	Strength	0.50		
		Strength	0.50				
79: Pojoaque-----	50	Severe Stoniness	1.00	Moderately suited Slope	0.50	Moderate Strength	0.50
		Strength	0.50	Stoniness	0.50		
Chilton-----	30	Moderate Slope	0.50	Poorly suited Slope	1.00	Slight Strength	0.10
83: Bond, cool-----	30	Severe Restrictive layer	1.00	Well suited		Severe Strength	1.00
		Strength	0.50				
88: Orthents-----	45	Severe Slope	1.00	Poorly suited Slope	1.00	Severe Strength	1.00
		Strength	0.50	Strength	0.50		
91: Ryman-----	50	Moderate Strength	0.50	Moderately suited Slope	0.50	Severe Strength	1.00
				Strength	0.50		
Adel, moist-----	30	Moderate Strength	0.50	Moderately suited Slope	0.50	Severe Strength	1.00
				Strength	0.50		
94: Seitz-----	90	Severe Slope	1.00	Poorly suited Slope	1.00	Severe Strength	1.00
95: Skein-----	60	Severe Restrictive layer	1.00	Poorly suited Slope	1.00	Severe Strength	1.00
		Slope	0.50	Strength	0.50		
		Strength	0.50				
96: Bushvalley-----	30	Severe Restrictive layer	1.00	Moderately suited Strength	0.50	Moderate Strength	0.50
				Slope	0.50		
99: Specie, moist-----	65	Severe Slope	1.00	Poorly suited Slope	1.00	Severe Strength	1.00
				Strength	0.50		
102: Typic Torriorthents-	85	Severe Slope	1.00	Poorly suited Slope	1.00	Severe Strength	1.00
				Stickiness	0.50		

Table 9A.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
106: Winz-----	60	Severe Slope Strength	1.00 0.50	Poorly suited Slope	1.00	Slight	
108: Wrayha-----	85	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00
111: Zyme-----	40	Moderate Slope Strength	0.50 0.50	Poorly suited Slope Strength	1.00 0.50	Severe Strength	1.00

Table 9B.--Forestland management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table. Only soils with potential for forestland are listed.)

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Nortez-----	20	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.89	Moderately suited Slope Strength	0.50 0.50
9: Adel, moist-----	90	Severe Slope/erodibility	0.65	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
12: Baird Hollow-----	35	Moderate Slope/erodibility	0.45	Moderate Slope/erodibility	0.88	Poorly suited Slope Strength	1.00 0.50
Nordicol-----	25	Moderate Slope/erodibility	0.45	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Ryman-----	20	Moderate Slope/erodibility	0.45	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
13: Barkelaw-----	50	Moderate Slope/erodibility	0.45	Moderate Slope/erodibility	0.88	Poorly suited Slope Strength	1.00 0.50
Emmons-----	30	Moderate Slope/erodibility	0.25	Moderate Slope/erodibility	0.50	Poorly suited Slope Strength	1.00 0.50
19: Beje-----	80	Moderate Slope/erodibility	0.27	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
23: Ustic Torriorthents-	40	Moderate Slope/erodibility	0.55	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
25: Bond-----	45	Moderate Slope/erodibility	0.33	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
26: Borolls-----	45	Very severe Slope/erodibility	1.00	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
27: Burnac-----	55	Moderate Slope/erodibility	0.24	Severe Slope/erodibility	1.00	Moderately suited Slope	0.50
Delson-----	25	Moderate Slope/erodibility	0.24	Moderate Slope/erodibility	0.75	Moderately suited Slope	0.50

Table 9B.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28: Burnac-----	45	Severe Slope/erodibility	0.69	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
Delson-----	30	Severe Slope/erodibility	0.69	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
Falcon-----	15	Severe Slope/erodibility	0.69	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
29: Bushvalley-----	50	Slight Slope/erodibility	0.12	Slight Slope/erodibility	0.23	Moderately suited Strength Slope	0.50 0.50
Nordicol Variant----	30	Slight Slope/erodibility	0.12	Moderate Slope/erodibility	0.67	Moderately suited Strength Slope	0.50 0.50
34: Ceek-----	85	Moderate Slope/erodibility	0.49	Moderate Slope/erodibility	0.96	Poorly suited Slope Strength	1.00 0.50
35: Clapper-----	85	Slight Slope/erodibility	0.10	Moderate Slope/erodibility	0.56	Moderately suited Strength	0.50
36: Clapper-----	45	Moderate Slope/erodibility	0.45	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Ustic Torriorthents-	40	Moderate Slope/erodibility	0.45	Moderate Slope/erodibility	0.88	Poorly suited Slope Strength	1.00 0.50
39: Falcon-----	55	Moderate Slope/erodibility	0.24	Moderate Slope/erodibility	0.75	Moderately suited Slope	0.50
Burnac-----	25	Moderate Slope/erodibility	0.24	Severe Slope/erodibility	1.00	Moderately suited Slope	0.50
40: Farb-----	45	Moderate Slope/erodibility	0.31	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
41: Fivepine-----	40	Moderate Slope/erodibility	0.41	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Nortez-----	30	Moderate Slope/erodibility	0.31	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
42: Fivepine-----	50	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.89	Moderately suited Slope Strength	0.50 0.50

Table 9B.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Pino-----	35	Slight Slope/erodibility	0.18	Severe Slope/erodibility	1.00	Moderately suited Slope Strength	0.50 0.50
43: Fluvaquents-----	90	Slight Slope/erodibility	0.07	Moderate Slope/erodibility	0.33	Poorly suited Flooding Strength	1.00 0.50
45: Gladel-----	35	Moderate Slope/erodibility	0.51	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Bond-----	30	Moderate Slope/erodibility	0.51	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
46: Gladel, cool-----	35	Moderate Slope/erodibility	0.27	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Bond, cool-----	30	Moderate Slope/erodibility	0.27	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
48: Skein-----	40	Moderate Slope/erodibility	0.24	Severe Slope/erodibility	1.00	Moderately suited Slope Strength	0.50 0.50
66: Nortez-----	85	Slight Slope/erodibility	0.08	Moderate Slope/erodibility	0.44	Moderately suited Strength	0.50
67: Nortez-----	85	Slight Slope/erodibility	0.18	Severe Slope/erodibility	1.00	Moderately suited Slope Strength	0.50 0.50
68: Nortez-----	50	Slight Slope/erodibility	0.14	Moderate Slope/erodibility	0.78	Moderately suited Strength Slope	0.50 0.50
69: Nortez-----	45	Slight Slope/erodibility	0.14	Moderate Slope/erodibility	0.78	Moderately suited Strength Slope	0.50 0.50
Fivepine-----	40	Slight Slope/erodibility	0.14	Moderate Slope/erodibility	0.78	Moderately suited Strength Slope	0.50 0.50
72: Pagoda-----	35	Moderate Slope/erodibility	0.39	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50

Table 9B.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72: Coulterg-----	30	Moderate Slope/erodibility	0.59	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Cabba-----	20	Severe Slope/erodibility	0.78	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
75: Pinon, cool-----	35	Slight Slope/erodibility	0.14	Moderate Slope/erodibility	0.78	Moderately suited Strength Slope	0.50 0.50
Bowdish, cool-----	30	Slight Slope/erodibility	0.17	Moderate Slope/erodibility	0.78	Moderately suited Strength Slope	0.50 0.50
76: Pinon-----	30	Moderate Slope/erodibility	0.33	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Bowdish-----	25	Slight Slope/erodibility	0.22	Severe Slope/erodibility	1.00	Moderately suited Slope Strength	0.50 0.50
77: Pinon-----	55	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.89	Moderately suited Strength Slope	0.50 0.50
78: Pinon-----	50	Moderate Slope/erodibility	0.35	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Ustic Torriorthents-	35	Moderate Slope/erodibility	0.35	Moderate Slope/erodibility	0.69	Poorly suited Slope Strength	1.00 0.50
79: Pojoaque-----	50	Slight Slope/erodibility	0.20	Moderate Slope/erodibility	0.38	Moderately suited Slope Stoniness	0.50 0.50
Chilton-----	30	Moderate Slope/erodibility	0.35	Moderate Slope/erodibility	0.69	Poorly suited Slope	1.00
83: Bond, cool-----	30	Slight Slope/erodibility	0.08	Moderate Slope/erodibility	0.44	Well suited	
88: Orthents-----	45	Very severe Slope/erodibility	1.00	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
91: Ryman-----	50	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.50	Moderately suited Slope Strength	0.50 0.50

Table 9B.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91: Adel, moist-----	30	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.50	Moderately suited Slope Strength	0.50 0.50
94: Seitz-----	90	Severe Slope/erodibility	0.69	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
95: Skein-----	60	Moderate Slope/erodibility	0.43	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
96: Bushvalley-----	30	Slight Slope/erodibility	0.12	Slight Slope/erodibility	0.23	Moderately suited Strength Slope	0.50 0.50
99: Specie, moist-----	65	Severe Slope/erodibility	0.75	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
102: Typic Torriorthents-	85	Very severe Slope/erodibility	1.00	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
		Slope/erodibility	0.82	Slope/erodibility	1.00	Stickiness	0.50
106: Winz-----	60	Severe Slope/erodibility	0.88	Severe Slope/erodibility	1.00	Poorly suited Slope	1.00
108: Wrayha-----	85	Moderate Slope/erodibility	0.43	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
111: Zyme-----	40	Moderate Slope/erodibility	0.45	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50

Table 9C.--Forestland management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table. Only soils with potential for forestland are listed.)

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Nortez-----	20	Moderately suited Stickiness	0.50	Moderately suited Stoniness Slope Stickiness	0.50 0.50 0.50	Moderately suited Strength	0.50
9: Adel, moist-----	90	Well suited		Unsuited Slope	1.00	Moderately suited Slope Strength	0.50 0.50
12: Baird Hollow-----	35	Moderately suited Stoniness	0.50	Unsuited Stoniness Slope	1.00 0.75	Moderately suited Slope Strength	0.50 0.50
Nordicol-----	25	Well suited		Poorly suited Slope	0.75	Moderately suited Slope Strength	0.50 0.50
Ryman-----	20	Well suited		Poorly suited Slope	0.75	Moderately suited Slope Strength	0.50 0.50
13: Barkelew-----	50	Poorly suited Stoniness	0.75	Unsuited Stoniness Slope	1.00 0.75	Moderately suited Slope Strength	0.50 0.50
Emmons-----	30	Poorly suited Stoniness	0.75	Unsuited Stoniness Slope	1.00 0.50	Moderately suited Strength	0.50
19: Beje-----	80	Well suited		Moderately suited Slope	0.50	Well suited	
23: Ustic Torriorthents-	40	Moderately suited Stickiness Stoniness	0.50 0.50	Unsuited Slope Stoniness Stickiness	1.00 1.00 0.50	Moderately suited Slope Strength	0.50 0.50
25: Bond-----	45	Well suited		Poorly suited Slope	0.75	Well suited	
26: Borolls-----	45	Moderately suited Slope Stoniness	0.50 0.50	Unsuited Slope Stoniness	1.00 1.00	Poorly suited Slope Strength	1.00 0.50
27: Burnac-----	55	Well suited		Moderately suited Slope	0.50	Well suited	

Table 9C.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27: Delson-----	25	Well suited		Moderately suited Slope	0.50	Well suited	
28: Burnac-----	45	Moderately suited Slope	0.50	Unsuited Slope	1.00	Moderately suited Slope	0.50
Delson-----	30	Moderately suited Slope	0.50	Unsuited Slope	1.00	Moderately suited Slope	0.50
Falcon-----	15	Moderately suited Slope	0.50	Unsuited Slope	1.00	Moderately suited Slope	0.50
29: Bushvalley-----	50	Poorly suited Stoniness	0.75	Unsuited Stoniness Slope	1.00 0.50	Moderately suited Strength	0.50
Nordicol Variant----	30	Well suited		Moderately suited Slope	0.50	Moderately suited Strength	0.50
34: Ceek-----	85	Poorly suited Stoniness	0.75	Unsuited Stoniness Slope	1.00 0.75	Moderately suited Slope Strength	0.50 0.50
35: Clapper-----	85	Moderately suited Stoniness	0.50	Poorly suited Stoniness Slope	0.75 0.50	Moderately suited Strength	0.50
36: Clapper-----	45	Moderately suited Stoniness	0.50	Poorly suited Slope Stoniness	0.75 0.75	Moderately suited Slope Strength	0.50 0.50
Ustic Torriorthents-	40	Moderately suited Stickiness Stoniness	0.50 0.50	Unsuited Stoniness Slope Stickiness	1.00 0.75 0.50	Moderately suited Slope Strength	0.50 0.50
39: Falcon-----	55	Well suited		Moderately suited Slope	0.50	Well suited	
Burnac-----	25	Well suited		Moderately suited Slope	0.50	Well suited	
40: Farb-----	45	Unsuited Restrictive layer	1.00	Unsuited Restrictive layer Slope	1.00 0.75	Well suited	
41: Fivepine-----	40	Moderately suited Stickiness	0.50	Poorly suited Slope Stickiness	0.75 0.50	Moderately suited Strength Slope	0.50 0.50

Table 9C.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41: Nortez-----	30	Moderately suited Stickiness	0.50	Poorly suited Slope Stoniness Stickiness	0.75 0.50 0.50	Moderately suited Strength	0.50
42: Fivepine-----	50	Moderately suited Stickiness	0.50	Moderately suited Stickiness Slope	0.50 0.50	Moderately suited Strength	0.50
Pino-----	35	Well suited		Moderately suited Slope	0.50	Moderately suited Strength	0.50
43: Fluvaquents-----	90	Well suited		Moderately suited Stoniness	0.50	Moderately suited Strength	0.50
45: Gladel-----	35	Unsuited Restrictive layer	1.00	Unsuited Restrictive layer Slope	1.00 1.00	Moderately suited Slope Strength	0.50 0.50
Bond-----	30	Well suited		Unsuited Slope	1.00	Moderately suited Slope	0.50
46: Gladel, cool-----	35	Unsuited Restrictive layer	1.00	Unsuited Restrictive layer Slope	1.00 0.50	Moderately suited Strength	0.50
Bond, cool-----	30	Well suited		Moderately suited Slope	0.50	Well suited	
48: Skein-----	40	Well suited		Moderately suited Slope Stoniness	0.50 0.50	Moderately suited Strength	0.50
66: Nortez-----	85	Moderately suited Stickiness	0.50	Moderately suited Stoniness Stickiness	0.50 0.50	Moderately suited Strength	0.50
67: Nortez-----	85	Moderately suited Stickiness	0.50	Moderately suited Stoniness Slope Stickiness	0.50 0.50 0.50	Moderately suited Strength	0.50
68: Nortez-----	50	Moderately suited Stickiness	0.50	Moderately suited Stoniness Slope Stickiness	0.50 0.50 0.50	Moderately suited Strength	0.50
69: Nortez-----	45	Moderately suited Stickiness	0.50	Moderately suited Stoniness Slope Stickiness	0.50 0.50 0.50	Moderately suited Strength	0.50

Table 9C.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
69: Fivepine-----	40	Moderately suited Stickiness	0.50	Moderately suited Stickiness Slope	0.50 0.50	Moderately suited Strength	0.50
72: Pagoda-----	35	Moderately suited Stickiness	0.50	Poorly suited Slope Stickiness	0.75 0.50	Moderately suited Strength Slope	0.50 0.50
Coulterg-----	30	Well suited		Unsuited Slope	1.00	Moderately suited Slope Strength	0.50 0.50
Cabba-----	20	Moderately suited Slope	0.50	Unsuited Slope Stoniness	1.00 0.50	Poorly suited Slope	1.00
75: Pinon, cool-----	35	Well suited		Moderately suited Slope	0.50	Moderately suited Strength	0.50
Bowdish, cool-----	30	Well suited		Moderately suited Slope Stoniness	0.50 0.50	Moderately suited Strength	0.50
76: Pinon-----	30	Well suited		Poorly suited Slope	0.75	Moderately suited Strength	0.50
Bowdish-----	25	Well suited		Moderately suited Slope Stoniness	0.50 0.50	Moderately suited Strength	0.50
77: Pinon-----	55	Well suited		Moderately suited Slope	0.50	Moderately suited Strength	0.50
78: Pinon-----	50	Well suited		Poorly suited Slope	0.75	Moderately suited Strength	0.50
Ustic Torriorthents-	35	Moderately suited Stickiness Stoniness	0.50 0.50	Unsuited Stoniness Slope Stickiness	1.00 0.75 0.50	Moderately suited Strength	0.50
79: Pojoaque-----	50	Poorly suited Stoniness	0.75	Unsuited Stoniness Slope	1.00 0.50	Moderately suited Stoniness	0.50
Chilton-----	30	Moderately suited Stoniness	0.50	Unsuited Stoniness Slope	1.00 0.75	Well suited	
83: Bond, cool-----	30	Well suited		Well suited		Well suited	

Table 9C.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88: Orthents-----	45	Moderately suited Slope Stoniness	0.50 0.50	Unsuited Slope Stoniness	1.00 0.75	Poorly suited Slope Strength	1.00 0.50
91: Ryman-----	50	Well suited		Moderately suited Slope	0.50	Moderately suited Strength	0.50
Adel, moist-----	30	Well suited		Moderately suited Slope	0.50	Moderately suited Strength	0.50
94: Seitz-----	90	Moderately suited Stickiness Slope	0.50 0.50	Unsuited Slope Stoniness Stickiness	1.00 0.50 0.50	Moderately suited Slope	0.50
95: Skein-----	60	Well suited		Poorly suited Slope Stoniness	0.75 0.50	Moderately suited Slope Strength	0.50 0.50
96: Bushvalley-----	30	Poorly suited Stoniness	0.75	Unsuited Stoniness Slope	1.00 0.50	Moderately suited Strength	0.50
99: Specie, moist-----	65	Moderately suited Slope	0.50	Unsuited Slope Stoniness	1.00 0.50	Poorly suited Slope Strength	1.00 0.50
102: Typic Torriorthents-	85	Moderately suited Slope Stoniness	0.50 0.50	Unsuited Slope Stoniness	1.00 0.75	Poorly suited Slope Stickiness	1.00 0.50
106: Winz-----	60	Unsuited Stoniness Slope	1.00 0.50	Unsuited Slope Stoniness	1.00 1.00	Poorly suited Slope	1.00
108: Wrayha-----	85	Moderately suited Stickiness Stoniness	0.50 0.50	Poorly suited Slope Stoniness Stickiness	0.75 0.75 0.50	Moderately suited Slope Strength	0.50 0.50
111: Zyme-----	40	Well suited		Poorly suited Slope	0.75	Moderately suited Strength Slope	0.50 0.50

Table 9D.--Forestland management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table. Only soils with potential for forestland are listed.)

Map symbol and soil name	Pct of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7: Nortez-----	20	Well suited		Poorly suited Restrictive layer	0.50
9: Adel, moist-----	90	Poorly suited Slope	0.50	Poorly suited Slope	0.50
12: Baird Hollow-----	35	Poorly suited Slope Stoniness	0.50 0.50	Unsuited Stoniness Slope	1.00 0.50
Nordicol-----	25	Poorly suited Slope	0.50	Poorly suited Slope Stoniness	0.50 0.50
Ryman-----	20	Poorly suited Slope	0.50	Poorly suited Slope	0.50
13: Barkelew-----	50	Unsuited Stoniness Slope	1.00 0.50	Unsuited Stoniness Slope	1.00 0.50
Emmons-----	30	Poorly suited Stoniness	0.50	Poorly suited Stoniness	0.50
19: Beje-----	80	Well suited		Unsuited Restrictive layer	1.00
23: Ustic Torriorthents-	40	Poorly suited Slope Stoniness	0.50 0.50	Poorly suited Slope Stoniness Restrictive layer	0.50 0.50 0.50
25: Bond-----	45	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50
26: Borolls-----	45	Unsuited Slope Stoniness	1.00 0.50	Unsuited Slope Stoniness	1.00 1.00
27: Burnac-----	55	Well suited		Poorly suited Stoniness	0.50
Delson-----	25	Well suited		Well suited	

Table 9D.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
28:					
Burnac-----	45	Poorly suited Slope	0.50	Poorly suited Slope Stoniness	0.50 0.50
Delson-----	30	Poorly suited Slope	0.50	Poorly suited Slope	0.50
Falcon-----	15	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50
29:					
Bushvalley-----	50	Poorly suited Stoniness	0.50	Unsuited Restrictive layer Stoniness	1.00 1.00
Nordicol Variant---	30	Well suited		Poorly suited Restrictive layer	0.50
34:					
Ceek-----	85	Poorly suited Slope Stoniness	0.50 0.50	Unsuited Stoniness Slope	1.00 0.50
35:					
Clapper-----	85	Poorly suited Stoniness	0.50	Unsuited Stoniness	1.00
36:					
Clapper-----	45	Poorly suited Slope Stoniness	0.50 0.50	Unsuited Stoniness Slope	1.00 0.50
Ustic Torriorthents-	40	Poorly suited Slope Stoniness	0.50 0.50	Poorly suited Slope Stoniness Restrictive layer	0.50 0.50 0.50
39:					
Falcon-----	55	Well suited		Unsuited Restrictive layer	1.00
Burnac-----	25	Well suited		Poorly suited Stoniness	0.50
40:					
Farb-----	45	Unsuited Restrictive layer Slope	1.00 0.50	Unsuited Restrictive layer Slope	1.00 0.50
41:					
Fivepine-----	40	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50
Nortez-----	30	Poorly suited Slope	0.50	Poorly suited Restrictive layer Slope	0.50 0.50

Table 9D.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
42: Fivepine-----	50	Well suited		Unsuited Restrictive layer	1.00
Pino-----	35	Well suited		Poorly suited Restrictive layer	0.50
43: Fluvaquents-----	90	Well suited		Well suited	
45: Gladel-----	35	Unsuited Restrictive layer Slope	1.00 0.50	Unsuited Restrictive layer Slope	1.00 0.50
Bond-----	30	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50
46: Gladel, cool-----	35	Unsuited Restrictive layer	1.00	Unsuited Restrictive layer	1.00
Bond, cool-----	30	Well suited		Unsuited Restrictive layer	1.00
48: Skein-----	40	Well suited		Unsuited Restrictive layer	1.00
66: Nortez-----	85	Well suited		Poorly suited Restrictive layer	0.50
67: Nortez-----	85	Well suited		Poorly suited Restrictive layer	0.50
68: Nortez-----	50	Well suited		Poorly suited Restrictive layer	0.50
69: Nortez-----	45	Well suited		Poorly suited Restrictive layer	0.50
Fivepine-----	40	Well suited		Unsuited Restrictive layer	1.00
72: Pagoda-----	35	Poorly suited Slope	0.50	Poorly suited Slope	0.50
Coulterg-----	30	Poorly suited Slope	0.50	Poorly suited Slope	0.50
Cabba-----	20	Unsuited Slope	1.00	Unsuited Slope	1.00

Table 9D.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
75: Pinon, cool-----	35	Well suited		Unsuited Restrictive layer	1.00
Bowdish, cool-----	30	Well suited		Poorly suited Restrictive layer	0.50
76: Pinon-----	30	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50
Bowdish-----	25	Well suited		Poorly suited Restrictive layer	0.50
77: Pinon-----	55	Well suited		Unsuited Restrictive layer	1.00
78: Pinon-----	50	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50
Ustic Torriorthents-	35	Poorly suited Stoniness Slope	0.50 0.50	Poorly suited Stoniness Restrictive layer Slope	0.50 0.50 0.50
79: Pojoaque-----	50	Poorly suited Stoniness	0.50	Unsuited Stoniness	1.00
Chilton-----	30	Poorly suited Stoniness Slope	0.50 0.50	Poorly suited Stoniness Slope	0.50 0.50
83: Bond, cool-----	30	Well suited		Unsuited Restrictive layer	1.00
88: Orthents-----	45	Unsuited Slope Stoniness	1.00 0.50	Unsuited Slope Stoniness	1.00 0.50
91: Ryman-----	50	Well suited		Well suited	
Adel, moist-----	30	Well suited		Well suited	
94: Seitz-----	90	Poorly suited Slope	0.50	Poorly suited Slope	0.50
95: Skein-----	60	Poorly suited Slope	0.50	Unsuited Restrictive layer Slope	1.00 0.50

Table 9D.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
96: Bushvalley-----	30	Poorly suited Stoniness	0.50	Unsuited Restrictive layer Stoniness	1.00 1.00
99: Specie, moist-----	65	Unsuited Slope	1.00	Unsuited Slope Stoniness	1.00 0.50
102: Typic Torriorthents-	85	Unsuited Slope Stoniness	1.00 0.50	Unsuited Slope	1.00
106: Winz-----	60	Unsuited Slope Stoniness	1.00 1.00	Unsuited Stoniness Slope	1.00 1.00
108: Wrayha-----	85	Poorly suited Slope Stoniness	0.50 0.50	Poorly suited Slope	0.50
111: Zyme-----	40	Poorly suited Slope	0.50	Poorly suited Slope	0.50

Table 9E.--Forestland management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table. Only soils with potential for forestland are listed.)

Map symbol and soil name	Pct of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7: Nortez-----	20	Low		Low	
9: Adel, moist-----	90	Low		Low	
12: Baird Hollow-----	35	Low		Low	
Nordicol-----	25	Low		Low	
Ryman-----	20	Low		Low	
13: Barkelew-----	50	Low		Moderate Lime	0.50
Emmons-----	30	Low		Moderate Lime Soil reaction	0.50 0.50
19: Beje-----	80	Low		Low	
23: Ustic Torriorthents-	40	Low		Moderate Soil reaction	0.50
25: Bond-----	45	Low		Low	
26: Borolls-----	45	Low		Low	
27: Burnac-----	55	Low		Low	
Delson-----	25	Low		Low	
28: Burnac-----	45	Low		Low	
Delson-----	30	Low		Low	
Falcon-----	15	Low		Low	
29: Bushvalley-----	50	Low		Low	
Nordicol Variant----	30	Low		Low	
34: Ceek-----	85	Low		Low	

Table 9E.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
35: Clapper-----	85	Low		Moderate Lime	0.50
36: Clapper-----	45	Low		Moderate Lime	0.50
Ustic Torriorthents-	40	Low		Moderate Soil reaction	0.50
39: Falcon-----	55	Low		Low	
Burnac-----	25	Low		Low	
40: Farb-----	45	Low		Moderate Soil reaction	0.50
41: Fivepine-----	40	Low		Low	
Nortez-----	30	Low		Low	
42: Fivepine-----	50	Low		Low	
Pino-----	35	Low		Low	
43: Fluvaquents-----	90	Low		Moderate Soil reaction Salinity	0.50 0.50
45: Gladel-----	35	Low		Moderate Soil reaction	0.50
Bond-----	30	Low		Low	
46: Gladel, cool-----	35	Low		Moderate Soil reaction	0.50
Bond, cool-----	30	Low		Low	
48: Skein-----	40	Low		Moderate Lime Soil reaction	0.50 0.50
66: Nortez-----	85	Low		Low	
67: Nortez-----	85	Low		Low	
68: Nortez-----	50	Low		Low	

Table 9E.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
69:					
Nortez-----	45	Low		Low	
Fivepine-----	40	Low		Low	
72:					
Pagoda-----	35	Low		Low	
Coulterg-----	30	Low		Moderate Soil reaction	0.50
Cabba-----	20	Low		Moderate Soil reaction	0.50
75:					
Pinon, cool-----	35	Low		Moderate Lime Soil reaction	0.50 0.50
Bowdish, cool-----	30	Low		Moderate Lime Soil reaction	0.50 0.50
76:					
Pinon-----	30	Low		Moderate Lime Soil reaction	0.50 0.50
Bowdish-----	25	Low		Moderate Lime Soil reaction	0.50 0.50
77:					
Pinon-----	55	Low		Moderate Lime Soil reaction	0.50 0.50
78:					
Pinon-----	50	Low		Moderate Lime Soil reaction	0.50 0.50
Ustic Torriorthents-	35	Low		Moderate Soil reaction	0.50
79:					
Pojoaque-----	50	Low		Low	
Chilton-----	30	Low		Moderate Soil reaction	0.50
83:					
Bond, cool-----	30	Low		Low	
88:					
Orthents-----	45	Low		Moderate Lime Soil reaction	0.50 0.50
91:					
Ryman-----	50	Low		Low	

Table 9E.--Forestland management--continued

Map symbol and soil name	Pct of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
91: Adel, moist-----	30	Low		Low	
94: Seitz-----	90	Low		Low	
95: Skein-----	60	Low		Moderate Lime Soil reaction	0.50 0.50
96: Bushvalley-----	30	Low		Low	
99: Specie, moist-----	65	Low		Low	
102: Typic Torriorthents-	85	Low		Moderate Soil reaction	0.50
106: Winz-----	60	Low		Low	
108: Wrayha-----	85	Low		Low	
111: Zyme-----	40	Low		Moderate Soil reaction	0.50

Table 10A.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.05
2: Abra-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.77 0.50
3: Abra-----	85	Somewhat limited Dusty Slope	0.50 0.04	Somewhat limited Dusty Slope	0.50 0.04	Very limited Slope Dusty	1.00 0.50
4: Ackmen-----	90	Very limited Flooding	1.00	Not limited		Somewhat limited Slope	0.05
5: Acree-----	85	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability Slope	0.96 0.48
6: Acree-----	85	Somewhat limited Restricted permeability Slope	0.96 0.04	Somewhat limited Restricted permeability Slope	0.96 0.04	Very limited Slope Restricted permeability	1.00 0.96
7: Acree-----	45	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability	1.00 0.96
Zoltay-----	25	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability	1.00 0.96
Nortez-----	20	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability Depth to bedrock	1.00 0.96 0.46
8: Adel-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Content of large stones	1.00 0.01

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9: Adel, moist-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Content of large stones	1.00 0.01
10: Aquolls-----	95	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 0.44 0.21	Somewhat limited Flooding Restricted permeability Depth to saturated zone	0.40 0.21 0.19	Very limited Flooding Depth to saturated zone Restricted permeability Slope	1.00 0.44 0.21 0.05
11: Badland-----	90	Not rated		Not rated		Not rated	
12: Baird Hollow-----	35	Very limited Slope Restricted permeability Content of large stones	1.00 0.21 0.18	Very limited Slope Restricted permeability Content of large stones	1.00 0.21 0.18	Very limited Slope Content of large stones Restricted permeability Gravel content	1.00 1.00 0.21 0.01
Nordicol-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Content of large stones	1.00 0.01
Ryman-----	20	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability Content of large stones	1.00 0.96 0.01
13: Barklew-----	50	Very limited Slope Content of large stones	1.00 0.61	Very limited Slope Content of large stones	1.00 0.61	Very limited Content of large stones Slope Gravel content	1.00 1.00 0.03
Emmons-----	30	Somewhat limited Slope Content of large stones Dusty	0.84 0.77 0.50	Somewhat limited Slope Content of large stones Dusty	0.84 0.77 0.50	Very limited Content of large stones Slope Dusty Gravel content	1.00 1.00 0.50 0.29
14: Barx-----	85	Not limited		Not limited		Somewhat limited Slope	0.05
15: Barx-----	85	Not limited		Not limited		Somewhat limited Slope	0.77

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16: Barx-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
17: Barx-----	45	Not limited		Not limited		Very limited Slope	1.00
Progresso-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
18: Begay-----	85	Not limited		Not limited		Somewhat limited Slope	0.48
19: Beje-----	80	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.96 0.96	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.96 0.96	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.96
20: Billings-----	85	Very limited Flooding Dusty Salinity	1.00 0.50 0.13	Somewhat limited Dusty Salinity	0.50 0.13	Somewhat limited Dusty Slope Salinity	0.50 0.21 0.13
21: Billings, moist----	90	Very limited Flooding Salinity	1.00 0.13	Somewhat limited Salinity	0.13	Somewhat limited Slope Salinity	0.21 0.13
22: Bodot, dry-----	90	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.41	Very limited Slope Depth to bedrock Restricted permeability	1.00 0.46 0.41
23: Bodot, dry-----	45	Very limited Slope Too stony Content of large stones Restricted permeability	1.00 1.00 0.86 0.41	Very limited Slope Too stony Content of large stones Restricted permeability	1.00 1.00 0.86 0.41	Very limited Content of large stones Slope Too stony Depth to bedrock Restricted permeability	1.00 1.00 1.00 0.46 0.41
Ustic Torriorthents-	40	Very limited Slope Content of large stones	1.00 0.35	Very limited Slope Content of large stones	1.00 0.35	Very limited Slope Content of large stones Depth to bedrock Gravel content	1.00 1.00 0.35 0.04

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24: Bodot, dry-----	50	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Depth to bedrock Restricted permeability	0.46 0.41
Zyme, dry-----	35	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability Content of large stones	0.41 0.03
25: Bond-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Progresso-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope	1.00
						Dusty	0.50
						Depth to bedrock	0.46
26: Borolls-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability Gravel content	0.21 0.05
Rock outcrop-----	40	Not rated		Not rated		Not rated	
27: Burnac-----	55	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope	1.00
		Slope	0.63	Slope	0.63	Restricted permeability	0.96
Delson-----	25	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope	1.00
		Slope	0.63	Slope	0.63	Restricted permeability	0.96
28: Burnac-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Delson-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28: Falcon-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock Content of large stones	1.00 1.00 0.03
29: Bushvalley-----	50	Very limited Depth to bedrock Restricted permeability Content of large stones	1.00 0.96 0.18	Very limited Depth to bedrock Restricted permeability Content of large stones	1.00 0.96 0.18	Very limited Content of large stones Depth to bedrock Restricted permeability Slope Gravel content	1.00 1.00 0.96 0.94 0.11
Nordicol Variant----	30	Somewhat limited Restricted permeability	0.21	Somewhat limited Restricted permeability	0.21	Somewhat limited Slope Depth to bedrock Restricted permeability Content of large stones	0.94 0.46 0.21 0.03
30: Callan-----	80	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Dusty Restricted permeability Slope	0.50 0.41 0.05
31: Callan-----	80	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Slope Dusty Restricted permeability	0.77 0.50 0.41
32: Callan-----	80	Somewhat limited Dusty Restricted permeability Slope	0.50 0.41 0.04	Somewhat limited Dusty Restricted permeability Slope	0.50 0.41 0.04	Very limited Slope Dusty Restricted permeability	1.00 0.50 0.41
33: Callan-----	50	Somewhat limited Slope Dusty Restricted permeability	0.63 0.50 0.41	Somewhat limited Slope Dusty Restricted permeability	0.63 0.50 0.41	Very limited Slope Dusty Restricted permeability	1.00 0.50 0.41
Gurley-----	40	Somewhat limited Slope Dusty Restricted permeability	0.63 0.50 0.41	Somewhat limited Slope Dusty Restricted permeability	0.63 0.50 0.41	Very limited Slope Dusty Depth to bedrock Restricted permeability	1.00 0.50 0.46 0.41

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34: Ceek-----	85	Very limited Slope Content of large stones Restricted permeability	1.00  0.96  0.96	Very limited Slope Content of large stones Restricted permeability	1.00  0.96  0.96	Very limited Content of large stones Slope Restricted permeability Gravel content	1.00  1.00  0.96  0.04
35: Clapper-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty Gravel content Content of large stones	0.77  0.50  0.03  0.01
36: Clapper-----	45	Very limited Slope Dusty	1.00  0.50	Very limited Slope Dusty	1.00  0.50	Very limited Slope Dusty Gravel content Content of large stones	1.00  0.50  0.03  0.01
Ustic Torriorthents-	40	Very limited Slope Content of large stones	1.00  0.35	Very limited Slope Content of large stones	1.00  0.35	Very limited Slope Content of large stones Depth to bedrock Gravel content	1.00  1.00  0.35  0.04
37: Cryaquolls-----	90	Very limited Flooding Depth to saturated zone Restricted permeability	1.00  1.00  0.99  0.99	Very limited Restricted permeability Depth to saturated zone Flooding	0.99  0.75  0.40	Very limited Flooding Depth to saturated zone Restricted permeability Slope Gravel content	1.00  1.00  0.99  0.05  0.04
38: Evanston-----	85	Not limited		Not limited		Somewhat limited Slope	0.77
39: Falcon-----	55	Very limited Depth to bedrock Slope	1.00  0.63	Very limited Depth to bedrock Slope	1.00  0.63	Very limited Depth to bedrock Slope Content of large stones	1.00  1.00  0.03
Burnac-----	25	Somewhat limited Restricted permeability Slope	0.96  0.63	Somewhat limited Restricted permeability Slope	0.96  0.63	Very limited Slope Restricted permeability	1.00  0.96
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40: Farb-----	45	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.41	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.41	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.41
Rock outcrop-----	40	Not rated		Not rated		Not rated	
41: Fivepine-----	40	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.96	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.96	Very limited Slope Depth to bedrock Restricted permeability Content of large stones Gravel content	1.00 1.00 0.96 0.03 0.02
Nortez-----	30	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability Depth to bedrock	1.00 0.96 0.46
Rock outcrop-----	20	Not rated		Not rated		Not rated	
42: Fivepine-----	50	Very limited Depth to bedrock Restricted permeability	1.00 0.96	Very limited Depth to bedrock Restricted permeability	1.00 0.96	Very limited Slope Depth to bedrock Restricted permeability Content of large stones Gravel content	1.00 1.00 0.96 0.03 0.02
Pino-----	35	Somewhat limited Restricted permeability Slope	0.96 0.04	Somewhat limited Restricted permeability Slope	0.96 0.04	Very limited Slope Restricted permeability Depth to bedrock	1.00 0.96 0.46
43: Fluvaquents-----	90	Very limited Flooding Salinity	1.00 0.01	Somewhat limited Flooding Salinity	0.40 0.01	Very limited Flooding Slope Gravel content Salinity	1.00 0.21 0.08 0.01
44: Fruitland-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.77 0.50

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
45: Gladel-----	35	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.41	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.41	Very limited Depth to bedrock Slope Restricted permeability Content of large stones	1.00 1.00 0.41 0.03
Bond-----	30	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.21	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.21	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.21
Rock outcrop-----	30	Not rated		Not rated		Not rated	
46: Gladel, cool-----	35	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.96 0.41	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.96 0.41	Very limited Depth to bedrock Slope Restricted permeability Content of large stones	1.00 1.00 0.41 0.03
Bond, cool-----	30	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.96 0.21	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.96 0.21	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.21
Rock outcrop-----	25	Not rated		Not rated		Not rated	
47: Gurley-----	85	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Slope Dusty Depth to bedrock Restricted permeability	0.77 0.50 0.46 0.41
48: Gurley-----	50	Somewhat limited Slope Dusty Restricted permeability	0.63 0.50 0.41	Somewhat limited Slope Dusty Restricted permeability	0.63 0.50 0.41	Very limited Slope Dusty Depth to bedrock Restricted permeability	1.00 0.50 0.46 0.41
Skein-----	40	Very limited Depth to bedrock Slope Dusty	1.00 0.63 0.50	Very limited Depth to bedrock Slope Dusty	1.00 0.63 0.50	Very limited Depth to bedrock Slope Dusty Gravel content	1.00 1.00 0.50 0.22

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49: Gypsiorthids-----	85	Somewhat limited Slope Dusty Salinity	0.96 0.50 0.13	Somewhat limited Slope Dusty Salinity	0.96 0.50 0.13	Very limited Slope Dusty Salinity Content of large stones	1.00 0.50 0.13 0.01
50: Gypsum land-----	95	Not rated		Not rated		Not rated	
51: Haplaquolls-----	85	Very limited Flooding Depth to saturated zone	1.00 0.08	Somewhat limited Flooding Depth to saturated zone	0.40 0.03	Very limited Flooding Depth to saturated zone Slope Content of large stones	1.00 0.08 0.05 0.01
52: Killpack-----	50	Somewhat limited Dusty Restricted permeability Salinity Slope	0.50 0.41 0.13 0.04	Somewhat limited Dusty Restricted permeability Salinity Slope	0.50 0.41 0.13 0.04	Very limited Slope Dusty Depth to bedrock Restricted permeability Salinity	1.00 0.50 0.46 0.41 0.13
Deaver-----	30	Somewhat limited Dusty Restricted permeability Slope	0.50 0.41 0.04	Somewhat limited Dusty Restricted permeability Slope	0.50 0.41 0.04	Very limited Slope Dusty Depth to bedrock Restricted permeability	1.00 0.50 0.46 0.41
53: Leaps-----	45	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96
Hofly-----	40	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96
54: Leaps-----	60	Somewhat limited Restricted permeability Slope	0.96 0.84	Somewhat limited Restricted permeability Slope	0.96 0.84	Very limited Slope Restricted permeability	1.00 0.96
Tellura-----	25	Somewhat limited Restricted permeability Slope	0.96 0.84	Somewhat limited Restricted permeability Slope	0.96 0.84	Very limited Slope Restricted permeability Gravel content Content of large stones	1.00 0.96 0.03 0.01

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
55: Lillylands-----	85	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability Content of large stones	1.00 0.96 0.03
56: Mikim-----	90	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.48
57: Minchey-----	85	Not limited		Not limited		Somewhat limited Slope	0.94
58: Mitch-----	85	Very limited Flooding	1.00	Not limited		Somewhat limited Slope	0.48
59: Mivida-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
60: Monogram-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.77 0.50
61: Monticello-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.05
Witt-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.05
62: Monticello-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.77 0.50
Witt-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.77 0.50
63: Monticello-----	60	Somewhat limited Dusty Slope	0.50 0.04	Somewhat limited Dusty Slope	0.50 0.04	Very limited Slope Dusty	1.00 0.50
Witt-----	30	Somewhat limited Dusty Slope	0.50 0.04	Somewhat limited Dusty Slope	0.50 0.04	Very limited Slope Dusty	1.00 0.50

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64: Narraguinnep, moist-	90	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96
65: Narraguinnep-----	55	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability	1.00 0.96
Dapoin-----	30	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability	1.00 0.96
66: Nortez-----	85	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability Slope Depth to bedrock	0.96  0.48 0.46
67: Nortez-----	85	Somewhat limited Restricted permeability Slope	0.96  0.04	Somewhat limited Restricted permeability Slope	0.96  0.04	Very limited Slope Restricted permeability Depth to bedrock	1.00 0.96 0.46
68: Nortez-----	50	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability Depth to bedrock	1.00 0.96 0.46
Acree-----	35	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability	1.00 0.96
69: Nortez-----	45	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope Restricted permeability Depth to bedrock	1.00 0.96 0.46
Fivepine-----	40	Very limited Depth to bedrock Restricted permeability	1.00 0.96	Very limited Depth to bedrock Restricted permeability	1.00 0.96	Very limited Slope Depth to bedrock Restricted permeability Content of large stones Gravel content	1.00 1.00 0.96 0.03 0.02

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70: Nunemaker-----	90	Very limited Too clayey Restricted permeability	1.00 0.96	Very limited Too clayey Restricted permeability	1.00 0.96	Very limited Slope Too clayey Restricted permeability	1.00 1.00 1.00 0.96
71: Nyswonger-----	90	Very limited Flooding Restricted permeability	1.00 0.41	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability Slope	0.41 0.21
72: Pagoda-----	35	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 0.96	Very limited Slope Restricted permeability	1.00 1.00 0.96
Coulterg-----	30	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21
Cabba-----	20	Very limited Slope Depth to bedrock Restricted permeability Gravel content	1.00 1.00 0.41 0.25	Very limited Slope Depth to bedrock Restricted permeability Gravel content	1.00 1.00 0.41 0.25	Very limited Gravel content Slope Depth to bedrock Restricted permeability	1.00 1.00 1.00 0.41
73: Paradox-----	85	Not limited		Not limited		Somewhat limited Slope	0.21
74: Persayo-----	50	Very limited Depth to bedrock Restricted permeability Slope Salinity	1.00 0.41 0.37 0.01	Very limited Depth to bedrock Restricted permeability Slope Salinity	1.00 0.41 0.37 0.01	Very limited Slope Depth to bedrock Restricted permeability Salinity Content of large stones	1.00 1.00 0.41 0.01 0.01
Chipeta-----	35	Very limited Salinity Depth to bedrock Too clayey Restricted permeability Slope	1.00 1.00 0.50 0.41 0.37	Very limited Salinity Depth to bedrock Too clayey Restricted permeability Slope	1.00 1.00 0.50 0.41 0.37	Very limited Salinity Slope Depth to bedrock Too clayey Restricted permeability	1.00 1.00 1.00 0.50 0.41
75: Pinon, cool-----	35	Very limited Depth to bedrock Dusty	1.00 0.50	Very limited Depth to bedrock Dusty	1.00 0.50	Very limited Slope Depth to bedrock Dusty Content of large stones	1.00 1.00 0.50 0.01

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Bowdish, cool-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
Progresso, cool-----	20	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
76: Pinon-----	30	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Depth to bedrock Slope Dusty Content of large stones	1.00 1.00 0.50 0.01
Bowdish-----	25	Somewhat limited Dusty Slope	0.50 0.04	Somewhat limited Dusty Slope	0.50 0.04	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
Rock outcrop-----	25	Not rated		Not rated		Not rated	
77: Pinon-----	55	Very limited Depth to bedrock Dusty	1.00 0.50	Very limited Depth to bedrock Dusty	1.00 0.50	Very limited Depth to bedrock Slope Dusty Content of large stones	1.00 1.00 0.50 0.01
Progresso-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
78: Pinon-----	50	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Depth to bedrock Slope Dusty Content of large stones	1.00 1.00 0.50 0.01
Ustic Torriorthents-	35	Very limited Slope Content of large stones	1.00 0.35	Very limited Slope Content of large stones	1.00 0.35	Very limited Slope Content of large stones Depth to bedrock Gravel content	1.00 1.00 0.35 0.04

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79: Pojoaque-----	50	Very limited Too stony Content of large stones Dusty Slope	1.00 0.99 0.50 0.16	Very limited Too stony Content of large stones Dusty Slope	1.00 0.99 0.50 0.16	Very limited Content of large stones Too stony Slope Dusty Gravel content	1.00 1.00 1.00 0.50 0.01
Chilton-----	30	Very limited Slope Content of large stones	1.00 0.42	Very limited Slope Content of large stones	1.00 0.42	Very limited Content of large stones Slope Gravel content	1.00 1.00 0.08
80: Progresso-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.05
81: Progresso-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty Depth to bedrock	0.77 0.50 0.46
82: Progresso-----	85	Somewhat limited Dusty Slope	0.50 0.04	Somewhat limited Dusty Slope	0.50 0.04	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
83: Pulpit-----	50	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Dusty Restricted permeability	0.50 0.41	Somewhat limited Dusty Slope Depth to bedrock Restricted permeability	0.50 0.48 0.46 0.41
Bond, cool-----	30	Very limited Depth to bedrock Restricted permeability	1.00 0.21	Very limited Depth to bedrock Restricted permeability	1.00 0.21	Very limited Depth to bedrock Slope Restricted permeability	1.00 0.48 0.21
84: Radersburg-----	90	Somewhat limited Dusty Gravel content	0.50 0.07	Somewhat limited Dusty Gravel content	0.50 0.07	Very limited Gravel content Dusty Slope Content of large stones	1.00 0.50 0.48 0.32
85: Radersburg-----	85	Very limited Slope Dusty Gravel content	1.00 0.50 0.07	Very limited Slope Dusty Gravel content	1.00 0.50 0.07	Very limited Slope Gravel content Dusty Content of large stones	1.00 1.00 0.50 0.32

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86: Redlands-----	85	Not limited		Not limited		Somewhat limited Slope	0.48
87: Rock outcrop-----	90	Not rated		Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Orthents-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Content of large stones	0.05	Content of large stones	0.05	Content of large stones	1.00
						Gravel content	0.79
						Depth to bedrock	0.10
89: Ryman, dry-----	80	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope	1.00
		Slope	0.37	Slope	0.37	Restricted permeability	0.96
						Content of large stones	0.01
90: Ryman, warm-----	85	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope	1.00
		Slope	0.37	Slope	0.37	Restricted permeability	0.96
						Content of large stones	0.01
91: Ryman-----	50	Somewhat limited Restricted permeability	0.96	Somewhat limited Restricted permeability	0.96	Very limited Slope	1.00
						Restricted permeability	0.96
						Content of large stones	0.01
Adel, moist-----	30	Not limited		Not limited		Very limited Slope	1.00
						Content of large stones	0.01
92: Sagedale-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
93: Sapeha-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Content of large stones	0.68	Content of large stones	0.68	Content of large stones	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Gravel content	0.42
						Restricted permeability	0.21

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
94: Seitz-----	90	Very limited Slope Restricted permeability Gravel content	1.00 0.96 0.12	Very limited Slope Restricted permeability Gravel content	1.00 0.96 0.12	Very limited Slope Gravel content Restricted permeability Content of large stones	1.00 1.00 0.96 0.11
95: Skein-----	60	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Depth to bedrock Slope Dusty Gravel content	1.00 1.00 0.50 0.22
Rock outcrop-----	30	Not rated		Not rated		Not rated	
96: Skisams-----	35	Very limited Depth to bedrock Restricted permeability Slope	1.00 0.96 0.04	Very limited Depth to bedrock Restricted permeability Slope	1.00 0.96 0.04	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.96
Bushvalley-----	30	Very limited Depth to bedrock Restricted permeability Content of large stones	1.00 0.96 0.18	Very limited Depth to bedrock Restricted permeability Content of large stones	1.00 0.96 0.18	Very limited Content of large stones Depth to bedrock Restricted permeability Slope Gravel content	1.00 1.00 0.96 0.94 0.11
Cryoborolls, moderately deep----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Content of large stones Depth to bedrock Gravel content	1.00 0.92 0.46 0.01
97: Skisams-----	55	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.96	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.96	Very limited Depth to bedrock Slope Restricted permeability	1.00 1.00 0.96
Cryoborolls-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Content of large stones Depth to bedrock Gravel content	1.00 0.92 0.46 0.01
98: Specie-----	90	Somewhat limited Slope Gravel content	0.16 0.09	Somewhat limited Slope Gravel content	0.16 0.09	Very limited Gravel content Slope Content of large stones	1.00 1.00 0.20

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99: Specie, moist-----	65	Very limited Slope Gravel content	1.00  0.09	Very limited Slope Gravel content	1.00  0.09	Very limited Slope Gravel content Content of large stones	1.00  1.00 0.20
Rock outcrop-----	25	Not rated		Not rated		Not rated	
100: Spectacle-----	50	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability Content of large stones	1.00  0.96 0.01
Kinesava-----	30	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96
101: Tellura-----	45	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability Gravel content Content of large stones	1.00  0.96 0.03 0.01
Leaps-----	40	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96	Very limited Slope Restricted permeability	1.00  0.96
102: Typic Torriorthents-	85	Very limited Slope Restricted permeability Gravel content	1.00  0.41 0.25	Very limited Slope Restricted permeability Gravel content	1.00  0.41 0.25	Very limited Gravel content Slope Depth to bedrock Restricted permeability	1.00  1.00 0.99 0.41
103: Ustic Torriorthents-	50	Very limited Slope Gravel content Content of large stones	1.00  0.85 0.01	Very limited Slope Gravel content Content of large stones	1.00  0.85 0.01	Very limited Gravel content Slope Content of large stones	1.00  1.00 0.99
Ustochreptic Calciorthids-----	45	Very limited Gravel content Slope Restricted permeability	1.00  1.00 0.41	Very limited Gravel content Slope Restricted permeability	1.00  1.00 0.41	Very limited Gravel content Slope Restricted permeability Content of large stones	1.00  1.00 0.41 0.03

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104: Vananda-----	85	Very limited Sodium content Too clayey Restricted permeability	1.00 0.50 0.45	Very limited Sodium content Too clayey Restricted permeability	1.00 0.50 0.45	Very limited Sodium content Too clayey Slope Restricted permeability	1.00 0.50 0.48 0.45
105: Winnett-----	90	Very limited Sodium content Flooding Restricted permeability Salinity	1.00 1.00 0.45 0.13	Very limited Sodium content Restricted permeability Salinity	1.00 0.45 0.13	Very limited Sodium content Restricted permeability Salinity Slope	1.00 0.45 0.13 0.05
106: Winz-----	60	Very limited Slope Content of large stones Too stony Restricted permeability	1.00 1.00 0.47 0.21	Very limited Slope Content of large stones Too stony Restricted permeability	1.00 1.00 0.47 0.21	Very limited Content of large stones Slope Too stony Restricted permeability	1.00 1.00 0.47 0.21
Rock outcrop-----	25	Not rated		Not rated		Not rated	
107: Witt, dry-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty	1.00 0.50
108: Wrayha-----	85	Very limited Slope Restricted permeability	1.00 0.41	Very limited Slope Restricted permeability	1.00 0.41	Very limited Slope Content of large stones Gravel content Restricted permeability	1.00 0.92 0.42 0.41
109: Zoltay-----	85	Somewhat limited Restricted permeability Slope	0.96 0.04	Somewhat limited Restricted permeability Slope	0.96 0.04	Very limited Slope Restricted permeability	1.00 0.96
110: Zoltay-----	85	Very limited Restricted permeability	0.99	Very limited Restricted permeability	0.99	Somewhat limited Restricted permeability Slope	0.99 0.05
111: Zyme-----	40	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.41	Very limited Slope Depth to bedrock Restricted permeability	1.00 1.00 0.41	Very limited Slope Depth to bedrock Restricted permeability Content of large stones	1.00 1.00 0.41 0.03

Table 10A.--Recreation--continued

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111: Bodot-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Depth to bedrock Restricted permeability	0.46 0.41
Rock outcrop-----	25	Not rated		Not rated		Not rated	
112: Water-----	95	Not rated		Not rated		Not rated	

Table 10B.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
2: Abra-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
3: Abra-----	85	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Slope	0.04
4: Ackmen-----	90	Not limited		Not limited		Not limited	
5: Acree-----	85	Not limited		Not limited		Not limited	
6: Acree-----	85	Not limited		Not limited		Somewhat limited Slope	0.04
7: Acree-----	45	Not limited		Not limited		Not limited	
Zoltay-----	25	Not limited		Not limited		Not limited	
Nortez-----	20	Not limited		Not limited		Somewhat limited Depth to bedrock	0.46
8: Adel-----	80	Somewhat limited Slope	0.18	Not limited		Very limited Slope Content of large stones	1.00 0.01
9: Adel, moist-----	90	Very limited Slope	1.00	Somewhat limited Slope	0.56	Very limited Slope Content of large stones	1.00 0.01
10: Aguolls-----	95	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding Depth to saturated zone	1.00 0.19
11: Badland-----	90	Not rated		Not rated		Not rated	

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12: Baird Hollow-----	35	Somewhat limited Slope Content of large stones	0.92  0.18	Somewhat limited Content of large stones	0.18	Very limited Content of large stones Slope	1.00  1.00
Nordicol-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Content of large stones	1.00 0.01
Ryman-----	20	Somewhat limited Slope	0.92	Not limited		Very limited Slope Content of large stones	1.00 0.01
13: Barkelaw-----	50	Somewhat limited Slope Content of large stones	0.92  0.61	Somewhat limited Content of large stones	0.61	Very limited Content of large stones Slope	1.00 1.00
Emmons-----	30	Somewhat limited Content of large stones Dusty	0.77  0.50	Somewhat limited Content of large stones Dusty	0.77  0.50	Very limited Content of large stones Slope	1.00 0.84
14: Barx-----	85	Not limited		Not limited		Not limited	
15: Barx-----	85	Not limited		Not limited		Not limited	
16: Barx-----	85	Not limited		Not limited		Somewhat limited Slope	0.04
17: Barx-----	45	Not limited		Not limited		Not limited	
Progresso-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
18: Begay-----	85	Not limited		Not limited		Not limited	
19: Beje-----	80	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope	1.00 1.00 0.96
20: Billings-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Salinity	0.13
21: Billings, moist----	90	Not limited		Not limited		Somewhat limited Salinity	0.13

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22: Bodot, dry-----	90	Not limited		Not limited		Somewhat limited Depth to bedrock	0.46
23: Bodot, dry-----	45	Very limited Slope Too stony Content of large stones	1.00 1.00 0.86	Very limited Too stony Content of large stones Slope	1.00 0.86 0.08	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.46 0.01
Ustic Torriorthents-	40	Very limited Slope Content of large stones	1.00 0.35	Somewhat limited Content of large stones Slope	0.35 0.08	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.35 0.03
24: Bodot, dry-----	50	Not limited		Not limited		Somewhat limited Slope Depth to bedrock	0.63 0.46
Zyme, dry-----	35	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 0.80 0.63 0.03
25: Bond-----	45	Somewhat limited Slope	0.08	Not limited		Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.99
Progresso-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
26: Borolls-----	45	Very limited Slope Content of large stones	1.00 0.32	Very limited Slope Content of large stones	1.00 0.32	Very limited Slope Content of large stones	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
27: Burnac-----	55	Not limited		Not limited		Somewhat limited Slope	0.63
Delson-----	25	Not limited		Not limited		Somewhat limited Slope	0.63
28: Burnac-----	45	Very limited Slope	1.00	Somewhat limited Slope	0.78	Very limited Slope	1.00
Delson-----	30	Very limited Slope	1.00	Somewhat limited Slope	0.78	Very limited Slope	1.00

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28: Falcon-----	15	Very limited Slope	1.00	Somewhat limited Slope	0.78	Very limited Slope Droughty Depth to bedrock Content of large stones	1.00 1.00 1.00 0.03
29: Bushvalley-----	50	Somewhat limited Content of large stones	0.18	Somewhat limited Content of large stones	0.18	Very limited Droughty Depth to bedrock Content of large stones	1.00 1.00 1.00
Nordicol Variant----	30	Not limited		Not limited		Somewhat limited Depth to bedrock Content of large stones	0.46 0.03
30: Callan-----	80	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
31: Callan-----	80	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
32: Callan-----	80	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope	0.04
33: Callan-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope	0.63
Gurley-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to bedrock	0.63 0.46
34: Ceek-----	85	Very limited Slope Content of large stones	1.00 0.96	Somewhat limited Content of large stones	0.96	Very limited Content of large stones Slope	1.00 1.00
35: Clapper-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Droughty Content of large stones	0.03 0.01
36: Clapper-----	45	Somewhat limited Slope Dusty	0.92 0.50	Somewhat limited Dusty	0.50	Very limited Slope Droughty Content of large stones	1.00 0.03 0.01

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Ustic Torriorthents-	40	Somewhat limited Slope Content of large stones	0.92 0.35	Somewhat limited Content of large stones	0.35	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.35 0.03
37: Cryaquolls-----	90	Somewhat limited Depth to saturated zone Flooding	0.44 0.40	Somewhat limited Depth to saturated zone Flooding	0.44 0.40	Very limited Flooding Depth to saturated zone	1.00 0.75
38: Evanston-----	85	Not limited		Not limited		Not limited	
39: Falcon-----	55	Not limited		Not limited		Very limited Droughty Depth to bedrock Slope Content of large stones	1.00 1.00 0.63 0.03
Burnac-----	25	Not limited		Not limited		Somewhat limited Slope	0.63
Rock outcrop-----	15	Not rated		Not rated		Not rated	
40: Farb-----	45	Somewhat limited Slope	0.02	Not limited		Very limited Depth to bedrock Droughty Slope	1.00 1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
41: Fivepine-----	40	Somewhat limited Slope	0.68	Not limited		Very limited Depth to bedrock Slope Droughty Content of large stones	1.00 1.00 0.94 0.03
Nortez-----	30	Somewhat limited Slope	0.02	Not limited		Very limited Slope Depth to bedrock	1.00 0.46
Rock outcrop-----	20	Not rated		Not rated		Not rated	
42: Fivepine-----	50	Not limited		Not limited		Very limited Depth to bedrock Droughty Content of large stones	1.00 0.94 0.03

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Pino-----	35	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.46 0.04
43: Fluvaquents-----	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding Salinity	1.00 0.01
44: Fruitland-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
45: Gladel-----	35	Very limited Slope	1.00	Somewhat limited Slope	0.01	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 1.00 0.03
Bond-----	30	Very limited Slope	1.00	Somewhat limited Slope	0.01	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.99
Rock outcrop-----	30	Not rated		Not rated		Not rated	
46: Gladel, cool-----	35	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.96 0.03
Bond, cool-----	30	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope	1.00 0.99 0.96
Rock outcrop-----	25	Not rated		Not rated		Not rated	
47: Gurley-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
48: Gurley-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to bedrock	0.63 0.46
Skein-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Depth to bedrock Droughty Slope	1.00 0.99 0.63

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49: Gypsiorthids-----	85	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Slope Salinity Content of large stones	0.96 0.13 0.01
50: Gypsum land-----	95	Not rated		Not rated		Not rated	
51: Haplaquolls-----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding Depth to saturated zone Content of large stones	1.00 0.03 0.01
52: Killpack-----	50	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Depth to bedrock Salinity Slope	0.46 0.13 0.04
Deaver-----	30	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Depth to bedrock Slope	0.46 0.04
53: Leaps-----	45	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Hofly-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
54: Leaps-----	60	Not limited		Not limited		Somewhat limited Slope	0.84
Tellura-----	25	Not limited		Not limited		Somewhat limited Slope Content of large stones	0.84 0.01
55: Lillylands-----	85	Very limited Slope	1.00	Somewhat limited Slope	0.56	Very limited Slope Content of large stones	1.00 0.03
56: Mikim-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
57: Minchey-----	85	Not limited		Not limited		Not limited	
58: Mitch-----	85	Not limited		Not limited		Not limited	

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59: Mivida-----	85	Not limited		Not limited		Somewhat limited Slope	0.16
60: Monogram-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Carbonate content	1.00
61: Monticello-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Witt-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
62: Monticello-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Witt-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
63: Monticello-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope	0.04
Witt-----	30	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Slope	0.04
64: Narraguinep, moist-	90	Very limited Slope	1.00	Somewhat limited Slope	0.56	Very limited Slope	1.00
65: Narraguinep-----	55	Not limited		Not limited		Not limited	
Dapoin-----	30	Not limited		Not limited		Not limited	
66: Nortez-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock	0.46
67: Nortez-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.46 0.04
68: Nortez-----	50	Not limited		Not limited		Somewhat limited Depth to bedrock	0.46
Acree-----	35	Not limited		Not limited		Not limited	
69: Nortez-----	45	Not limited		Not limited		Somewhat limited Depth to bedrock	0.46

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
69: Fivepine-----	40	Not limited		Not limited		Very limited Depth to bedrock Droughty Content of large stones	1.00 0.94 0.03
70: Nunemaker-----	90	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
71: Nyswonger-----	90	Not limited		Not limited		Not limited	
72: Pagoda-----	35	Somewhat limited Slope	0.50	Not limited		Very limited Slope	1.00
Coulterg-----	30	Very limited Slope	1.00	Somewhat limited Slope	0.22	Very limited Slope	1.00
Cabba-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 0.25
73: Paradox-----	85	Not limited		Not limited		Not limited	
74: Persayo-----	50	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope Salinity Content of large stones	1.00 0.85 0.37 0.01 0.01
Chipeta-----	35	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Salinity Depth to bedrock Too clayey Droughty Slope	1.00 1.00 1.00 0.96 0.37
75: Pinon, cool-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Droughty Depth to bedrock Content of large stones	1.00 1.00 0.01
Bowdish, cool-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock Droughty	0.46 0.44
Progresso, cool-----	20	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
76: Pinon-----	30	Somewhat limited Dusty Slope	0.50 0.08	Somewhat limited Dusty	0.50	Very limited Droughty Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01
Bowdish-----	25	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Depth to bedrock Droughty Slope	0.46 0.44 0.04
Rock outcrop-----	25	Not rated		Not rated		Not rated	
77: Pinon-----	55	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Droughty Depth to bedrock Content of large stones	1.00 1.00 0.01
Progresso-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
78: Pinon-----	50	Somewhat limited Dusty Slope	0.50 0.18	Somewhat limited Dusty	0.50	Very limited Droughty Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01
Ustic Torriorthents-	35	Somewhat limited Content of large stones Slope	0.35 0.18	Somewhat limited Content of large stones	0.35	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.35 0.03
79: Pojoaque-----	50	Very limited Too stony Content of large stones Dusty	1.00 0.99 0.50	Very limited Too stony Content of large stones Dusty	1.00 0.99 0.50	Very limited Content of large stones Slope	1.00 0.16
Chilton-----	30	Somewhat limited Content of large stones Slope	0.42 0.18	Somewhat limited Content of large stones	0.42	Very limited Content of large stones Slope Droughty	1.00 1.00 0.21
80: Progresso-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
81: Progresso-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
82: Progresso-----	85	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Somewhat limited Depth to bedrock Slope	0.46 0.04
83: Pulpit-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
Bond, cool-----	30	Not limited		Not limited		Very limited Depth to bedrock Droughty	1.00 0.88
84: Radersburg-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Droughty Content of large stones Gravel content	0.77 0.32 0.07
85: Radersburg-----	85	Somewhat limited Dusty Slope	0.50 0.18	Somewhat limited Dusty	0.50	Very limited Slope Droughty Content of large stones Gravel content	1.00 0.77 0.32 0.07
86: Redlands-----	85	Not limited		Not limited		Not limited	
87: Rock outcrop-----	90	Not rated		Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Orthents-----	45	Very limited Slope Content of large stones	1.00 0.05	Very limited Slope Content of large stones	1.00 0.05	Very limited Slope Content of large stones Depth to bedrock Droughty	1.00 1.00 0.10 0.03
89: Ryman, dry-----	80	Not limited		Not limited		Somewhat limited Slope Content of large stones	0.37 0.01
90: Ryman, warm-----	85	Not limited		Not limited		Somewhat limited Slope Content of large stones	0.37 0.01
91: Ryman-----	50	Not limited		Not limited		Somewhat limited Content of large stones	0.01

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91: Adel, moist-----	30	Not limited		Not limited		Somewhat limited Content of large stones	0.01
92: Sagedale-----	85	Not limited		Not limited		Somewhat limited Slope	0.63
93: Sapeha-----	90	Very limited Slope Content of large stones	1.00 0.68	Somewhat limited Content of large stones Slope	0.68 0.56	Very limited Slope Content of large stones	1.00 1.00
94: Seitz-----	90	Very limited Slope	1.00	Somewhat limited Slope	0.78	Very limited Slope Gravel content Content of large stones	1.00 0.12 0.11
95: Skein-----	60	Somewhat limited Slope Dusty	0.82 0.50	Somewhat limited Dusty	0.50	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.99
Rock outcrop-----	30	Not rated		Not rated		Not rated	
96: Skisams-----	35	Not limited		Not limited		Very limited Droughty Depth to bedrock Slope	1.00 1.00 0.04
Bushvalley-----	30	Somewhat limited Content of large stones	0.18	Somewhat limited Content of large stones	0.18	Very limited Droughty Depth to bedrock Content of large stones	1.00 1.00 1.00
Cryoborolls, moderately deep---	25	Not limited		Not limited		Somewhat limited Content of large stones Depth to bedrock Droughty Slope	0.92 0.46 0.31 0.04
97: Skisams-----	55	Somewhat limited Slope	0.18	Not limited		Very limited Droughty Depth to bedrock Slope	1.00 1.00 1.00

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97: Cryborolls-----	40	Somewhat limited Slope	0.18	Not limited		Very limited Slope Content of large stones Depth to bedrock Droughty	1.00 0.92 0.46 0.31
98: Specie-----	90	Not limited		Not limited		Somewhat limited Content of large stones Slope Gravel content	0.20 0.16 0.09
99: Specie, moist-----	65	Very limited Slope	1.00	Somewhat limited Slope	0.96	Very limited Slope Content of large stones Gravel content	1.00 0.20 0.09
Rock outcrop-----	25	Not rated		Not rated		Not rated	
100: Spectacle-----	50	Somewhat limited Slope	0.18	Not limited		Very limited Slope Content of large stones	1.00 0.01
Kinesava-----	30	Somewhat limited Slope	0.18	Not limited		Very limited Slope	1.00
101: Tellura-----	45	Somewhat limited Slope	0.92	Not limited		Very limited Slope Content of large stones	1.00 0.01
Leaps-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
102: Typic Torriorthents-	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Droughty Slope Depth to bedrock Gravel content	1.00 1.00 0.99 0.25
103: Ustic Torriorthents-	50	Somewhat limited Slope Content of large stones	0.08 0.01	Somewhat limited Content of large stones	0.01	Very limited Slope Content of large stones Gravel content	1.00 0.99 0.85
Ustochreptic Calciorthids-----	45	Somewhat limited Slope	0.08	Not limited		Very limited Gravel content Slope Content of large stones	1.00 1.00 0.03

Table 10B.--Recreation--continued

Map symbol and soil name	Pct of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104: Vananda-----	85	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Too clayey Sodium content	1.00 1.00
105: Winnett-----	90	Not limited		Not limited		Very limited Sodium content Droughty Salinity	1.00 0.67 0.13
106: Winz-----	60	Very limited Content of large stones Slope Too stony	1.00 1.00 0.47	Very limited Content of large stones Slope Too stony	1.00 1.00 0.47	Very limited Slope Content of large stones Droughty	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
107: Witt, dry-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
108: Wrayha-----	85	Somewhat limited Slope	0.82	Not limited		Very limited Slope Content of large stones	1.00 0.92
109: Zoltay-----	85	Not limited		Not limited		Somewhat limited Slope	0.04
110: Zoltay-----	85	Not limited		Not limited		Not limited	
111: Zyme-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty Content of large stones	1.00 1.00 0.80 0.03
Bodot-----	25	Somewhat limited Slope	0.50	Not limited		Very limited Slope Depth to bedrock	1.00 0.46
Rock outcrop-----	25	Not rated		Not rated		Not rated	
112: Water-----	95	Not rated		Not rated		Not rated	

Table 11.--Wildlife habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
1, 2, 3----- Abra	Poor	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
4----- Ackmen	Fair	Fair	Fair	---	Good	Poor	Very poor.	Fair	---	Very poor.	Fair.
5, 6----- Acree	Poor	Fair	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
7*: Acree-----	Poor	Fair	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
Zoltay-----	Poor	Fair	Good	---	Good	Very poor.	Very poor.	Fair	---	Very poor.	Good.
Nortez-----	Poor	Poor	Good	---	Good	Poor	Very poor.	Fair	---	Poor	Good.
8, 9----- Adel	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
10----- Aguolls	Very poor.	Poor	Good	---	Fair	Good	Fair	Poor	---	Fair	Fair.
11*----- Badland	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
12*: Baird Hollow-----	Poor	Poor	Good	Good	Fair	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
Nordicol-----	Very poor.	Very poor.	Good	Good	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Ryman-----	Poor	Poor	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
13*: Barkelew-----	Very poor.	Very poor.	Very poor.	Poor	Good	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Fair.
Emmons-----	Very poor.	Very poor.	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
14, 15----- Barx	Poor	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
16----- Barx	Poor	Fair	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
17*: Barx-----	Poor	Fair	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
Progresso-----	Poor	Fair	Fair	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Conif-erous plants	Shrubs	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life	Range-land wild-life
18----- Begay	Poor	Fair	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
19----- Beje	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
20, 21----- Billings	Poor	Poor	Poor	---	Good	Poor	Very poor.	Poor	---	Very poor.	Fair.
22----- Bodot	Fair	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Fair.
23*: Bodot-----	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Ustic Torriorthents----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
24*: Bodot-----	Fair	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Fair.
Zyme-----	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
25*: Bond-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Progresso-----	Poor	Fair	Fair	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
26*: Borolls-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Good.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
27*: Burnac-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
Delson-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
28*: Burnac-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Good.
Delson-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Good.
Falcon-----	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
29*: Bushvalley-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
29*:											
Nordicol Variant--	Poor	Poor	Good	Good	Poor	Poor	Very poor.	Fair	Good	Very poor.	Fair.
30, 31, 32----- Callan	Fair	Good	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
33*:											
Callan-----	Fair	Good	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
Gurley-----	Poor	Fair	Good	Fair	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
34----- Ceek	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.	Fair.
35----- Clapper	Poor	Fair	Fair	Poor	Fair	Poor	Very poor.	Fair	Poor	Very poor.	Fair.
36*:											
Clapper-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Torriorthents-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
37----- Cryaquolls	Poor	Poor	Fair	---	Fair	Good	Good	Poor	---	Good	Fair.
38----- Evanston	Fair	Fair	Good	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.	Good.
39*:											
Falcon-----	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
Burnac-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
40*:											
Farb-----	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
41*:											
Fivepine-----	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Nortez-----	Poor	Poor	Good	---	Good	Very poor.	Very poor.	Fair	---	Very poor.	Good.
41*:											
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Conif-erous plants	Shrubs	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life	Range-land wild-life
42*: Fivepine-----	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Pino-----	Poor	Fair	Fair	Good	Fair	Poor	Very poor.	Fair	Fair	Very poor.	---
43*----- Fluvaquents	Poor	Poor	Fair	Poor	---	Fair	Fair	Poor	Poor	Fair	---
44----- Fruitland	Very poor.	Very poor.	Poor	---	Poor	Poor	Very poor.	Very poor.	---	Very poor.	Poor.
45*, 46*: Gladel-----	Poor	Poor	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
Bond-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
47----- Gurley	Poor	Fair	Good	Fair	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
48*: Gurley-----	Poor	Fair	Good	Fair	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
Skein-----	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
49----- Gypsiorthids	Poor	Poor	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
50----- Gypsum land	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
51----- Haplaquolls	Very poor.	Poor	Good	---	Fair	Good	Good	Very poor.	---	Good	Fair.
52*: Killpack-----	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Deaver-----	Very poor.	Very poor.	Poor	---	Poor	Very poor.	Very poor.	Very poor.	---	Very poor.	Poor.
53*: Leaps-----	Poor	Fair	Good	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
Hofly-----	Very poor.	Very poor.	Good	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
54*: Leaps-----	Poor	Fair	Good	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
54*: Tellura-----	Poor	Fair	Good	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
55----- Lillylands	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Good.
56----- Mikim	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
57----- Minchey	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Good.
58----- Mitch	Fair	Fair	Good	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.	Good.
59----- Mivida	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor.
60----- Monogram	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
61*, 62*, 63*: Monticello-----	Fair	Fair	Fair	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
Witt-----	Poor	Poor	Fair	---	Poor	Poor	Very poor.	Poor	---	Very poor.	Poor.
64----- Narraguinsep	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
65*: Narraguinsep-----	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
Dapoin-----	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
66----- Nortez	Poor	Poor	Good	---	Good	Poor	Very poor.	Fair	---	Poor	Good.
67----- Nortez	Poor	Poor	Good	---	Good	Very poor.	Very poor.	Fair	---	Very poor.	Good.
68*: Nortez-----	Poor	Poor	Good	---	Good	Poor	Very poor.	Fair	---	Poor	Good.
Acree-----	Poor	Fair	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
69*: Nortez-----	Poor	Poor	Good	---	Good	Poor	Very poor.	Fair	---	Poor	Good.
Fivepine-----	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
70----- Nunemaker	Fair	Good	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
71----- Nyswonger	Good	Good	Fair	Fair	Poor	Poor	Good	Good	Fair	Poor	Poor.
72*: Pagoda-----	Poor	Poor	Good	---	Good	Very poor.	Poor	Poor	---	Very poor.	Good.
Coulterg-----	Very poor.	Very poor.	Very poor.	Fair	Fair	Very poor.	Very poor.	Poor	Good	Very poor.	Poor.
Cabba-----	Very poor.	Very poor.	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
73----- Paradox	Poor	Poor	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
74*: Persayo-----	Very poor.	Very poor.	Poor	---	Poor	Very poor.	Very poor.	Very poor.	---	Very poor.	Poor.
Chipeta-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
75*: Pinyon-----	Very poor.	Very poor.	Poor	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Bowdish-----	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Progresso-----	Poor	Fair	Fair	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
76*: Pinyon-----	Very poor.	Very poor.	Poor	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Bowdish-----	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
77*: Pinyon-----	Very poor.	Very poor.	Poor	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Progresso-----	Poor	Fair	Fair	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
78*: Pinyon-----	Very poor.	Very poor.	Poor	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Ustic Torriorthents----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
79*:											
Pojoaque-----	Very poor.	Very poor.	Fair	Poor	Fair	Poor	Very poor.	Very poor.	Poor	Very poor.	Good.
Chilton-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
80, 81, 82-----	Poor	Fair	Fair	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
Progresso											
83*:											
Pulpit-----	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Bond-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
84, 85-----	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Radersburg											
86-----	Poor	Poor	Poor	---	Poor	Very poor.	Very poor.	Poor	---	Very poor.	Poor.
Redlands											
87*-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Rock outcrop											
88*:											
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Orthents-----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
89, 90-----	Poor	Poor	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
Ryman											
91*:											
Ryman-----	Poor	Poor	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
Adel-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
92-----	Fair	Good	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
Sagedale											
93-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Good.
Sapeha											
94-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	---
Seitz											
95*:											
Skein-----	Poor	Poor	Fair	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
96*:											
Skisams-----	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Bushvalley-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Cryoborolls-----	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
97*:											
Skisams-----	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Cryoborolls-----	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
98-----											
Specie	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Very poor.	Good.
99*:											
Specie-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Poor	Fair	Good	Very poor.	Good.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
100*:											
Spectacle-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
Kinesava-----	Poor	Fair	Good	---	Good	Very poor.	Very poor.	Fair	---	Very poor.	Good.
101*:											
Tellura-----	Poor	Fair	Good	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
Leaps-----	Poor	Fair	Good	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
102*-----											
Typic torriorthents	Very poor.	Very poor.	Fair	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.
103*:											
Ustic torriorthents----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Ustochreptic Calciorthids----	Poor	Poor	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
104-----											
Vananda	Very poor.	Very poor.	Very poor.	---	Very poor.	Poor	Very poor.	Very poor.	---	Very poor.	Very poor.
105-----											
Winnett	Very poor.	Very poor.	Fair	Very poor.	Fair	Very poor.	Fair	Very poor.	Very poor.	Poor	Fair.
106*:											
Winz-----	Very poor.	Very poor.	Fair	Fair	Poor	Very poor.	Very poor.	Very poor.	Fair	Very poor.	Fair.

See footnote at end of table.

Table 11.--Wildlife habitat--continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
106*: Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
107----- Witt	Poor	Poor	Fair	---	Poor	Poor	Very poor.	Poor	---	Very poor.	Poor.
108----- Wrayha	Very poor.	Very poor.	Fair	Fair	Good	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
109----- Zoltay	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	---	Very poor.	Good.
110----- Zoltay	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
111*: Zyme-----	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Bodot-----	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
W. Water											

\* See description of the map unit for composition and behavior characteristics of the map unit.

Table 12A.--Building site development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Not limited		Not limited		Not limited	
2: Abra-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
3: Abra-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
4: Ackmen-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
5: Acree-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
6: Acree-----	85	Very limited Shrink-swell Slope	1.00 0.04	Very limited Shrink-swell Slope	1.00 0.04	Very limited Shrink-swell Slope	1.00 1.00
7: Acree-----	45	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.86
Zoltay-----	25	Somewhat limited Shrink-swell	0.50	Not limited		Very limited Slope Shrink-swell	1.00 0.50
Nortez-----	20	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.46
8: Adel-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
9: Adel, moist-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
10: Aqolls-----	95	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.44	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.44
11: Badland-----	90	Not rated		Not rated		Not rated	

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12: Baird Hollow-----	35	Very limited Slope Content of large stones	1.00 1.00	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50	Very limited Slope Content of large stones	1.00 1.00
Nordicol-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Ryman-----	20	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope	1.00
13: Barkelew-----	50	Very limited Content of large stones Slope	1.00 1.00	Very limited Content of large stones Slope	1.00 1.00	Very limited Content of large stones Slope	1.00 1.00
Emmons-----	30	Somewhat limited Slope Content of large stones	0.84 0.24	Somewhat limited Slope Content of large stones	0.84 0.24	Very limited Slope Content of large stones	1.00 0.24
14: Barx-----	85	Not limited		Not limited		Not limited	
15: Barx-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
16: Barx-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
17: Barx-----	45	Not limited		Not limited		Very limited Slope	1.00
Progresso-----	40	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.46
18: Begay-----	85	Not limited		Not limited		Not limited	
19: Beje-----	80	Very limited Depth to hard bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 1.00
20: Billings-----	85	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21: Billings, moist-----	90	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
22: Bodot, dry-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to soft bedrock	0.50 0.46	Very limited Slope Shrink-swell	1.00 0.50
23: Bodot, dry-----	45	Very limited Shrink-swell Slope Content of large stones	1.00 1.00 0.01	Very limited Shrink-swell Slope Depth to soft bedrock Content of large stones	1.00 1.00 0.46 0.01	Very limited Shrink-swell Slope Content of large stones	1.00 1.00 0.01
Ustic Torriorthents-	40	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 1.00 0.01	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01
24: Bodot, dry-----	50	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell Depth to soft bedrock	0.63 0.50 0.46	Very limited Slope Shrink-swell	1.00 0.50
Zyme, dry-----	35	Somewhat limited Depth to soft bedrock Slope Shrink-swell	1.00 0.63 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 0.63 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50
25: Bond-----	45	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50
Progresso-----	40	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.46
26: Borolls-----	45	Very limited Slope Content of large stones	1.00 1.00	Very limited Slope Content of large stones	1.00 1.00	Very limited Slope Content of large stones	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27:							
Burnac-----	55	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50
Delson-----	25	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50
28:							
Burnac-----	45	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Delson-----	30	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Falcon-----	15	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
29:							
Bushvalley-----	50	Very limited Depth to hard bedrock Content of large stones	1.00 0.96	Very limited Depth to hard bedrock Content of large stones	1.00 0.96	Very limited Depth to hard bedrock Slope Content of large stones	1.00 0.96 0.47
Nordicol Variant----	30	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Somewhat limited Shrink-swell Slope Depth to hard bedrock	0.50 0.47 0.46
30:							
Callan-----	80	Not limited		Not limited		Not limited	
31:							
Callan-----	80	Not limited		Not limited		Somewhat limited Slope	0.12
32:							
Callan-----	80	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
33:							
Callan-----	50	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Gurley-----	40	Somewhat limited Slope Shrink-swell Depth to hard bedrock	0.63 0.50 0.46	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 0.50 0.63 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.46

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34: Ceek-----	85	Very limited Shrink-swell Slope Content of large stones	1.00 1.00 0.25	Very limited Shrink-swell Slope Content of large stones	1.00 1.00 0.25	Very limited Slope Shrink-swell Content of large stones	1.00 1.00 0.25
35: Clapper-----	85	Somewhat limited Content of large stones	0.85	Somewhat limited Content of large stones	0.85	Somewhat limited Content of large stones Slope	0.85 0.12
36: Clapper-----	45	Very limited Slope Content of large stones	1.00 0.85	Very limited Slope Content of large stones	1.00 0.85	Very limited Slope Content of large stones	1.00 0.85
Ustic Torriorthents-	40	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 1.00 0.01	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01
37: Cryaquolls-----	90	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 1.00
38: Evanston-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
39: Falcon-----	55	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
Burnac-----	25	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
40: Farb-----	45	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41: Fivepine-----	40	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 1.00	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00
Nortez-----	30	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.46	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.46
Rock outcrop-----	20	Not rated		Not rated		Not rated	
42: Fivepine-----	50	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 1.00
Pino-----	35	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50 0.46 0.04	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 1.00 0.50 0.04	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.46
43: Fluvaquents-----	90	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding	1.00
44: Fruitland-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
45: Gladel-----	35	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Bond-----	30	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 1.00 0.50
Rock outcrop-----	30	Not rated		Not rated		Not rated	
46: Gladel, cool-----	35	Very limited Depth to hard bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
46: Bond, cool-----	30	Very limited Depth to hard bedrock Slope Shrink-swell	1.00  0.96 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00  0.96 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00  1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
47: Gurley-----	85	Somewhat limited Shrink-swell Depth to hard bedrock	0.50  0.46	Very limited Depth to hard bedrock Shrink-swell	1.00  0.50	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50  0.46 0.12
48: Gurley-----	50	Somewhat limited Slope Shrink-swell Depth to hard bedrock	0.63  0.50 0.46	Very limited Depth to hard bedrock Slope Shrink-swell	1.00  0.63 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00  0.50 0.46
Skein-----	40	Very limited Depth to hard bedrock Slope	1.00  0.63	Very limited Depth to hard bedrock Slope	1.00  0.63	Very limited Depth to hard bedrock Slope	1.00  1.00
49: Gypsiorthids-----	85	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
50: Gypsum land-----	95	Not rated		Not rated		Not rated	
51: Haplaquolls-----	85	Very limited Flooding Depth to saturated zone	1.00  0.08	Very limited Flooding Depth to saturated zone	1.00  1.00	Very limited Flooding Depth to saturated zone	1.00  0.08
52: Killpack-----	50	Somewhat limited Shrink-swell Slope	0.50  0.04	Somewhat limited Shrink-swell Depth to soft bedrock Slope	0.50  0.46 0.04	Very limited Slope Shrink-swell	1.00  0.50
Deaver-----	30	Somewhat limited Shrink-swell Slope	0.50  0.04	Somewhat limited Shrink-swell Depth to soft bedrock Slope	0.50  0.46 0.04	Very limited Slope Shrink-swell	1.00  0.50
53: Leaps-----	45	Very limited Shrink-swell Slope	1.00  1.00	Very limited Shrink-swell Slope	1.00  1.00	Very limited Shrink-swell Slope	1.00  1.00

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53: Hofly-----	40	Very limited Slope Shrink-swell	1.00 0.50	Very limited Shrink-swell Slope	1.00 1.00	Very limited Slope Shrink-swell	1.00 0.50
54: Leaps-----	60	Very limited Shrink-swell Slope	1.00 0.84	Very limited Shrink-swell Slope	1.00 0.84	Very limited Shrink-swell Slope	1.00 1.00
Tellura-----	25	Somewhat limited Slope Shrink-swell	0.84 0.50	Somewhat limited Slope	0.84	Very limited Slope Shrink-swell	1.00 0.50
55: Lillylands-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
56: Mikim-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
57: Minchey-----	85	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell Slope	0.50 0.47
58: Mitch-----	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding	1.00
59: Mivida-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
60: Monogram-----	85	Not limited		Not limited		Somewhat limited	
61: Monticello-----	60	Not limited		Not limited		Not limited	
Witt-----	30	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
62: Monticello-----	60	Not limited		Not limited		Somewhat limited Slope	0.12
Witt-----	30	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell Slope	0.50 0.12
63: Monticello-----	60	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
63: Witt-----	30	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Slope	0.04	Very limited Slope Shrink-swell	1.00 0.50
64: Narraguinnep, moist-	90	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 1.00
65: Narraguinnep-----	55	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell Slope	1.00 1.00
Dapoin-----	30	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell Slope	1.00 1.00
66: Nortez-----	85	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46
67: Nortez-----	85	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.46 0.04	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.46
68: Nortez-----	50	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.86 0.46
Acree-----	35	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell Slope	1.00 0.86
69: Nortez-----	45	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.86 0.46
Fivepine-----	40	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.86
70: Nunemaker-----	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.86

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71: Nyswonger-----	90	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.72 0.50	Very limited Flooding Shrink-swell	1.00 0.50
72: Pagoda-----	35	Very limited Shrink-swell Slope	1.00 1.00	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 1.00
Coulterg-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Cabba-----	20	Very limited Slope Depth to soft bedrock	1.00 1.00	Very limited Slope Depth to soft bedrock	1.00 1.00	Very limited Slope Depth to soft bedrock	1.00 1.00
73: Paradox-----	85	Not limited		Not limited		Not limited	
74: Persayo-----	50	Somewhat limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.37	Very limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.37	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50
Chipeta-----	35	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.37	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.37	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 1.00 1.00
75: Pinon, cool-----	35	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.86
Bowdish, cool-----	30	Somewhat limited Depth to hard bedrock	0.46	Very limited Depth to hard bedrock	1.00	Somewhat limited Slope Depth to hard bedrock	0.86 0.46
Progresso, cool-----	20	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Somewhat limited Slope Shrink-swell Depth to hard bedrock	0.86 0.50 0.46
76: Pinon-----	30	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
76:							
Bowdish-----	25	Somewhat limited Depth to hard bedrock Slope	0.46  0.04	Very limited Depth to hard bedrock Slope	1.00  0.04	Very limited Slope Depth to hard bedrock	1.00  0.46
Rock outcrop-----	25	Not rated		Not rated		Not rated	
77:							
Pinon-----	55	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00  1.00
Progresso-----	30	Somewhat limited Shrink-swell Depth to hard bedrock	0.50  0.46	Very limited Depth to hard bedrock Shrink-swell	1.00  0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00  0.50 0.46
78:							
Pinon-----	50	Very limited Depth to hard bedrock Slope	1.00  1.00	Very limited Depth to hard bedrock Slope	1.00  1.00	Very limited Depth to hard bedrock Slope	1.00  1.00
Ustic Torriorthents-	35	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35  0.01	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 1.00  0.01	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35  0.01
79:							
Pojoaque-----	50	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Chilton-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
80:							
Progresso-----	85	Somewhat limited Shrink-swell Depth to hard bedrock	0.50  0.46	Very limited Depth to hard bedrock Shrink-swell	1.00  0.50	Somewhat limited Shrink-swell Depth to hard bedrock	0.50  0.46
81:							
Progresso-----	85	Somewhat limited Shrink-swell Depth to hard bedrock	0.50  0.46	Very limited Depth to hard bedrock Shrink-swell	1.00  0.50	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50  0.46 0.12
82:							
Progresso-----	85	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50  0.46 0.04	Very limited Depth to hard bedrock Shrink-swell Slope	1.00  0.50 0.04	Very limited Slope Shrink-swell Depth to hard bedrock	1.00  0.50 0.46

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
83: Pulpit-----	50	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46
Bond, cool-----	30	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50
84: Radersburg-----	90	Very limited Content of large stones	1.00	Very limited Content of large stones	1.00	Very limited Content of large stones	1.00
85: Radersburg-----	85	Very limited Content of large stones Slope	1.00 1.00	Very limited Content of large stones Slope	1.00 1.00	Very limited Slope Content of large stones	1.00 1.00
86: Redlands-----	85	Not limited		Not limited		Not limited	
87: Rock outcrop-----	90	Not rated		Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Orthents-----	45	Very limited Slope Content of large stones	1.00 0.42	Very limited Slope Content of large stones Depth to soft bedrock	1.00 0.42 0.10	Very limited Slope Content of large stones	1.00 0.42
89: Ryman, dry-----	80	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Shrink-swell Slope	0.50 0.37	Very limited Slope Shrink-swell	1.00 0.50
90: Ryman, warm-----	85	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Shrink-swell Slope	0.50 0.37	Very limited Slope Shrink-swell	1.00 0.50
91: Ryman-----	50	Not limited		Somewhat limited Shrink-swell	0.50	Very limited Slope	1.00
Adel, moist-----	30	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Very limited Slope Shrink-swell	1.00 0.50
92: Sagedale-----	85	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
93: Sapeha-----	90	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50
94: Seitz-----	90	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
95: Skein-----	60	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	30	Not rated		Not rated		Not rated	
96: Skisams-----	35	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Bushvalley-----	30	Very limited Depth to hard bedrock Content of large stones	1.00 0.96	Very limited Depth to hard bedrock Content of large stones	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 0.96 0.47
Cryoborolls, moderately deep----	25	Somewhat limited Depth to hard bedrock Slope	0.46 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.46
97: Skisams-----	55	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Cryoborolls-----	40	Very limited Slope Depth to hard bedrock	1.00 0.46	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.46
98: Specie-----	90	Very limited Content of large stones Slope	1.00 0.16	Very limited Content of large stones Slope	1.00 0.16	Very limited Slope Content of large stones	1.00 1.00
99: Specie, moist-----	65	Very limited Slope Content of large stones	1.00 0.23	Very limited Slope Content of large stones	1.00 0.23	Very limited Slope Content of large stones	1.00 0.23

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99: Rock outcrop-----	25	Not rated		Not rated		Not rated	
100: Spectacle-----	50	Very limited Slope Content of large stones	1.00 0.25	Very limited Slope Shrink-swell Content of large stones	1.00 0.50 0.25	Very limited Slope Content of large stones	1.00 0.25
Kinesava-----	30	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
101: Tellura-----	45	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.50
Leaps-----	40	Very limited Shrink-swell Slope	1.00 1.00	Very limited Shrink-swell Slope	1.00 1.00	Very limited Shrink-swell Slope	1.00 1.00
102: Typic Torriorthents-	85	Very limited Slope	1.00	Very limited Slope Depth to soft bedrock	1.00 0.99	Very limited Slope	1.00
103: Ustic Torriorthents-	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Ustochreptic Calciorthis-----	45	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
104: Vananda-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
105: Winnett-----	90	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00
106: Winz-----	60	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
107: Witt, dry-----	85	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Slope Shrink-swell	0.86 0.50

Table 12A.--Building site development--continued

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
108: Wrayha-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
109: Zoltay-----	85	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Slope	0.04	Very limited Slope Shrink-swell	1.00 0.50
110: Zoltay-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
111: Zyme-----	40	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50
Bodot-----	25	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 0.50 0.46	Very limited Slope Shrink-swell	1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
112: Water-----	95	Not rated		Not rated		Not rated	

Table 12B.--Building site development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Not limited		Very limited Cutbanks cave	1.00	Not limited	
2: Abra-----	85	Not limited		Very limited Cutbanks cave	1.00	Not limited	
3: Abra-----	85	Somewhat limited Slope	0.04	Very limited Cutbanks cave Slope	1.00 0.04	Somewhat limited Slope	0.04
4: Ackmen-----	90	Somewhat limited Flooding	0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
5: Acree-----	85	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
6: Acree-----	85	Very limited Shrink-swell Slope	1.00 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
7: Acree-----	45	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Zoltay-----	25	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Nortez-----	20	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
8: Adel-----	80	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope Content of large stones	1.00 0.01
9: Adel, moist-----	90	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope Content of large stones	1.00 0.01

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10: Aguolls-----	95	Very limited Frost action Flooding Shrink-swell Depth to saturated zone	1.00 1.00 0.50 0.19	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 1.00 0.80 0.10	Very limited Flooding Depth to saturated zone	1.00 0.19
11: Badland-----	90	Not rated		Not rated		Not rated	
12: Baird Hollow-----	35	Very limited Content of large stones Slope Frost action	1.00 1.00 0.50	Very limited Cutbanks cave Content of large stones Slope Too clayey	1.00 1.00 1.00 0.12	Very limited Content of large stones Slope	1.00 1.00
Nordicol-----	25	Very limited Slope Frost action	1.00 0.50	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope Content of large stones	1.00 0.01
Ryman-----	20	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope Content of large stones	1.00 0.01
13: Barkelew-----	50	Very limited Content of large stones Slope	1.00 1.00	Very limited Content of large stones Slope Cutbanks cave	1.00 1.00 0.10	Very limited Content of large stones Slope	1.00 1.00
Emmons-----	30	Somewhat limited Slope Frost action Content of large stones	0.84 0.50 0.24	Somewhat limited Slope Content of large stones Cutbanks cave	0.84 0.24 0.10	Very limited Content of large stones Slope	1.00 0.84
14: Barx-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
15: Barx-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
16: Barx-----	85	Somewhat limited Slope	0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
17: Barx-----	45	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17: Progresso-----	40	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
18: Begay-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
19: Beje-----	80	Very limited Depth to hard bedrock Slope Frost action	1.00 0.96 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Depth to bedrock Droughty Slope	1.00 1.00 0.96
20: Billings-----	85	Somewhat limited Shrink-swell Flooding	0.50 0.40	Somewhat limited Cutbanks cave	0.10	Somewhat limited Salinity	0.13
21: Billings, moist----	90	Somewhat limited Shrink-swell Flooding	0.50 0.40	Somewhat limited Cutbanks cave	0.10	Somewhat limited Salinity	0.13
22: Bodot, dry-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to soft bedrock Cutbanks cave Too clayey	0.46 0.10 0.03	Somewhat limited Depth to bedrock	0.46
23: Bodot, dry-----	45	Very limited Shrink-swell Slope Content of large stones	1.00 1.00 0.01	Very limited Slope Depth to soft bedrock Too clayey Cutbanks cave Content of large stones	1.00 0.46 0.28 0.10 0.01	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.46 0.01
Ustic Torriorthents-	40	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01	Very limited Depth to hard bedrock Slope Too clayey Cutbanks cave Content of large stones	1.00 1.00 0.12 0.10 0.01	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.35 0.03
24: Bodot, dry-----	50	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Depth to soft bedrock Cutbanks cave Too clayey	0.63 0.46 0.10 0.03	Somewhat limited Slope Depth to bedrock	0.63 0.46

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24: Zyme, dry-----	35	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Droughty	0.80
		Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.63
						Content of large stones	0.03
25: Bond-----	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	0.99
Progresso-----	40	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.46
		Depth to hard bedrock	0.46	Cutbanks cave	0.10		
26: Borolls-----	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
				Cutbanks cave	0.10		
				Too clayey	0.02		
Rock outcrop-----	40	Not rated		Not rated		Not rated	
27: Burnac-----	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Too clayey	0.28		
		Frost action	0.50	Cutbanks cave	0.10		
Delson-----	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
28: Burnac-----	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Too clayey	0.28		
		Frost action	0.50	Cutbanks cave	0.10		
Delson-----	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
Falcon-----	15	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	1.00
						Content of large stones	0.03

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
29: Bushvalley-----	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Droughty	1.00
		Content of large stones	0.96	Content of large stones	0.96	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	1.00
Nordicol Variant----	30	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.46
		Frost action	0.50	bedrock		Content of large stones	0.03
		Depth to hard bedrock	0.46	Cutbanks cave	0.10		
30: Callan-----	80	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
31: Callan-----	80	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
32: Callan-----	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
33: Callan-----	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Frost action	0.50	Cutbanks cave	0.10		
Gurley-----	40	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	0.63
		Shrink-swell	0.50	bedrock		Depth to bedrock	0.46
		Frost action	0.50	Slope	0.63		
		Depth to hard bedrock	0.46	Cutbanks cave	0.10		
34: Ceek-----	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Content of large stones	0.25	Slope	1.00
		Content of large stones	0.25	Too clayey	0.12		
				Cutbanks cave	0.10		
35: Clapper-----	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.85	Content of large stones	0.85	Droughty	0.03
				Cutbanks cave	0.10	Content of large stones	0.01
36: Clapper-----	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.85	Content of large stones	0.85	Droughty	0.03
				Cutbanks cave	0.10	Content of large stones	0.01

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Ustic Torriorthents-	40	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01	Very limited Depth to hard bedrock Slope Too clayey Cutbanks cave Content of large stones	1.00 1.00 0.12 0.10 0.01	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.35 0.03
37: Cryaquolls-----	90	Very limited Frost action Flooding Shrink-swell Depth to saturated zone	1.00 1.00 1.00 0.75	Very limited Depth to saturated zone Flooding Too clayey Cutbanks cave	1.00 1.00 0.80 0.12 0.10	Very limited Flooding Depth to saturated zone	1.00 0.75
38: Evanston-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
39: Falcon-----	55	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.63 0.10	Very limited Droughty Depth to bedrock Slope Content of large stones	1.00 1.00 0.63 0.03
Burnac-----	25	Somewhat limited Slope Shrink-swell Frost action	0.63 0.50 0.50	Somewhat limited Slope Too clayey Cutbanks cave	0.63 0.28 0.10	Somewhat limited Slope	0.63
Rock outcrop-----	15	Not rated		Not rated		Not rated	
40: Farb-----	45	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Droughty Slope	1.00 1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
41: Fivepine-----	40	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Too clayey Cutbanks cave	1.00 1.00 1.00 0.12 0.10	Very limited Depth to bedrock Slope Droughty Content of large stones	1.00 1.00 0.94 0.03
Nortez-----	30	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.46	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.46
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Fivepine-----	50	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Depth to bedrock Droughty Content of large stones	1.00 0.94 0.03
Pino-----	35	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50 0.46 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.46 0.04
43: Fluvaquents-----	90	Very limited Frost action Flooding	1.00 1.00	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.80	Very limited Flooding Salinity	1.00 0.01
44: Fruitland-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
45: Gladel-----	35	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 1.00 0.03
Bond-----	30	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.99
Rock outcrop-----	30	Not rated		Not rated		Not rated	
46: Gladel, cool-----	35	Very limited Depth to hard bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.96 0.03
Bond, cool-----	30	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 0.96 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Depth to bedrock Droughty Slope	1.00 0.99 0.96
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47: Gurley-----	85	Somewhat limited Shrink-swell Frost action Depth to hard bedrock	0.50 0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00  0.10	Somewhat limited Depth to bedrock	0.46
48: Gurley-----	50	Somewhat limited Slope Shrink-swell Frost action Depth to hard bedrock	0.63 0.50 0.50 0.46	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  0.63 0.10	Somewhat limited Slope Depth to bedrock	0.63 0.46
Skein-----	40	Very limited Depth to hard bedrock Slope	1.00  0.63	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  0.63 0.10	Very limited Depth to bedrock Droughty Slope	1.00 0.99 0.63
49: Gypsiorthids-----	85	Somewhat limited Slope	0.96	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope Salinity Content of large stones	0.96 0.13 0.01
50: Gypsum land-----	95	Not rated		Not rated		Not rated	
51: Haplaquolls-----	85	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 0.03	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.80	Very limited Flooding Depth to saturated zone Content of large stones	1.00 0.03 0.01
52: Killpack-----	50	Very limited Frost action  Shrink-swell Slope	1.00  0.50 0.04	Somewhat limited Depth to soft bedrock Cutbanks cave Slope	0.46  0.10 0.04	Somewhat limited Depth to bedrock Salinity Slope	0.46  0.13 0.04
Deaver-----	30	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Depth to soft bedrock Cutbanks cave Slope Too clayey	0.46  0.10 0.04 0.03	Somewhat limited Depth to bedrock Slope	0.46 0.04
53: Leaps-----	45	Very limited Shrink-swell Slope	1.00 1.00	Very limited Slope Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Slope	1.00

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53: Hofly-----	40	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.03	Very limited Slope	1.00
54: Leaps-----	60	Very limited Shrink-swell Slope	1.00 0.84	Somewhat limited Slope Too clayey Cutbanks cave	0.84 0.12 0.10	Somewhat limited Slope	0.84
Tellura-----	25	Somewhat limited Slope Shrink-swell Frost action	0.84 0.50 0.50	Very limited Cutbanks cave Slope Too clayey	1.00 0.84 0.03	Somewhat limited Slope Content of large stones	0.84 0.01
55: Lillylands-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 1.00	Very limited Slope Content of large stones	1.00 0.03
56: Mikim-----	90	Somewhat limited Flooding	0.40	Very limited Cutbanks cave	1.00	Not limited	
57: Minchey-----	85	Somewhat limited Shrink-swell Frost action	0.50 0.50	Very limited Cutbanks cave	1.00	Not limited	
58: Mitch-----	85	Somewhat limited Frost action Flooding	0.50 0.40	Somewhat limited Depth to saturated zone Cutbanks cave	0.95 0.10	Not limited	
59: Mivida-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
60: Monogram-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Very limited Carbonate content	1.00
61: Monticello-----	60	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Witt-----	30	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
62: Monticello-----	60	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
62: Witt-----	30	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
63: Monticello-----	60	Somewhat limited Slope	0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Witt-----	30	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
64: Narraguinnep, moist-	90	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.03	Very limited Slope	1.00
65: Narraguinnep-----	55	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.03	Not limited	
Dapoin-----	30	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
66: Nortez-----	85	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
67: Nortez-----	85	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.46 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.46 0.04
68: Nortez-----	50	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
Acree-----	35	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
69: Nortez-----	45	Very limited Shrink-swell Depth to hard bedrock	1.00 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
69: Fivepine-----	40	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Depth to bedrock Droughty Content of large stones	1.00 0.94 0.03
70: Nunemaker-----	90	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Very limited Too clayey	1.00
71: Nyswonger-----	90	Somewhat limited Shrink-swell Flooding	0.50 0.40	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.72 0.12 0.10	Not limited	
72: Pagoda-----	35	Very limited Shrink-swell Slope	1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.03	Very limited Slope	1.00
Coulterg-----	30	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Cabba-----	20	Very limited Slope Depth to soft bedrock Frost action	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 0.25
73: Paradox-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
74: Persayo-----	50	Somewhat limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.37	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.37 0.10	Very limited Depth to bedrock Droughty Slope Salinity Content of large stones	1.00 0.85 0.37 0.01 0.01
Chipeta-----	35	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.37	Very limited Depth to soft bedrock Slope Cutbanks cave Too clayey	1.00 0.37 0.10 0.02	Very limited Salinity Depth to bedrock Too clayey Droughty Slope	1.00 1.00 1.00 0.96 0.37
75: Pinon, cool-----	35	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Droughty Depth to bedrock Content of large stones	1.00 1.00 0.01

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Bowdish, cool-----	30	Somewhat limited Depth to hard bedrock	0.46	Very limited Cutbanks cave Depth to hard bedrock	1.00 1.00	Somewhat limited Depth to bedrock Droughty	0.46 0.44
Progresso, cool-----	20	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00 0.10	Somewhat limited Depth to bedrock	0.46
76: Pinon-----	30	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Droughty Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01
Bowdish-----	25	Somewhat limited Depth to hard bedrock Slope	0.46 0.04	Very limited Cutbanks cave Depth to hard bedrock Slope	1.00 1.00 1.00 0.04	Somewhat limited Depth to bedrock Droughty Slope	0.46 0.44 0.04
Rock outcrop-----	25	Not rated		Not rated		Not rated	
77: Pinon-----	55	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00 0.10	Very limited Droughty Depth to bedrock Content of large stones	1.00 1.00 0.01
Progresso-----	30	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00 0.10	Somewhat limited Depth to bedrock	0.46
78: Pinon-----	50	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Droughty Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01
Ustic Torriorthents-	35	Very limited Shrink-swell Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.35 0.01	Very limited Depth to hard bedrock Slope Too clayey Cutbanks cave Content of large stones	1.00 1.00 1.00 0.12 0.10 0.01	Very limited Content of large stones Slope Depth to bedrock Droughty	1.00 1.00 0.35 0.03
79: Pojoaque-----	50	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Very limited Content of large stones Slope	1.00 0.16

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79: Chilton-----	30	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Content of large stones Slope Droughty	1.00 1.00 0.21
80: Progresso-----	85	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
81: Progresso-----	85	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
82: Progresso-----	85	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50 0.46 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.46 0.04
83: Pulpit-----	50	Somewhat limited Shrink-swell Depth to hard bedrock	0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.46
Bond, cool-----	30	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 0.88
84: Radersburg-----	90	Very limited Content of large stones	1.00	Very limited Content of large stones Cutbanks cave	1.00 0.10	Somewhat limited Droughty Content of large stones Gravel content	0.77 0.32 0.07
85: Radersburg-----	85	Very limited Content of large stones Slope	1.00 1.00	Very limited Content of large stones Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Droughty Content of large stones Gravel content	1.00 0.77 0.32 0.07
86: Redlands-----	85	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
87: Rock outcrop-----	90	Not rated		Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated		Not rated	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88: Orthents-----	45	Very limited Slope Content of large stones	1.00 0.42	Very limited Slope Content of large stones Cutbanks cave Depth to soft bedrock	1.00 0.42 0.10 0.10	Very limited Slope Content of large stones Depth to bedrock Droughty	1.00 1.00 0.10 0.03
89: Ryman, dry-----	80	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Slope Cutbanks cave	0.37 0.10	Somewhat limited Slope Content of large stones	0.37 0.01
90: Ryman, warm-----	85	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Slope Cutbanks cave	0.37 0.10	Somewhat limited Slope Content of large stones	0.37 0.01
91: Ryman-----	50	Not limited		Somewhat limited Cutbanks cave	0.10	Somewhat limited Content of large stones	0.01
Adel, moist-----	30	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Somewhat limited Content of large stones	0.01
92: Sagedale-----	85	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Cutbanks cave	0.63 0.10	Somewhat limited Slope	0.63
93: Sapeha-----	90	Very limited Slope Content of large stones Shrink-swell	1.00 1.00 0.50	Very limited Slope Content of large stones Cutbanks cave	1.00 1.00 0.10	Very limited Slope Content of large stones	1.00 1.00
94: Seitz-----	90	Very limited Slope Shrink-swell Frost action	1.00 0.50 0.50	Very limited Cutbanks cave Slope Too clayey	1.00 1.00 0.12	Very limited Slope Gravel content Content of large stones	1.00 0.12 0.11
95: Skein-----	60	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.99
Rock outcrop-----	30	Not rated		Not rated		Not rated	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96: Skisams-----	35	Very limited Depth to hard bedrock Frost action Slope	1.00  0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  0.10 0.04	Very limited Droughty Depth to bedrock Slope	1.00  1.00 0.04
Bushvalley-----	30	Very limited Depth to hard bedrock Content of large stones Frost action	1.00  0.96 0.50	Very limited Depth to hard bedrock Content of large stones Cutbanks cave	1.00  0.96 0.10	Very limited Droughty Depth to bedrock Content of large stones	1.00  1.00 1.00
Cryoborolls, moderately deep----	25	Somewhat limited Frost action Depth to hard bedrock Slope	0.50 0.46 0.04	Very limited Cutbanks cave Depth to hard bedrock Slope	1.00 1.00 0.04	Somewhat limited Content of large stones Depth to bedrock Droughty Slope	0.92  0.46 0.31 0.04
97: Skisams-----	55	Very limited Depth to hard bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 0.10	Very limited Droughty Depth to bedrock Slope	1.00  1.00 1.00
Cryoborolls-----	40	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.46	Very limited Cutbanks cave Depth to hard bedrock Slope	1.00 1.00 1.00	Very limited Slope Content of large stones Depth to bedrock Droughty	1.00 0.92  0.46 0.31
98: Specie-----	90	Very limited Content of large stones Frost action Slope	1.00  0.50 0.16	Very limited Cutbanks cave Content of large stones Slope	1.00 1.00 0.16	Somewhat limited Content of large stones Slope Gravel content	0.20  0.16 0.09
99: Specie, moist-----	65	Very limited Slope Frost action Content of large stones	1.00 0.50 0.23	Very limited Slope Content of large stones Cutbanks cave	1.00 0.23 0.10	Very limited Slope Content of large stones Gravel content	1.00 0.20  0.09
Rock outcrop-----	25	Not rated		Not rated		Not rated	
100: Spectacle-----	50	Very limited Slope Content of large stones	1.00  0.25	Very limited Slope Content of large stones Cutbanks cave	1.00 0.25 0.10	Very limited Slope Content of large stones	1.00 0.01

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100: Kinesava-----	30	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.03	Very limited Slope	1.00
101: Tellura-----	45	Very limited Slope Shrink-swell Frost action	1.00 0.50 0.50	Very limited Cutbanks cave Slope Too clayey	1.00 1.00 0.03	Very limited Slope Content of large stones	1.00 0.01
Leaps-----	40	Very limited Shrink-swell Slope	1.00 1.00	Very limited Slope Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Slope	1.00
102: Typic Torriorthents-	85	Very limited Slope	1.00	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 0.99 0.10	Very limited Droughty Slope Depth to bedrock Gravel content	1.00 1.00 0.99 0.25
103: Ustic Torriorthents-	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.02	Very limited Slope Content of large stones Gravel content	1.00 0.99 0.85
Ustochreptic Calciorthis-----	45	Very limited Slope Shrink-swell	1.00 0.50	Very limited Cutbanks cave Slope Too clayey	1.00 1.00 0.03	Very limited Gravel content Slope Content of large stones	1.00 1.00 0.03
104: Vananda-----	85	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Very limited Too clayey Sodium content	1.00 1.00
105: Winnett-----	90	Very limited Shrink-swell Flooding	1.00 0.40	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Very limited Sodium content Droughty Salinity	1.00 0.67 0.13
106: Winz-----	60	Very limited Slope Content of large stones Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Content of large stones Cutbanks cave Too clayey	1.00 1.00 0.10 0.03	Very limited Slope Content of large stones Droughty	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 12B.--Building site development--continued

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107: Witt, dry-----	85	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
108: Wrayha-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.03	Very limited Slope Content of large stones	1.00 0.92
109: Zoltay-----	85	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
110: Zoltay-----	85	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
111: Zyme-----	40	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Droughty Content of large stones	1.00 1.00 0.80 0.03
Bodot-----	25	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Depth to soft bedrock Cutbanks cave Too clayey	1.00 0.46 0.10 0.03	Very limited Slope Depth to bedrock	1.00 0.46
Rock outcrop-----	25	Not rated		Not rated		Not rated	
112: Water-----	95	Not rated		Not rated		Not rated	

Table 13A.--Sanitary facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Somewhat limited Restricted permeability	0.46	Very limited Seepage Slope	1.00 0.01
2: Abra-----	85	Somewhat limited Restricted permeability	0.46	Very limited Seepage Slope	1.00 0.67
3: Abra-----	85	Somewhat limited Restricted permeability Slope	0.46 0.04	Very limited Seepage Slope	1.00 1.00
4: Ackmen-----	90	Somewhat limited Restricted permeability Flooding	0.46 0.40	Somewhat limited Seepage Flooding Slope	0.53 0.40 0.01
5: Acree-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.33
6: Acree-----	85	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope	1.00
7: Acree-----	45	Very limited Restricted permeability	1.00	Very limited Slope	1.00
Zoltay-----	25	Very limited Restricted permeability	1.00	Very limited Slope	1.00
Nortez-----	20	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
8: Adel-----	80	Very limited Slope Restricted permeability	1.00 0.46	Very limited Slope Seepage	1.00 0.53

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
9: Adel, moist-----	90	Very limited Slope Restricted permeability	1.00  0.46	Very limited Slope Seepage	1.00  0.53
10: Aqolls-----	95	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Slope	1.00 1.00  0.01
11: Badland-----	90	Not rated		Not rated	
12: Baird Hollow-----	35	Very limited Restricted permeability Slope Content of large stones	1.00 1.00 1.00	Very limited Slope Content of large stones Seepage	1.00 1.00 0.53
Nordicol-----	25	Very limited Slope Restricted permeability	1.00 0.46	Very limited Slope Seepage	1.00 0.53
Ryman-----	20	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
13: Barkelew-----	50	Very limited Content of large stones Slope Restricted permeability	1.00 1.00 0.46	Very limited Content of large stones Slope Seepage	1.00 1.00 0.53
Emmons-----	30	Very limited Restricted permeability Slope Content of large stones	1.00 0.84 0.24	Very limited Slope Content of large stones	1.00 1.00
14: Barx-----	85	Somewhat limited Restricted permeability	0.46	Somewhat limited Seepage Slope	0.53 0.01
15: Barx-----	85	Somewhat limited Restricted permeability	0.46	Somewhat limited Slope Seepage	0.67 0.53

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
16: Barx-----	85	Somewhat limited Restricted permeability Slope	0.46  0.04	Very limited Slope Seepage	1.00  0.53
17: Barx-----	45	Somewhat limited Restricted permeability	0.46	Very limited Slope Seepage	1.00 0.53
Progresso-----	40	Very limited Restricted permeability Depth to bedrock	1.00  1.00	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 1.00
18: Begay-----	85	Not limited		Very limited Seepage Slope	1.00 0.33
19: Beje-----	80	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.28
20: Billings-----	85	Very limited Restricted permeability Flooding	1.00 0.40	Somewhat limited Seepage Flooding Slope	0.53 0.40 0.09
21: Billings, moist----	90	Very limited Restricted permeability Flooding	1.00 0.40	Somewhat limited Flooding Slope	0.40 0.09
22: Bodot, dry-----	90	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
23: Bodot, dry-----	45	Very limited Restricted permeability Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01	Very limited Depth to soft bedrock Slope Content of large stones Seepage	1.00 1.00 0.61 0.19

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
23: Ustic Torriorthents-	40	Very limited Restricted permeability Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01	Very limited Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.51
24: Bodot, dry-----	50	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to soft bedrock Slope	1.00 1.00
Zyme, dry-----	35	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to soft bedrock Slope	1.00 1.00
25: Bond-----	45	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Progresso-----	40	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 1.00
26: Borolls-----	45	Very limited Slope Restricted permeability Content of large stones Depth to bedrock	1.00 1.00 1.00 0.01	Very limited Slope Content of large stones	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated	
27: Burnac-----	55	Very limited Restricted permeability Slope	1.00 0.63	Very limited Slope	1.00
Delson-----	25	Very limited Restricted permeability Slope	1.00 0.63	Very limited Slope	1.00
28: Burnac-----	45	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
28: Delson-----	30	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
Falcon-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
29: Bushvalley-----	50	Very limited Depth to bedrock Content of large stones	1.00 0.96	Very limited Depth to hard bedrock Content of large stones Slope	1.00 1.00 0.91
Nordicol Variant----	30	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.91
30: Callan-----	80	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.01
31: Callan-----	80	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
32: Callan-----	80	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope	1.00
33: Callan-----	50	Very limited Restricted permeability Slope	1.00 0.63	Very limited Slope	1.00
Gurley-----	40	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
34: Ceek-----	85	Very limited Restricted permeability Slope Content of large stones	1.00 1.00 0.25	Very limited Slope Content of large stones Seepage	1.00 1.00 0.53

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
35: Clapper-----	85	Somewhat limited Content of large stones	0.85	Very limited Seepage Slope	1.00 0.67
36: Clapper-----	45	Very limited Slope Content of large stones	1.00 0.85	Very limited Seepage Slope	1.00 1.00
Ustic Torriorthents-	40	Very limited Restricted permeability Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01	Very limited Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.51
37: Cryaquolls-----	90	Very limited Flooding Restricted permeability Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage Slope	1.00 1.00 0.50 0.01
38: Evanston-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope Seepage	0.67 0.53
39: Falcon-----	55	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Burnac-----	25	Very limited Restricted permeability Slope	1.00 0.63	Very limited Slope	1.00
Rock outcrop-----	15	Not rated		Not rated	
40: Farb-----	45	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated	
41: Fivepine-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
41: Nortez-----	30	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
42: Fivepine-----	50	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Pino-----	35	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
43: Fluvaquents-----	90	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.72	Very limited Flooding Depth to saturated zone Seepage Slope	1.00 1.00 0.28 0.09
44: Fruitland-----	85	Not limited		Very limited Seepage Slope	1.00 0.67
45: Gladel-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Bond-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	30	Not rated		Not rated	
46: Gladel, cool-----	35	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 1.00
Bond, cool-----	30	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
47: Gurley-----	85	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.67 0.53
48: Gurley-----	50	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
Skein-----	40	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
49: Gypsiorthis-----	85	Somewhat limited Slope Depth to bedrock	0.96 0.27	Very limited Seepage Slope	1.00 1.00
50: Gypsum land-----	95	Not rated		Not rated	
51: Haplaquolls-----	85	Very limited Flooding Depth to saturated zone Depth to bedrock	1.00 1.00 0.01	Very limited Flooding Seepage Depth to saturated zone Slope	1.00 1.00 1.00 0.01
52: Killpack-----	50	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to soft bedrock Slope	1.00 1.00
Deaver-----	30	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to soft bedrock Slope	1.00 1.00
53: Leaps-----	45	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
Hofly-----	40	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
54: Leaps-----	60	Very limited Restricted permeability Slope	1.00 0.84	Very limited Slope	1.00
Tellura-----	25	Very limited Restricted permeability Slope	1.00 0.84	Very limited Slope	1.00
55: Lillylands-----	85	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
56: Mikim-----	90	Somewhat limited Restricted permeability Flooding	0.46 0.40	Somewhat limited Seepage Flooding Slope	0.53 0.40 0.33
57: Minchey-----	85	Somewhat limited Restricted permeability	0.46	Very limited Seepage Slope	1.00 0.91
58: Mitch-----	85	Very limited Depth to saturated zone Restricted permeability Flooding	1.00 0.46 0.40	Very limited Depth to saturated zone Seepage Flooding Slope	1.00 0.53 0.40 0.33
59: Mivida-----	85	Somewhat limited Slope	0.16	Very limited Seepage Slope	1.00 1.00
60: Monogram-----	85	Somewhat limited Restricted permeability	0.72	Somewhat limited Slope Seepage	0.67 0.53
61: Monticello-----	60	Somewhat limited Restricted permeability	0.46	Somewhat limited Seepage Slope	0.53 0.01
Witt-----	30	Very limited Restricted permeability	1.00	Somewhat limited Seepage Slope	0.53 0.01
62: Monticello-----	60	Somewhat limited Restricted permeability	0.46	Somewhat limited Slope Seepage	0.67 0.53

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
62: Witt-----	30	Very limited Restricted permeability	1.00	Somewhat limited Slope Seepage	0.67 0.53
63: Monticello-----	60	Somewhat limited Restricted permeability Slope	0.46 0.04	Very limited Slope Seepage	1.00 0.53
Witt-----	30	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope Seepage	1.00 0.53
64: Narraguinnep, moist-	90	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
65: Narraguinnep-----	55	Very limited Restricted permeability	1.00	Very limited Slope	1.00
Dapoin-----	30	Very limited Restricted permeability	1.00	Very limited Slope	1.00
66: Nortez-----	85	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 0.33
67: Nortez-----	85	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
68: Nortez-----	50	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Acree-----	35	Very limited Restricted permeability	1.00	Very limited Slope	1.00
69: Nortez-----	45	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
69: Fivepine-----	40	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
70: Nunemaker-----	90	Very limited Restricted permeability	1.00	Very limited Slope	1.00
71: Nyswonger-----	90	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 0.40	Somewhat limited Depth to saturated zone Seepage Flooding Slope	0.90 0.53 0.40 0.09
72: Pagoda-----	35	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
Coulterg-----	30	Very limited Slope Restricted permeability	1.00 0.46	Very limited Slope Seepage	1.00 0.53
Cabba-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
73: Paradox-----	85	Somewhat limited Restricted permeability	0.46	Very limited Seepage Slope	1.00 0.09
74: Persayo-----	50	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to soft bedrock Slope	1.00 1.00
Chipeta-----	35	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to soft bedrock Slope	1.00 1.00
75: Pinon, cool-----	35	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
75: Bowdish, cool-----	30	Very limited Depth to bedrock Restricted permeability	1.00 0.81	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.19
Progresso, cool-----	20	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 1.00
76: Pinon-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
Bowdish-----	25	Very limited Depth to bedrock Restricted permeability Slope	1.00 0.81 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.19
Rock outcrop-----	25	Not rated		Not rated	
77: Pinon-----	55	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
Progresso-----	30	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 1.00
78: Pinon-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
Ustic Torriorthents-	35	Very limited Restricted permeability Depth to bedrock Slope Content of large stones	1.00 1.00 1.00 0.01	Very limited Slope Depth to hard bedrock Content of large stones	1.00 1.00 0.51

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
79: Pojoaque-----	50	Somewhat limited Restricted permeability Slope	0.46 0.16	Very limited Slope Seepage Content of large stones	1.00 0.53 0.01
Chilton-----	30	Very limited Slope Restricted permeability	1.00 0.46	Very limited Slope Content of large stones Seepage	1.00 0.61 0.53
80: Progresso-----	85	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 0.01
81: Progresso-----	85	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 0.67
82: Progresso-----	85	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 0.04	Very limited Seepage Depth to hard bedrock Slope	1.00 1.00 1.00
83: Pulpit-----	50	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 0.53 0.33
Bond, cool-----	30	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.33
84: Radersburg-----	90	Very limited Content of large stones Restricted permeability	1.00 0.46	Very limited Content of large stones Seepage Slope	1.00 0.53 0.33
85: Radersburg-----	85	Very limited Content of large stones Slope Restricted permeability	1.00 1.00 0.46	Very limited Slope Content of large stones Seepage	1.00 1.00 0.53

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
86: Redlands-----	85	Somewhat limited Restricted permeability	0.46	Somewhat limited Seepage Slope	0.53 0.33
87: Rock outcrop-----	90	Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated	
Orthents-----	45	Very limited Slope Depth to bedrock Restricted permeability Content of large stones	1.00 1.00 0.74 0.42	Very limited Slope Seepage Depth to soft bedrock Content of large stones	1.00 1.00 1.00 0.12
89: Ryman, dry-----	80	Very limited Restricted permeability Slope	1.00 0.37	Very limited Slope	1.00
90: Ryman, warm-----	85	Very limited Restricted permeability Slope	1.00 0.37	Very limited Slope	1.00
91: Ryman-----	50	Very limited Restricted permeability	1.00	Very limited Slope	1.00
Adel, moist-----	30	Somewhat limited Restricted permeability	0.46	Very limited Slope Seepage	1.00 0.53
92: Sagedale-----	85	Very limited Restricted permeability Slope	1.00 0.63	Very limited Slope	1.00
93: Sapeha-----	90	Very limited Slope Restricted permeability Content of large stones	1.00 1.00 1.00	Very limited Slope Content of large stones	1.00 1.00
94: Seitz-----	90	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
95: Skein-----	60	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.53
Rock outcrop-----	30	Not rated		Not rated	
96: Skisams-----	35	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Bushvalley-----	30	Very limited Depth to bedrock Content of large stones	1.00 0.96	Very limited Depth to hard bedrock Content of large stones Slope	1.00 1.00 0.91
Cryoborolls, moderately deep----	25	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Seepage Depth to hard bedrock Slope Content of large stones	1.00 1.00 1.00 0.02
97: Skisams-----	55	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Cryoborolls-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Seepage Depth to hard bedrock Slope Content of large stones	1.00 1.00 1.00 0.02
98: Specie-----	90	Very limited Content of large stones Slope	1.00 0.16	Very limited Seepage Slope Content of large stones	1.00 1.00 1.00
99: Specie, moist-----	65	Very limited Slope Content of large stones	1.00 0.23	Very limited Slope Seepage Content of large stones	1.00 1.00 0.03
Rock outcrop-----	25	Not rated		Not rated	

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
100: Spectacle-----	50	Very limited Restricted permeability Slope Content of large stones	1.00 1.00 0.25	Very limited Slope Seepage Content of large stones	1.00 0.53 0.01
Kinesava-----	30	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
101: Tellura-----	45	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
Leaps-----	40	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
102: Typic Torriorthents-	85	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
103: Ustic Torriorthents-	50	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope Content of large stones	1.00 0.16
Ustochreptic Calciorthids-----	45	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
104: Vananda-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.33
105: Winnett-----	90	Very limited Restricted permeability Flooding	1.00 0.40	Somewhat limited Flooding Slope	0.40 0.01
106: Winz-----	60	Very limited Slope Restricted permeability Content of large stones	1.00 1.00 1.00	Very limited Slope Content of large stones	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	

Table 13A.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
107: Witt, dry-----	85	Very limited Restricted permeability	1.00	Very limited Slope Seepage	1.00 0.53
108: Wrayha-----	85	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
109: Zoltay-----	85	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope	1.00
110: Zoltay-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.01
111: Zyme-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Bodot-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to soft bedrock	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
112: Water-----	95	Not rated		Not rated	

Table 13B.--Sanitary facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Not limited		Not limited		Somewhat limited Seepage	0.52
2: Abra-----	85	Not limited		Not limited		Somewhat limited Seepage	0.52
3: Abra-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Seepage Slope	0.52 0.04
4: Ackmen-----	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
5: Acree-----	85	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
6: Acree-----	85	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
7: Acree-----	45	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Zoltay-----	25	Somewhat limited Too clayey Content of large stones	0.50 0.01	Not limited		Somewhat limited Too clayey Content of large stones	0.50 0.01
Nortez-----	20	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
8: Adel-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
9: Adel, moist-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
10: Aquolls-----	95	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.86
11: Badland-----	90	Not rated		Not rated		Not rated	

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12: Baird Hollow-----	35	Very limited Too clayey Slope Content of large stones	1.00 1.00 0.97	Very limited Slope	1.00	Very limited Too clayey Slope Content of large stones	1.00 1.00 0.97
Nordicol-----	25	Very limited Slope Content of large stones	1.00 0.52	Very limited Slope	1.00	Very limited Slope Content of large stones	1.00 0.52
Ryman-----	20	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Slope	1.00 1.00
13: Barkelew-----	50	Very limited Content of large stones Slope	1.00 1.00	Very limited Slope	1.00	Very limited Content of large stones Slope	1.00 1.00
Emmons-----	30	Somewhat limited Slope Content of large stones	0.84 0.17	Somewhat limited Slope	0.84	Somewhat limited Slope Content of large stones	0.84 0.17
14: Barx-----	85	Not limited		Not limited		Not limited	
15: Barx-----	85	Not limited		Not limited		Not limited	
16: Barx-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
17: Barx-----	45	Not limited		Not limited		Not limited	
Progresso-----	40	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
18: Begay-----	85	Not limited		Not limited		Somewhat limited Seepage	0.52
19: Beje-----	80	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope	1.00 0.96
20: Billings-----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
21: Billings, moist----	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22: Bodot, dry-----	90	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
23: Bodot, dry-----	45	Very limited Depth to bedrock Slope Content of large stones	1.00 1.00 0.01	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact Content of large stones	1.00 1.00 1.00 0.01
Ustic Torriorthents-	40	Very limited Slope Depth to bedrock Content of large stones	1.00 1.00 0.01	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact Content of large stones	1.00 1.00 1.00 0.01
24: Bodot, dry-----	50	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope	1.00 0.63
Zyme, dry-----	35	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope	1.00 0.63
25: Bond-----	45	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00
Progresso-----	40	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
26: Borolls-----	45	Very limited Slope Too clayey Content of large stones Depth to bedrock	1.00 1.00 1.00 1.00	Very limited Slope	1.00	Very limited Slope Too clayey Content of large stones	1.00 1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
27: Burnac-----	55	Very limited Too clayey Slope Content of large stones	1.00 0.63 0.02	Somewhat limited Slope	0.63	Very limited Too clayey Hard to compact Slope Content of large stones	1.00 1.00 0.63 0.02
Delson-----	25	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Somewhat limited Slope Too clayey	0.63 0.50

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28:							
Burnac-----	45	Very limited Slope Too clayey Content of large stones	1.00 1.00 0.02	Very limited Slope	1.00	Very limited Slope Too clayey Hard to compact Content of large stones	1.00 1.00 1.00 0.02
Delson-----	30	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Falcon-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.50
29:							
Bushvalley-----	50	Very limited Depth to bedrock Content of large stones Too clayey	1.00 0.96 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Content of large stones Too clayey	1.00 0.96 0.50
Nordicol Variant----	30	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
30:							
Callan-----	80	Not limited		Not limited		Not limited	
31:							
Callan-----	80	Not limited		Not limited		Not limited	
32:							
Callan-----	80	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
33:							
Callan-----	50	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63
Gurley-----	40	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope	1.00 0.63
34:							
Ceek-----	85	Very limited Too clayey Slope Content of large stones	1.00 1.00 0.01	Very limited Slope	1.00	Very limited Too clayey Slope Content of large stones	1.00 1.00 0.01
35:							
Clapper-----	85	Very limited Content of large stones	1.00	Not limited		Very limited Content of large stones Seepage	1.00 0.52

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Clapper-----	45	Very limited Slope Content of large stones	1.00 1.00	Very limited Slope	1.00	Very limited Slope Content of large stones Seepage	1.00 1.00 0.52
Ustic Torriorthents-	40	Very limited Slope Depth to bedrock Content of large stones	1.00 1.00 0.01	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact Content of large stones	1.00 1.00 1.00 0.01
37: Cryaquolls-----	90	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Too clayey Depth to saturated zone	1.00 1.00
38: Evanston-----	85	Not limited		Not limited		Not limited	
39: Falcon-----	55	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Slope Seepage	1.00 0.63 0.50
Burnac-----	25	Very limited Too clayey Slope Content of large stones	1.00 0.63 0.02	Somewhat limited Slope	0.63	Very limited Too clayey Hard to compact Slope Content of large stones	1.00 1.00 0.63 0.02
Rock outcrop-----	15	Not rated		Not rated		Not rated	
40: Farb-----	45	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	40	Not rated		Not rated		Not rated	
41: Fivepine-----	40	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 1.00
Nortez-----	30	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Fivepine-----	50	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 1.00
Pino-----	35	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04
43: Fluvaquents-----	90	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Too clayey Depth to saturated zone Gravel content	0.50 0.47 0.07
44: Fruitland-----	85	Not limited		Not limited		Somewhat limited Seepage	0.52
45: Gladel-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00
Bond-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00
Rock outcrop-----	30	Not rated		Not rated		Not rated	
46: Gladel, cool-----	35	Very limited Depth to bedrock Slope	1.00 0.96	Somewhat limited Slope	0.96	Very limited Depth to bedrock Too acid Slope Seepage	1.00 1.00 0.96 0.52
Bond, cool-----	30	Very limited Depth to bedrock Slope	1.00 0.96	Somewhat limited Slope	0.96	Very limited Depth to bedrock Slope	1.00 0.96
Rock outcrop-----	25	Not rated		Not rated		Not rated	
47: Gurley-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
48: Gurley-----	50	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope	1.00 0.63
Skein-----	40	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope Gravel content	1.00 0.63 0.01

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49: Gypsiorthis-----	85	Very limited Depth to bedrock Slope	1.00 0.96	Somewhat limited Slope	0.96	Somewhat limited Slope Seepage	0.96 0.52
50: Gypsum land-----	95	Not rated		Not rated		Not rated	
51: Haplaquolls-----	85	Very limited Flooding Depth to saturated zone Depth to bedrock	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Somewhat limited Depth to saturated zone Seepage	0.68 0.52
52: Killpack-----	50	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Slope	1.00 0.04
Deaver-----	30	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Slope	1.00 0.04
53: Leaps-----	45	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Slope Hard to compact	1.00 1.00 1.00
Hofly-----	40	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Slope	1.00 1.00
54: Leaps-----	60	Very limited Too clayey Slope	1.00 0.84	Somewhat limited Slope	0.84	Very limited Too clayey Hard to compact Slope	1.00 1.00 0.84
Tellura-----	25	Somewhat limited Slope Too clayey	0.84 0.50	Somewhat limited Slope	0.84	Somewhat limited Slope Too clayey Gravel content	0.84 0.50 0.29
55: Lillylands-----	85	Very limited Slope Too clayey	1.00 1.00	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 1.00
56: Mikim-----	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
57: Minchey-----	85	Not limited		Not limited		Somewhat limited Seepage Gravel content	0.52 0.31

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58: Mitch-----	85	Very limited Depth to saturated zone Flooding	1.00  0.40	Very limited Depth to saturated zone Flooding	1.00  0.40	Somewhat limited Depth to saturated zone	0.09
59: Mivida-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Seepage Slope	0.52 0.16
60: Monogram-----	85	Not limited		Not limited		Very limited Carbonate content	1.00
61: Monticello-----	60	Not limited		Not limited		Not limited	
Witt-----	30	Not limited		Not limited		Not limited	
62: Monticello-----	60	Not limited		Not limited		Not limited	
Witt-----	30	Not limited		Not limited		Not limited	
63: Monticello-----	60	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Witt-----	30	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
64: Narraguinnep, moist-	90	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
65: Narraguinnep-----	55	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Dapoin-----	30	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
66: Nortez-----	85	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
67: Nortez-----	85	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04
68: Nortez-----	50	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68: Acree-----	35	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
69: Nortez-----	45	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
Fivepine-----	40	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 1.00
70: Nunemaker-----	90	Not limited		Not limited		Not limited	
71: Nyswonger-----	90	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Not limited	
72: Pagoda-----	35	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Coulterg-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Cabba-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
73: Paradox-----	85	Not limited		Not limited		Not limited	
74: Persayo-----	50	Very limited Depth to bedrock Slope	1.00 0.37	Somewhat limited Slope	0.37	Very limited Depth to bedrock Slope	1.00 0.37
Chipeta-----	35	Very limited Depth to bedrock Slope	1.00 0.37	Somewhat limited Slope	0.37	Very limited Depth to bedrock Slope	1.00 0.37
75: Pinon, cool-----	35	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Bowdish, cool-----	30	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Progresso, cool-----	20	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
76: Pinon-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
76: Bowdish-----	25	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Slope	1.00 0.04
Rock outcrop-----	25	Not rated		Not rated		Not rated	
77: Pinon-----	55	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Progresso-----	30	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
78: Pinon-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00
Ustic Torriorthents-	35	Very limited Slope Depth to bedrock Content of large stones	1.00 1.00 0.01	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact Content of large stones	1.00 1.00 1.00 0.01
79: Pojoaque-----	50	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope Gravel content	0.16 0.04
Chilton-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.90
80: Progresso-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
81: Progresso-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
82: Progresso-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Slope	1.00 0.04
83: Pulpit-----	50	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Bond, cool-----	30	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
84: Radersburg-----	90	Very limited Content of large stones	1.00	Not limited		Very limited Content of large stones	1.00

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
85: Radersburg-----	85	Very limited Content of large stones Slope	1.00  1.00	Very limited Slope	1.00	Very limited Content of large stones Slope	1.00  1.00
86: Redlands-----	85	Not limited		Not limited		Not limited	
87: Rock outcrop-----	90	Not rated		Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Orthents-----	45	Very limited Slope Depth to bedrock Content of large stones	1.00  1.00 0.42	Very limited Slope Depth to bedrock	1.00  1.00	Very limited Slope Depth to bedrock Content of large stones	1.00  1.00 0.42
89: Ryman, dry-----	80	Somewhat limited Too clayey Slope	0.50  0.37	Somewhat limited Slope	0.37	Somewhat limited Too clayey Slope	0.50  0.37
90: Ryman, warm-----	85	Very limited Too clayey Slope	1.00  0.37	Somewhat limited Slope	0.37	Very limited Too clayey Slope	1.00  0.37
91: Ryman-----	50	Very limited Too clayey	1.00	Not limited		Very limited Too clayey	1.00
Adel, moist-----	30	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
92: Sagedale-----	85	Very limited Too clayey Slope	1.00  0.63	Somewhat limited Slope	0.63	Very limited Too clayey Slope	1.00  0.63
93: Sapeha-----	90	Very limited Slope Too clayey Content of large stones	1.00  1.00 1.00	Very limited Slope	1.00	Very limited Slope Too clayey Content of large stones	1.00  1.00 1.00
94: Seitz-----	90	Very limited Too clayey Slope	1.00  1.00	Very limited Slope	1.00	Very limited Too clayey Slope Gravel content	1.00  1.00 0.92
95: Skein-----	60	Very limited Depth to bedrock Slope	1.00  1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Gravel content	1.00  1.00 0.01

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95: Rock outcrop-----	30	Not rated		Not rated		Not rated	
96: Skisams-----	35	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Bushvalley-----	30	Very limited Depth to bedrock Content of large stones Too clayey	1.00 0.96 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Content of large stones Too clayey	1.00 0.96 0.50
Cryoborolls, moderately deep----	25	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Seepage Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to bedrock Seepage Gravel content Slope	1.00 0.52 0.06 0.04
97: Skisams-----	55	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Cryoborolls-----	40	Very limited Depth to bedrock Seepage Slope	1.00 1.00 1.00	Very limited Seepage Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope Seepage Gravel content	1.00 1.00 0.52 0.06
98: Specie-----	90	Very limited Seepage Content of large stones Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Content of large stones Seepage Slope	1.00 0.52 0.16
99: Specie, moist-----	65	Very limited Slope Seepage Content of large stones	1.00 1.00 0.49	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Content of large stones	1.00 0.52 0.49
Rock outcrop-----	25	Not rated		Not rated		Not rated	
100: Spectacle-----	50	Very limited Too clayey Slope Content of large stones	1.00 1.00 0.46	Very limited Slope	1.00	Very limited Too clayey Slope Content of large stones	1.00 1.00 0.46
Kinesava-----	30	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Slope	1.00 1.00

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101: Tellura-----	45	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey Gravel content	1.00 0.50 0.29
Leaps-----	40	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Slope Hard to compact	1.00 1.00 1.00
102: Typic Torriorthents-	85	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Too acid	1.00 1.00 1.00
103: Ustic Torriorthents-	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Hard to compact	1.00 1.00
Ustochreptic Calciorthids-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.02
104: Vananda-----	85	Not limited		Not limited		Very limited Hard to compact	1.00
105: Winnett-----	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
106: Winz-----	60	Very limited Slope Content of large stones Too clayey	1.00 1.00 0.50	Very limited Slope	1.00	Very limited Slope Content of large stones Too clayey	1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
107: Witt, dry-----	85	Not limited		Not limited		Not limited	
108: Wrayha-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
109: Zoltay-----	85	Somewhat limited Too clayey Slope Content of large stones	0.50 0.04 0.01	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope Content of large stones	0.50 0.04 0.01
110: Zoltay-----	85	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50

Table 13B.--Sanitary facilities--continued

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111: Zyme-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00
Bodot-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
112: Water-----	95	Not rated		Not rated		Not rated	

Table 14A.--Construction materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1: Abra-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
2: Abra-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
3: Abra-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
4: Ackmen-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
5: Acree-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
6: Acree-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7: Acree-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Zoltay-----	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Nortez-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8: Adel-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
9: Adel, moist-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
10: Aguolls-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Thickest layer Bottom layer	0.00 0.00
11: Badland-----	90	Not rated		Not rated	
12: Baird Hollow-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Nordicol-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ryman-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
13: Barkelw-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Emmons-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
14: Barx-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
15: Barx-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
16: Barx-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
17: Barx-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Progresso-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
18: Begay-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.02

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
19: Beje-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
20: Billings-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
21: Billings, moist----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
22: Bodot, dry-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
23: Bodot, dry-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ustic Torriorthents-	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
24: Bodot, dry-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Zyme, dry-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
25: Bond-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Progresso-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
26: Borolls-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	40	Not rated		Not rated	
27: Burnac-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Delson-----	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
28: Burnac-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Delson-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Falcon-----	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
29: Bushvalley-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Nordicol Variant---	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
30: Callan-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
31: Callan-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
32: Callan-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
33: Callan-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Gurley-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
34: Ceek-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
35: Clapper-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
36: Clapper-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
36: Ustic Torriorthents-	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
37: Cryaquolls-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
38: Evanston-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
39: Falcon-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Burnac-----	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	15	Not rated		Not rated	
40: Farb-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	40	Not rated		Not rated	
41: Fivepine-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Nortez-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	20	Not rated		Not rated	
42: Fivepine-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pino-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
43: Fluvaquents-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
44: Fruitland-----	85	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
45: Gladel-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Bond-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	30	Not rated		Not rated	
46: Gladel, cool-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Bond, cool-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated	
47: Gurley-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
48: Gurley-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Skein-----	40	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
49: Gypsiorthids-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
50: Gypsum Land-----	95	Not rated		Not rated	
51: Haplaquolls-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
52: Killpack-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Deaver-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
53: Leaps-----	45	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
53: Hofly-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
54: Leaps-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tellura-----	25	Fair		Poor	
		Thickest layer	0.12	Bottom layer	0.00
		Bottom layer	0.19	Thickest layer	0.00
55: Lillylands-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
56: Mikim-----	90	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
57: Minchey-----	85	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00
58: Mitch-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
59: Mivida-----	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01
60: Monogram-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
61: Monticello-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Witt-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
62: Monticello-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Witt-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
63: Monticello-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Witt-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
64: Narraguinnep, moist-	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
65: Narraguinnep-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Dapoin-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
66: Nortez-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
67: Nortez-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
68: Nortez-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Acree-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
69: Nortez-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fivepine-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
70: Nunemaker-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
71: Nyswonger-----	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.01

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
72: Pagoda-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Coulterg-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cabba-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
73: Paradox-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
74: Persayo-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Chipeta-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
75: Pinon, cool-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bowdish, cool-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Progresso, cool-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
76: Pinon-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bowdish-----	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	25	Not rated		Not rated	
77: Pinon-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Progresso-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
78:					
Pinon-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ustic Torriorthents-	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79:					
Pojoaque-----	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chilton-----	30	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00
80:					
Progreso-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
81:					
Progreso-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
82:					
Progreso-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
83:					
Pulpit-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bond, cool-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
84:					
Radersburg-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
85:					
Radersburg-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
86:					
Redlands-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
87:					
Rock outcrop-----	90	Not rated		Not rated	
88:					
Rock outcrop-----	50	Not rated		Not rated	

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
88: Orthents-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
89: Ryman, dry-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
90: Ryman, warm-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
91: Ryman-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Adel, moist-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
92: Sagedale-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
93: Sapeha-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
94: Seitz-----	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00
95: Skein-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	30	Not rated		Not rated	
96: Skisams-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bushvalley-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cryoborolls, moderately deep----	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
97:					
Skisams-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cryoborolls-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
98:					
Specie-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
99:					
Specie, moist-----	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	25	Not rated		Not rated	
100:					
Spectacle-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kinesava-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
101:					
Tellura-----	45	Fair		Poor	
		Thickest layer	0.12	Bottom layer	0.00
		Bottom layer	0.19	Thickest layer	0.00
Leaps-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
102:					
Typic Torriorthents-	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
103:					
Ustic Torriorthents-	50	Fair		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.12	Thickest layer	0.00
Ustochreptic Calciorthids-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
104:					
Vananda-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14A.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
105: Winnett-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
106: Winz-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	25	Not rated		Not rated	
107: Witt, dry-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
108: Wrayha-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
109: Zoltay-----	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
110: Zoltay-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
111: Zyme-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bodot-----	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	25	Not rated		Not rated	
112: Water-----	95	Not rated		Not rated	

Table 14B.--Construction materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Abra-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Fair Hard to reclaim Carbonate content	0.68 0.80
2: Abra-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Fair Hard to reclaim Carbonate content	0.68 0.80
3: Abra-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Fair Hard to reclaim Carbonate content Slope	0.68 0.80 0.96
4: Ackmen-----	90	Good		Good		Good	
5: Acree-----	85	Fair Too clayey Low content of organic matter	0.08 0.88	Fair Shrink-swell	0.12	Fair Too clayey Rock fragments	0.07 0.88
6: Acree-----	85	Fair Too clayey Low content of organic matter	0.08 0.88	Fair Shrink-swell	0.12	Fair Too clayey Rock fragments Slope	0.07 0.88 0.96
7: Acree-----	45	Fair Too clayey Low content of organic matter	0.08 0.88	Fair Shrink-swell	0.12	Fair Too clayey Rock fragments	0.07 0.88
Zoltay-----	25	Poor Too clayey Low content of organic matter	0.00 0.12	Fair No cobble limitation	0.99	Poor Hard to reclaim Too clayey Rock fragments	0.00 0.00 0.12
Nortez-----	20	Poor Too clayey Depth to bedrock Droughty	0.00 0.54 0.94	Poor Depth to bedrock Shrink-swell	0.00 0.31	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.54 0.88
8: Adel-----	80	Good		Fair Slope	0.82	Poor Slope	0.00

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9: Adel, moist-----	90	Good		Poor Slope	0.00	Poor Slope	0.00
10: Aquolls-----	95	Fair Low content of organic matter Too clayey	0.50 0.98	Fair Depth to saturated zone Shrink-swell	0.53 0.87	Fair Depth to saturated zone Too clayey	0.53 0.89
11: Badland-----	90	Not rated		Not rated		Not rated	
12: Baird Hollow-----	35	Poor Stone content Low content of organic matter	0.00 0.88	Poor Stone content Slope Cobble content Shrink-swell	0.00 0.08 0.35 0.99	Poor Slope Rock fragments Hard to reclaim	0.00 0.50 0.68
Nordicol-----	25	Fair Stone content Low content of organic matter No cobble limitation	0.16 0.88 0.99	Fair Slope Cobble content Stone content	0.08 0.91 0.99	Poor Slope Hard to reclaim	0.00 0.00
Ryman-----	20	Fair Too clayey	0.96	Fair Slope Shrink-swell	0.08 0.97	Poor Hard to reclaim Slope Too clayey	0.00 0.00 0.96
13: Barkelaw-----	50	Poor Stone content Low content of organic matter Cobble content Carbonate content	0.00 0.12 0.74 0.80	Poor Stone content Cobble content Slope	0.00 0.01 0.08	Poor Slope Rock fragments Hard to reclaim Carbonate content	0.00 0.00 0.00 0.80
Emmons-----	30	Fair Low content of organic matter Carbonate content Too clayey Cobble content Stone content	0.50 0.92 0.98 0.99 0.99	Fair Cobble content Stone content	0.25 0.99	Poor Rock fragments Hard to reclaim Slope Too clayey Carbonate content	0.00 0.00 0.16 0.64 0.92
14: Barx-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Good		Good	
15: Barx-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Good		Good	

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16: Barx-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Good		Fair Slope	0.96
17: Barx-----	45	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Good		Good	
Progresso-----	40	Fair Low content of organic matter Depth to bedrock Droughty Carbonate content Too clayey No water erosion limitation	0.12 0.54 0.67 0.68 0.98 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.98	Fair Depth to bedrock Too clayey Carbonate content	0.54 0.57 0.97
18: Begay-----	85	Fair Low content of organic matter Sodium content No water erosion limitation	0.12 0.90 0.99	Good		Fair Sodium content	0.90
19: Beje-----	80	Poor Depth to bedrock Droughty	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Slope	0.00 0.04
20: Billings-----	85	Fair Low content of organic matter Water erosion	0.12 0.68	Fair Shrink-swell	0.96	Fair Salinity	0.88
21: Billings, moist----	90	Fair Low content of organic matter Too clayey No water erosion limitation	0.12 0.98 0.99	Fair Shrink-swell	0.87	Fair Too clayey Salinity	0.57 0.88
22: Bodot, dry-----	90	Poor Too clayey Low content of organic matter Droughty Depth to bedrock	0.00 0.12 0.39 0.54	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Too clayey Depth to bedrock Salinity	0.00 0.54 0.88

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
23: Bodot, dry-----	45	Poor		Poor		Poor	
		Low content of organic matter	0.00	Slope	0.00	Too clayey	0.00
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Too alkaline	0.00	Shrink-swell	0.12	Rock fragments	0.05
		Droughty	0.23	Cobble content	0.87	Depth to bedrock	0.54
		Depth to bedrock	0.54			Salinity	0.88
Ustic Torriorthents-	40	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.14	Shrink-swell	0.12	Rock fragments	0.12
		Depth to bedrock	0.65	Stone content	0.92	Depth to bedrock	0.65
		Stone content	0.92	No cobble limitation	0.99		
24: Bodot, dry-----	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.87	Slope	0.37
		Droughty	0.39			Depth to bedrock	0.54
		Depth to bedrock	0.54			Salinity	0.88
Zyme, dry-----	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00	Shrink-swell	0.87	Too clayey	0.00
		Depth to bedrock	0.00			Slope	0.37
		Low content of organic matter	0.12				
25: Bond-----	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Shrink-swell	0.87	Depth to bedrock	0.00
		Low content of organic matter	0.12	Slope	0.92		
Progresso-----	40	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
		Depth to bedrock	0.54	Shrink-swell	0.98	Too clayey	0.57
		Droughty	0.67			Carbonate content	0.97
		Carbonate content	0.68				
		Too clayey	0.98				
		No water erosion limitation	0.99				
26: Borolls-----	45	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Hard to reclaim	0.00
		Low content of organic matter	0.12	Stone content	0.00	Rock fragments	0.00
		Too clayey	0.18	Cobble content	0.01	Slope	0.00
		Cobble content	0.85			Too clayey	0.13
		Droughty	0.99				
Rock outcrop-----	40	Not rated		Not rated		Not rated	

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27: Burnac-----	55	Poor Too clayey Stone content Low content of organic matter	0.00 0.00 0.50	Fair Stone content Shrink-swell	0.73 0.87	Poor Too clayey Hard to reclaim Slope Rock fragments	0.00 0.05 0.37 0.96
Delson-----	25	Fair Too clayey Low content of organic matter	0.12 0.12	Fair Shrink-swell	0.87	Fair Too clayey Slope Hard to reclaim Rock fragments	0.10 0.37 0.50 0.96
28: Burnac-----	45	Poor Too clayey Stone content Low content of organic matter	0.00 0.00 0.50	Poor Slope Stone content Shrink-swell	0.00 0.73 0.87	Poor Too clayey Slope Hard to reclaim Rock fragments	0.00 0.00 0.05 0.96
Delson-----	30	Fair Too clayey Low content of organic matter	0.12 0.12	Poor Slope Shrink-swell	0.00 0.87	Poor Slope Too clayey Hard to reclaim Rock fragments	0.00 0.10 0.50 0.96
Falcon-----	15	Poor Depth to bedrock Droughty	0.00 0.00	Poor Slope Depth to bedrock	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.00 0.00 0.88
29: Bushvalley-----	50	Poor Droughty Depth to bedrock Stone content Cobble content Low content of organic matter Too clayey	0.00 0.00 0.06 0.84 0.88 0.98	Poor Depth to bedrock Stone content Cobble content	0.00 0.06 0.14	Poor Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.70
Nordicol Variant----	30	Fair Depth to bedrock Droughty Too clayey	0.54 0.80 0.98	Poor Depth to bedrock Shrink-swell	0.00 0.96	Poor Rock fragments Depth to bedrock Too clayey	0.00 0.54 0.93
30: Callan-----	80	Fair Low content of organic matter Carbonate content Sodium content Water erosion	0.12 0.20 0.60 0.90	Good		Fair Carbonate content Sodium content	0.20 0.60

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
31: Callan-----	80	Fair Low content of organic matter Carbonate content Sodium content Water erosion	0.12 0.20 0.60 0.90	Good		Fair Carbonate content Sodium content	0.20 0.60
32: Callan-----	80	Fair Low content of organic matter Carbonate content Sodium content Water erosion	0.12 0.20 0.60 0.90	Good		Fair Carbonate content Sodium content Slope	0.20 0.60 0.96
33: Callan-----	50	Fair Low content of organic matter Carbonate content Sodium content Water erosion	0.12 0.20 0.60 0.90	Good		Fair Carbonate content Slope Sodium content	0.20 0.37 0.60
Gurley-----	40	Fair Carbonate content Too clayey Depth to bedrock Droughty No water erosion limitation	0.08 0.12 0.54 0.96 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.99	Fair Too clayey Slope Depth to bedrock	0.11 0.37 0.54
34: Ceek-----	85	Poor Too clayey Low content of organic matter	0.00 0.12	Poor Slope Cobble content Shrink-swell Stone content	0.00 0.27 0.49 0.97	Poor Slope Too clayey Rock fragments Hard to reclaim	0.00 0.00 0.88 0.88
35: Clapper-----	85	Fair Cobble content Low content of organic matter Carbonate content Droughty Stone content No water erosion limitation	0.08 0.12 0.32 0.80 0.89 0.99	Poor Cobble content Stone content	0.00 0.98	Poor Rock fragments Hard to reclaim Carbonate content	0.00 0.00 0.32
36: Clapper-----	45	Fair Cobble content Low content of organic matter Carbonate content Droughty Stone content No water erosion limitation	0.08 0.12 0.32 0.80 0.89 0.99	Poor Cobble content Slope Stone content	0.00 0.08 0.98	Poor Slope Rock fragments Hard to reclaim Carbonate content	0.00 0.00 0.00 0.32

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Ustic Torriorthents-	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.08	Too clayey	0.00
		Droughty	0.14	Shrink-swell	0.12	Rock fragments	0.12
		Depth to bedrock	0.65	Stone content	0.92	Depth to bedrock	0.65
		Stone content	0.92	No cobble limitation	0.99		
37: Cryaquolls-----	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to saturated zone	0.14	Depth to saturated zone	0.14
		Too clayey	0.68	Shrink-swell	0.25	Too clayey	0.68
						Rock fragments	0.98
38: Evanston-----	85	Fair		Fair		Fair	
		Low content of organic matter	0.88	Shrink-swell	0.97	Too clayey	0.86
		Too clayey	0.98				
		No water erosion limitation	0.99				
39: Falcon-----	55	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00			Slope	0.37
						Rock fragments	0.88
Burnac-----	25	Poor		Fair		Poor	
		Too clayey	0.00	Stone content	0.73	Too clayey	0.00
		Stone content	0.00	Shrink-swell	0.87	Hard to reclaim	0.05
		Low content of organic matter	0.50			Slope	0.37
						Rock fragments	0.96
Rock outcrop-----	15	Not rated		Not rated		Not rated	
40: Farb-----	45	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00	Slope	0.98	Slope	0.00
		Low content of organic matter	0.12			Rock fragments	0.28
Rock outcrop-----	40	Not rated		Not rated		Not rated	
41: Fivepine-----	40	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Shrink-swell	0.12	Too clayey	0.00
		Too clayey	0.00	Slope	0.32	Depth to bedrock	0.00
		Low content of organic matter	0.88			Rock fragments	0.97
Nortez-----	30	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.54	Shrink-swell	0.31	Slope	0.00
		Droughty	0.94	Slope	0.98	Depth to bedrock	0.54
						Rock fragments	0.88

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41: Rock outcrop-----	20	Not rated		Not rated		Not rated	
42: Fivepine-----	50	Poor Depth to bedrock Droughty Too clayey Low content of organic matter	0.00 0.00 0.00 0.88	Poor Depth to bedrock Shrink-swell	0.00 0.12	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.00 0.97
Pino-----	35	Fair Too clayey Depth to bedrock Droughty	0.12 0.54 0.92	Poor Depth to bedrock Shrink-swell	0.00 0.87	Fair Too clayey Depth to bedrock Slope	0.10 0.54 0.96
43: Fluvaquents-----	90	Fair Low content of organic matter No water erosion limitation	0.12 0.99	Fair Depth to saturated zone	0.89	Poor Rock fragments Hard to reclaim Depth to saturated zone	0.00 0.50 0.89
44: Fruitland-----	85	Fair Low content of organic matter No water erosion limitation	0.12 0.99	Good		Good	
45: Gladel-----	35	Poor Droughty Depth to bedrock	0.00 0.00	Poor Slope Depth to bedrock	0.00 0.00	Poor Slope Depth to bedrock	0.00 0.00
Bond-----	30	Poor Droughty Depth to bedrock Low content of organic matter	0.00 0.00 0.12	Poor Depth to bedrock Slope Shrink-swell	0.00 0.00 0.87	Poor Slope Depth to bedrock	0.00 0.00
Rock outcrop-----	30	Not rated		Not rated		Not rated	
46: Gladel, cool-----	35	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Slope	0.00 0.04
Bond, cool-----	30	Poor Droughty Depth to bedrock Low content of organic matter	0.00 0.00 0.12	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Depth to bedrock Slope	0.00 0.04
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47: Gurley-----	85	Fair Carbonate content Too clayey Depth to bedrock Droughty No water erosion limitation	0.08 0.12 0.54 0.96 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.99	Fair Too clayey Depth to bedrock	0.11 0.54
48: Gurley-----	50	Fair Carbonate content Too clayey Depth to bedrock Droughty No water erosion limitation	0.08 0.12 0.54 0.96 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.99	Fair Too clayey Slope Depth to bedrock	0.11 0.37 0.54
Skein-----	40	Poor Depth to bedrock Droughty Carbonate content Low content of organic matter	0.00 0.00 0.32 0.88	Poor Depth to bedrock	0.00	Poor Rock fragments Depth to bedrock Slope Carbonate content	0.00 0.00 0.37 0.84
49: Gypsiorthids-----	85	Fair Low content of organic matter Water erosion Droughty	0.12 0.68 0.84	Good		Fair Slope Salinity	0.04 0.50
50: Gypsum land-----	95	Not rated		Not rated		Not rated	
51: Haplaquolls-----	85	Fair Low content of organic matter	0.88	Fair Depth to saturated zone	0.76	Fair Hard to reclaim Depth to saturated zone	0.50 0.76
52: Killpack-----	50	Fair Low content of organic matter Depth to bedrock Droughty Too clayey No water erosion limitation	0.12 0.54 0.81 0.98 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.87	Fair Depth to bedrock Too clayey Salinity Slope	0.54 0.57 0.88 0.96
Deaver-----	30	Poor Too clayey Low content of organic matter Droughty Depth to bedrock Sodium content No water erosion limitation	0.00 0.12 0.49 0.54 0.78 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Too clayey Depth to bedrock Sodium content Slope	0.00 0.54 0.78 0.96

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53: Leaps-----	45	Poor Too clayey Low content of organic matter	0.00 0.88	Fair Slope Shrink-swell	0.08 0.17	Poor Too clayey Slope Rock fragments	0.00 0.00 0.96
Hofly-----	40	Fair Too clayey	0.12	Fair Slope Shrink-swell	0.08 0.45	Poor Slope Too clayey	0.00 0.12
54: Leaps-----	60	Poor Too clayey Low content of organic matter	0.00 0.88	Fair Shrink-swell	0.12	Poor Too clayey Slope Rock fragments	0.00 0.16 0.96
Tellura-----	25	Poor Too clayey Stone content Low content of organic matter	0.00 0.87 0.88	Fair Stone content	0.90	Poor Too clayey Rock fragments Hard to reclaim Slope	0.00 0.00 0.00 0.16
55: Lillylands-----	85	Fair Low content of organic matter Too clayey	0.88 0.98	Poor Slope Shrink-swell	0.00 0.87	Poor Slope Hard to reclaim Too clayey	0.00 0.50 0.93
56: Mikim-----	90	Fair Low content of organic matter	0.88	Good		Fair Hard to reclaim	0.88
57: Minchey-----	85	Fair Low content of organic matter Carbonate content	0.12 0.39	Good		Poor Hard to reclaim Carbonate content Rock fragments	0.00 0.39 0.72
58: Mitch-----	85	Fair No water erosion limitation	0.99	Good		Good	
59: Mivida-----	85	Fair Low content of organic matter Carbonate content	0.12 0.68	Good		Fair Carbonate content Slope	0.68 0.84
60: Monogram-----	85	Poor Carbonate content Low content of organic matter No water erosion limitation	0.00 0.88 0.99	Good		Fair Carbonate content	0.32

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61: Monticello-----	60	Fair Low content of organic matter No water erosion limitation	0.50 0.99	Good		Good	
Witt-----	30	Fair Low content of organic matter Carbonate content Water erosion Too clayey	0.12 0.32 0.68 0.98	Good		Fair Too clayey	0.70
62: Monticello-----	60	Fair Low content of organic matter No water erosion limitation	0.50 0.99	Good		Good	
Witt-----	30	Fair Low content of organic matter Carbonate content Water erosion Too clayey	0.12 0.32 0.68 0.98	Good		Fair Too clayey	0.70
63: Monticello-----	60	Fair Low content of organic matter No water erosion limitation	0.50 0.99	Good		Fair Slope	0.96
Witt-----	30	Fair Low content of organic matter Carbonate content Water erosion Too clayey	0.12 0.32 0.68 0.98	Good		Fair Too clayey Slope	0.70 0.96
64: Narraguinnep, moist-	90	Poor Too clayey Low content of organic matter	0.00 0.88	Poor Slope Shrink-swell	0.00 0.53	Poor Too clayey Slope	0.00 0.00
65: Narraguinnep-----	55	Poor Too clayey Low content of organic matter	0.00 0.88	Fair Shrink-swell	0.59	Poor Too clayey	0.00
Dapoin-----	30	Poor Too clayey Low content of organic matter	0.00 0.12	Fair Shrink-swell	0.71	Poor Too clayey	0.00

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66: Nortez-----	85	Poor Too clayey Depth to bedrock Droughty	0.00 0.54 0.94	Poor Depth to bedrock Shrink-swell	0.00 0.31	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.54 0.88
67: Nortez-----	85	Poor Too clayey Depth to bedrock Droughty	0.00 0.54 0.94	Poor Depth to bedrock Shrink-swell	0.00 0.31	Poor Too clayey Depth to bedrock Rock fragments Slope	0.00 0.54 0.88 0.96
68: Nortez-----	50	Poor Too clayey Depth to bedrock Droughty	0.00 0.54 0.94	Poor Depth to bedrock Shrink-swell	0.00 0.31	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.54 0.88
Acree-----	35	Fair Too clayey Low content of organic matter	0.08 0.88	Fair Shrink-swell	0.59	Fair Too clayey Rock fragments	0.07 0.88
69: Nortez-----	45	Poor Too clayey Depth to bedrock Droughty	0.00 0.54 0.94	Poor Depth to bedrock Shrink-swell	0.00 0.31	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.54 0.88
Fivepine-----	40	Poor Depth to bedrock Droughty Too clayey Low content of organic matter	0.00 0.00 0.00 0.88	Poor Depth to bedrock Shrink-swell	0.00 0.12	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.00 0.97
70: Nunemaker-----	90	Poor Too clayey Too alkaline Low content of organic matter	0.00 0.00 0.12	Fair Shrink-swell	0.12	Poor Too clayey	0.00
71: Nyswonger-----	90	Fair Low content of organic matter	0.88	Fair Shrink-swell	0.60	Good	
72: Pagoda-----	35	Poor Too clayey Low content of organic matter	0.00 0.88	Fair Slope Shrink-swell	0.50 0.66	Poor Slope Too clayey	0.00 0.00
Coulterg-----	30	Fair Low content of organic matter	0.50	Poor Slope	0.00	Poor Slope Rock fragments	0.00 0.97

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72: Cabba-----	20	Poor		Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.50			Depth to bedrock	0.00
		Too clayey	0.98			Too clayey	0.64
73: Paradox-----	85	Fair		Good		Good	
		Low content of organic matter	0.12				
74: Persayo-----	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.96	Too clayey	0.57
		Low content of organic matter	0.12			Slope	0.63
		Too clayey	0.98				
		No water erosion limitation	0.99				
Chipeta-----	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Salinity	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Depth to bedrock	0.00
		Too clayey	0.00			Too clayey	0.00
		Low content of organic matter	0.12			Sodium content	0.22
		Sodium content	0.22			Slope	0.63
		Salinity	0.50				
		No water erosion limitation	0.99				
75: Pinon, cool-----	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Carbonate content	0.54
		Carbonate content	0.54			Rock fragments	0.88
		Low content of organic matter	0.88				
		No water erosion limitation	0.99				
Bowdish, cool-----	30	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.24
		Low content of organic matter	0.12			Depth to bedrock	0.54
		Depth to bedrock	0.54			Carbonate content	0.54
		Carbonate content	0.54				
		No water erosion limitation	0.99				

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Progresso, cool-----	20	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
		Depth to bedrock	0.54	Shrink-swell	0.98	Too clayey	0.57
		Droughty	0.67			Carbonate content	0.97
		Carbonate content	0.68				
		Too clayey	0.98				
		No water erosion limitation	0.99				
76: Pinon-----	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.92	Depth to bedrock	0.00
		Carbonate content	0.54			Carbonate content	0.54
		Low content of organic matter	0.88			Rock fragments	0.88
		No water erosion limitation	0.99				
Bowdish-----	25	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.24
		Low content of organic matter	0.12			Depth to bedrock	0.54
		Depth to bedrock	0.54			Carbonate content	0.54
		Carbonate content	0.54			Slope	0.96
		No water erosion limitation	0.99				
Rock outcrop-----	25	Not rated		Not rated		Not rated	
77: Pinon-----	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Carbonate content	0.54
		Carbonate content	0.54			Rock fragments	0.88
		Low content of organic matter	0.88				
		No water erosion limitation	0.99				
Progresso-----	30	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
		Depth to bedrock	0.54	Shrink-swell	0.98	Too clayey	0.57
		Droughty	0.67			Carbonate content	0.97
		Carbonate content	0.68				
		Too clayey	0.98				
		No water erosion limitation	0.99				
78: Pinon-----	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.82	Depth to bedrock	0.00
		Carbonate content	0.54			Carbonate content	0.54
		Low content of organic matter	0.88			Rock fragments	0.88
		No water erosion limitation	0.99				

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78: Ustic Torriorthents-	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Shrink-swell	0.12	Too clayey	0.00
		Droughty	0.14	Slope	0.82	Rock fragments	0.12
		Depth to bedrock	0.65	Stone content	0.92	Depth to bedrock	0.65
		Stone content	0.92	No cobble limitation	0.99		
79: Pojoaque-----	50	Fair		Fair		Poor	
		Low content of organic matter	0.50	Stone content	0.92	Rock fragments	0.00
		Stone content	0.99			Hard to reclaim	0.82
						Slope	0.84
Chilton-----	30	Fair		Fair		Poor	
		Low content of organic matter	0.12	Stone content	0.11	Slope	0.00
		Stone content	0.21	Slope	0.82	Hard to reclaim	0.00
		Droughty	0.80			Rock fragments	0.00
80: Progreso-----	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
		Depth to bedrock	0.54	Shrink-swell	0.98	Too clayey	0.57
		Droughty	0.67			Carbonate content	0.97
		Carbonate content	0.68				
		Too clayey	0.98				
		No water erosion limitation	0.99				
81: Progreso-----	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
		Depth to bedrock	0.54	Shrink-swell	0.98	Too clayey	0.57
		Droughty	0.67			Carbonate content	0.97
		Carbonate content	0.68				
		Too clayey	0.98				
		No water erosion limitation	0.99				
82: Progreso-----	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
		Depth to bedrock	0.54	Shrink-swell	0.98	Too clayey	0.57
		Droughty	0.67			Slope	0.96
		Carbonate content	0.68			Carbonate content	0.97
		Too clayey	0.98				
		No water erosion limitation	0.99				

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
83: Pulpit-----	50	Fair		Poor		Fair	
		Depth to bedrock	0.54	Depth to bedrock	0.00	Depth to bedrock	0.54
		Droughty	0.64				
		Low content of organic matter	0.88				
		No water erosion limitation	0.99				
Bond, cool-----	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.87		
		Low content of organic matter	0.12				
84: Radersburg-----	90	Poor		Poor		Poor	
		Cobble content	0.00	Cobble content	0.00	Rock fragments	0.00
		Stone content	0.00	Stone content	0.01	Hard to reclaim	0.00
		Droughty	0.12			Carbonate content	0.32
		Carbonate content	0.32				
		Low content of organic matter	0.50				
85: Radersburg-----	85	Poor		Poor		Poor	
		Cobble content	0.00	Cobble content	0.00	Slope	0.00
		Stone content	0.00	Stone content	0.01	Rock fragments	0.00
		Droughty	0.12	Slope	0.82	Hard to reclaim	0.00
		Carbonate content	0.32			Carbonate content	0.32
		Low content of organic matter	0.50				
86: Redlands-----	85	Fair		Good		Good	
		Low content of organic matter	0.12				
87: Rock outcrop-----	90	Not rated		Not rated		Not rated	
88: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Orthents-----	45	Fair		Poor		Poor	
		Droughty	0.14	Depth to bedrock	0.00	Rock fragments	0.00
		Carbonate content	0.68	Slope	0.00	Slope	0.00
		Stone content	0.76	Cobble content	0.09	Carbonate content	0.68
		Low content of organic matter	0.88	Stone content	0.85	Depth to bedrock	0.90
		Depth to bedrock	0.90				
		Cobble content	0.95				
89: Ryman, dry-----	80	Fair		Fair		Poor	
		Low content of organic matter	0.12	Shrink-swell	0.96	Hard to reclaim	0.00
						Slope	0.63

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
90: Ryman, warm-----	85	Fair Too clayey Low content of organic matter	0.12 0.12	Fair Shrink-swell Stone content No cobble limitation	0.87 0.99 0.99	Poor Hard to reclaim Too clayey Rock fragments Slope	0.00 0.08 0.50 0.63
91: Ryman-----	50	Fair Too clayey	0.96	Fair Shrink-swell	0.97	Poor Hard to reclaim Too clayey	0.00 0.96
Adel, moist-----	30	Fair Low content of organic matter	0.88	Fair Shrink-swell	0.96	Good	
92: Sagedale-----	85	Poor Too clayey Low content of organic matter	0.00 0.88	Fair Shrink-swell	0.87	Poor Too clayey Slope Rock fragments	0.00 0.37 0.88
93: Sapeha-----	90	Poor Too clayey Stone content Cobble content Low content of organic matter	0.00 0.02 0.11 0.88	Poor Slope Cobble content Stone content Shrink-swell	0.00 0.00 0.31 0.89	Poor Too clayey Rock fragments Slope Hard to reclaim	0.00 0.00 0.00 0.00
94: Seitz-----	90	Poor Too clayey Low content of organic matter	0.00 0.50	Poor Slope Shrink-swell	0.00 0.89	Poor Too clayey Slope Hard to reclaim Rock fragments	0.00 0.00 0.00 0.00
95: Skein-----	60	Poor Depth to bedrock Droughty Carbonate content Low content of organic matter	0.00 0.00 0.32 0.88	Poor Depth to bedrock Slope	0.00 0.18	Poor Slope Depth to bedrock Rock fragments Carbonate content	0.00 0.00 0.00 0.00 0.84
Rock outcrop-----	30	Not rated		Not rated		Not rated	
96: Skisams-----	35	Poor Depth to bedrock Droughty	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.88 0.96
Bushvalley-----	30	Poor Droughty Depth to bedrock Stone content Cobble content Low content of organic matter Too clayey	0.00 0.00 0.06 0.84 0.88 0.98	Poor Depth to bedrock Stone content Cobble content	0.00 0.06 0.14	Poor Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.70

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96: Cryoborolls, moderately deep----	25	Fair Droughty Depth to bedrock	 0.01 0.54	Poor Depth to bedrock	 0.00	Fair Rock fragments Depth to bedrock Slope	 0.12 0.54 0.96
97: Skisams-----	55	Poor Depth to bedrock Droughty	 0.00 0.00	Poor Depth to bedrock Slope	 0.00 0.82	Poor Depth to bedrock Slope Rock fragments	 0.00 0.00 0.88
Cryoborolls-----	40	Fair Droughty Depth to bedrock	 0.01 0.54	Poor Depth to bedrock Slope	 0.00 0.82	Poor Slope Rock fragments Depth to bedrock	 0.00 0.12 0.54
98: Specie-----	90	Poor Stone content Low content of organic matter Cobble content	 0.00 0.12 0.82	Poor Stone content Cobble content	 0.00 0.07	Poor Rock fragments Hard to reclaim Slope	 0.00 0.00 0.84
99: Specie, moist-----	65	Fair Low content of organic matter Stone content Cobble content	 0.12 0.78 0.95	Poor Slope Cobble content Stone content	 0.00 0.41 0.88	Poor Hard to reclaim Rock fragments Slope	 0.00 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
100: Spectacle-----	50	Fair Cobble content Low content of organic matter	 0.83 0.88	Fair Cobble content Slope Shrink-swell	 0.16 0.82 0.97	Poor Slope Hard to reclaim Rock fragments	 0.00 0.00 0.00
Kinesava-----	30	Good		Fair Slope Shrink-swell	 0.82 0.99	Poor Slope Hard to reclaim	 0.00 0.00
101: Tellura-----	45	Poor Too clayey Stone content Low content of organic matter	 0.00 0.87 0.88	Fair Slope Stone content	 0.08 0.90	Poor Too clayey Slope Hard to reclaim Rock fragments	 0.00 0.00 0.00 0.00
Leaps-----	40	Poor Too clayey Low content of organic matter	 0.00 0.88	Fair Slope Shrink-swell	 0.08 0.12	Poor Too clayey Slope Rock fragments	 0.00 0.00 0.96
102: Typic Torriorthents-	85	Poor Low content of organic matter Droughty Depth to bedrock	 0.00 0.00 0.01	Poor Slope Depth to bedrock	 0.00 0.00	Poor Slope Depth to bedrock	 0.00 0.01

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
103: Ustic Torriorthents-	50	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.87	Slope	0.00
		Low content of organic matter	0.12	Slope	0.92	Too clayey	0.00
		Stone content	0.99	Cobble content	0.97	Rock fragments	0.12
				Stone content	0.98	Hard to reclaim	0.24
Ustochreptic Calciorthis-----	45	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.87	Slope	0.00
		Low content of organic matter	0.12	Slope	0.92	Too clayey	0.00
		Carbonate content	0.32			Rock fragments	0.00
						Hard to reclaim	0.68
104: Vananda-----	85	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Too clayey	0.00
		Sodium content	0.00			Sodium content	0.00
		Low content of organic matter	0.12			Salinity	0.88
105: Winnett-----	90	Poor		Fair		Poor	
		Sodium content	0.00	Shrink-swell	0.12	Sodium content	0.00
		Too alkaline	0.00			Too clayey	0.07
		Too clayey	0.12			Salinity	0.88
		Low content of organic matter	0.12				
		Droughty	0.36				
		No water erosion limitation	0.99				
106: Winz-----	60	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Rock fragments	0.00
		Too clayey	0.00	Stone content	0.00	Hard to reclaim	0.00
		Droughty	0.00	Cobble content	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.97	Slope	0.00
		Cobble content	0.79				
Rock outcrop-----	25	Not rated		Not rated		Not rated	
107: Witt, dry-----	85	Fair		Good		Fair	
		Low content of organic matter	0.12			Too clayey	0.70
		Carbonate content	0.32				
		Water erosion	0.68				
		Too clayey	0.98				
108: Wrayha-----	85	Poor		Fair		Poor	
		Too clayey	0.00	Slope	0.18	Slope	0.00
		Low content of organic matter	0.12	Shrink-swell	0.87	Too clayey	0.00
				Stone content	0.98		

Table 14B.--Construction materials--continued

Map symbol and soil name	Pct of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
109: Zoltay-----	85	Poor Too clayey Low content of organic matter	0.00 0.12	Fair No cobble limitation	0.99	Poor Too clayey Hard to reclaim Rock fragments Slope	0.00 0.00 0.12 0.96
110: Zoltay-----	85	Poor Too clayey	0.00	Fair Shrink-swell	0.89	Poor Too clayey	0.00
111: Zyme-----	40	Poor Too clayey Droughty Depth to bedrock Low content of organic matter	0.00 0.00 0.00 0.12	Poor Depth to bedrock Slope Shrink-swell	0.00 0.08 0.87	Poor Too clayey Depth to bedrock Slope	0.00 0.00 0.00
Bodot-----	25	Poor Too clayey Low content of organic matter Droughty Depth to bedrock	0.00 0.12 0.39 0.54	Poor Depth to bedrock Slope Shrink-swell	0.00 0.50 0.87	Poor Too clayey Slope Depth to bedrock Salinity	0.00 0.00 0.54 0.88
Rock outcrop-----	25	Not rated		Not rated		Not rated	
112: Water-----	95	Not rated		Not rated		Not rated	

Table 15.--Water management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1----- Abra	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Favorable-----	Favorable-----	Too arid.
2----- Abra	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Too arid.
3----- Abra	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope-----	Slope-----	Too arid, slope.
4----- Ackmen	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
5----- Acree	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
6----- Acree	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
7*: Acree-----	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
Zoltay-----	Moderate: slope.	Moderate: piping, large stones.	Severe: no water.	Deep to water	Slope, percs slowly.	Large stones---	Large stones, percs slowly.
Nortez-----	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
8, 9----- Adel	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Slope-----	Slope.
10----- Aquolls	Slight-----	Severe: wetness.	Severe: slow refill.	Frost action---	Wetness-----	Wetness-----	Wetness.
11*----- Badland	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
12*: Baird Hollow----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, percs slowly.	Large stones, slope, droughty.
Nordicol-----	Severe: seepage, slope.	Moderate: piping, large stones.	Severe: no water.	Deep to water	Slope-----	Slope, large stones.	Large stones, slope.
Ryman-----	Severe: slope.	Moderate: large stones.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
13*:							
Barkelw-----	Severe: seepage, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Too arid, large stones, slope.
Emmons-----	Severe: slope.	Moderate: piping, large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Too arid, large stones, slope.
14-----							
Barx	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable-----	Favorable-----	Too arid.
15-----							
Barx	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Too arid.
16-----							
Barx	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Slope-----	Too arid, slope.
17*:							
Barx-----	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Too arid.
Progresso-----	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.
18-----							
Begay	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Soil blowing, slope.	Erodes easily, soil blowing.	Erodes easily.
19-----							
Beje	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, soil blowing, depth to rock.	Slope, depth to rock, soil blowing.	Slope, depth to rock.
20-----							
Billings	Moderate: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Erodes easily, excess salt.	Erodes easily	Too arid, excess salt, erodes easily.
21-----							
Billings	Moderate: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Excess salt----	Erodes easily	Too arid, excess salt, erodes easily.
22-----							
Bodot	Moderate: depth to rock, slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Depth to rock, percs slowly.	Too arid, depth to rock.
23*:							
Bodot-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones, depth to rock.	Too arid, large stones, slope.
Ustic Torriorthents---	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Too arid, large stones, slope.
24*:							
Bodot-----	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, depth to rock, percs slowly.	Too arid, slope, depth to rock.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
24*: Zyme-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Too arid, slope, erodes easily.
25*: Bond-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, soil blowing.	Slope, depth to rock, soil blowing.	Too arid, slope, depth to rock.
Progresso-----	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.
26*: Borolls-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop-----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
27*: Burnac-----	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, soil blowing, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Delson-----	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, soil blowing, percs slowly.	Slope, soil blowing, percs slowly.	Slope, percs slowly.
28*: Burnac-----	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, soil blowing, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Delson-----	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, soil blowing, percs slowly.	Slope, soil blowing, percs slowly.	Slope, percs slowly.
Falcon-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty.	Slope, depth to rock, soil blowing.	Slope, droughty, depth to rock.
29*: Bushvalley-----	Severe: depth to rock.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Large stones, depth to rock.	Large stones, droughty.
Nordicol Variant-	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Large stones, depth to rock.	Large stones, depth to rock.
30----- Callan	Slight-----	Severe: piping.	Severe: no water.	Deep to water	Percs slowly---	Favorable-----	Percs slowly.
31----- Callan	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Favorable-----	Percs slowly.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
32----- Callan	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Slope-----	Slope, percs slowly.
33*: Callan-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Slope-----	Slope, percs slowly.
Gurley-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
34----- Ceek	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, percs slowly.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.
35----- Clapper	Severe: seepage.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Large stones---	Too arid, large stones.
36*: Clapper-----	Severe: seepage, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Too arid, large stones, slope.
Ustic Torriorthents---	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Too arid, large stones, slope.
37----- Cryaquolls	Slight-----	Severe: wetness.	Slight-----	Flooding, frost action.	Wetness, flooding.	Wetness-----	Wetness.
38----- Evanston	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope, soil blowing.	Soil blowing---	Too arid.
39*: Falcon-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty.	Slope, depth to rock, soil blowing.	Slope, droughty, depth to rock.
Burnac-----	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, soil blowing, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
40*: Farb-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Slope, depth to rock, soil blowing.	Too arid, slope, droughty.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
41*:							
Fivepine-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, percs slowly.	Slope, depth to rock, percs slowly.
Nortez-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
42*:							
Fivepine-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock, percs slowly.	Depth to rock, percs slowly.
Pino-----	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
43*-----							
Fluvaquents	Moderate: seepage, slope.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Flooding, frost action, slope.	Wetness, slope, flooding.	Wetness, too sandy.	Wetness, excess salt.
44-----							
Fruitland	Severe: seepage.	Slight-----	Severe: no water.	Deep to water	Slope-----	Erodes easily	Too arid, erodes easily.
45*, 46*:							
Gladel-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones, depth to rock.	Too arid, large stones, slope.
Bond-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, soil blowing.	Slope, depth to rock, soil blowing.	Too arid, slope, depth to rock.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
47-----							
Gurley	Moderate: seepage, depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock	Too arid, depth to rock.
48*:							
Gurley-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
Skein-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
49-----							
Gypsiorthids	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, depth to rock, erodes easily.	Slope, excess salt, erodes easily.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
50----- Gypsum land	Severe: depth to rock, slope, seepage.	Severe: excess salt.	Severe: no water.	Deep to water	Slope, depth to rock, excess salt.	Slope, depth to rock.	Slope, excess salt, depth to rock.
51----- Haplaquolls	Severe: seepage.	Severe: wetness.	Severe: depth to rock.	Depth to rock, flooding, frost action.	Wetness, depth to rock, flooding.	Depth to rock, wetness.	Depth to rock.
52*: Killpack-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Too arid, slope, excess salt.
Deaver-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Too arid, slope, erodes easily.
53*: Leaps-----	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Hofly-----	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
54*: Leaps-----	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Tellura-----	Severe: slope.	Moderate: large stones.	Severe: no water.	Slope-----	Slow intake, percs slowly, slope.	Small stones, slope, percs slowly.	Slope, percs slowly.
55----- Lillylands	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
56----- Mikim	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Favorable.
57----- Minchey	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Slope, soil blowing.	Favorable-----	Too arid.
58----- Mitch	Moderate: seepage, slope.	Severe: piping.	Moderate: deep to water, slow refill.	Slope-----	Slope, wetness.	Erodes easily, wetness.	Erodes easily.
59----- Mivida	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Soil blowing---	Slope, soil blowing.	Slope.
60----- Monogram	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Erodes easily	Too arid, erodes easily.
61*: Monticello-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Erodes easily.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
61*: Witt-----	Moderate: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Too arid, erodes easily.
62*: Monticello-----	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
Witt-----	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Too arid, erodes easily.
63*: Monticello-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Witt-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Too arid, slope, erodes easily.
64----- Narraguinep	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, percs slowly, erodes easily.	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.
65*: Narraguinep-----	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, percs slowly, erodes easily.	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.
Dapoin-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope-----	Slope, percs slowly.
66----- Nortez	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
67----- Nortez	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, erodes easily, depth to rock.	Slope, erodes easily, depth to rock.
68*: Nortez-----	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Acree-----	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
69*: Nortez-----	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Fivepine-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Depth to rock, percs slowly.	Depth to rock, percs slowly.
70----- Nunemaker	Moderate: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, slow intake, percs slowly.	Erodes easily, percs slowly.	Too arid, erodes easily.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
71----- Nyswonger	Moderate: seepage.	Moderate: piping, wetness.	Severe: slow refill.	Deep to water	Percs slowly, erodes easily.	Erodes easily	Too arid, erodes easily, percs slowly.
72*: Pagoda-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, erodes easily.	Slope, erodes easily, percs slowly.
Coulterg-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Slope-----	Slope.
Cabba-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, depth to rock.	Slope, droughty, depth to rock.
73----- Paradox	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Soil blowing---	Erodes easily, soil blowing.	Erodes easily.
74*: Persayo-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Slope, depth to rock, erodes easily.	Slope, excess salt, erodes easily.
Chipeta-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, slow intake, percs slowly.	Slope, depth to rock, erodes easily.	Slope, excess salt, too arid.
75*: Pinyon-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock	Too arid, depth to rock.
Bowdish-----	Moderate: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock	Too arid, depth to rock.
Progresso-----	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.
76*: Pinyon-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
Bowdish-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
Rock outcrop-----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
77*: Pinyon-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock	Too arid, depth to rock.
Progresso-----	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
78*: Pinyon-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
Ustic Torriorthents---	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Too arid, large stones, slope.
79*: Pojoaque-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Slope-----	Slope.
Chilton-----	Severe: slope.	Moderate: large stones.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Too arid, large stones, slope.
80----- Progresso	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Depth to rock	Depth to rock, erodes easily.	Too arid, erodes easily.
81----- Progresso	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.
82----- Progresso	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock, erodes easily.	Too arid, slope, erodes easily.
83*: Pulpit-----	Moderate: seepage, depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.
Bond-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, soil blowing.	Depth to rock, soil blowing.	Too arid, depth to rock.
84----- Radersburg	Moderate: seepage, slope.	Severe: piping, large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Large stones---	Too arid, large stones.
85----- Radersburg	Severe: slope.	Severe: piping, large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Too arid, large stones, slope.
86----- Redlands	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, soil blowing.	Soil blowing---	Too arid.
87*----- Rock outcrop	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
88*: Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
88*: Orthents-----	Severe: seepage, slope.	Moderate: large stones.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Large stones, slope, droughty.
89, 90----- Ryman	Severe: slope.	Moderate: large stones.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.
91*: Ryman-----	Severe: slope.	Moderate: large stones.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.
Adel-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Slope-----	Slope.
92----- Sagedale	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
93----- Sapeha	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Large stones, slope.
94----- Seitz	Severe: slope.	Moderate: hard to pack, large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, percs slowly.	Large stones, slope, droughty.
95*: Skein-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
96*: Skisams-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Bushvalley-----	Severe: depth to rock.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Large stones, depth to rock.	Large stones, droughty.
Cryoborolls-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, depth to rock.	Slope, droughty, depth to rock.
97*: Skisams-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Cryoborolls-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, depth to rock.	Slope, droughty, depth to rock.
98----- Specie	Severe: seepage, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
99*:							
Specie-----	Severe: seepage, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
100*:							
Spectacle-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
Kinesava-----	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope.
101*:							
Tellura-----	Severe: slope.	Moderate: large stones.	Severe: no water.	Slope-----	Slow intake, percs slowly, slope.	Small stones, slope, percs slowly.	Slope, percs slowly.
Leaps-----	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
102*-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Too arid, slope, depth to rock.
Typic Torriorthents							
103*:							
Ustic Torriorthents---	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.	Too arid, large stones, slope.
Ustochreptic Calciorthids----	Severe: slope.	Slight-----	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Too arid, slope, percs slowly.
104-----	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, slow intake, percs slowly.	Erodes easily, percs slowly.	Too arid, erodes easily, percs slowly.
Vananda							
105-----	Slight-----	Severe: excess sodium.	Severe: no water.	Deep to water	Droughty, percs slowly, erodes easily.	Erodes easily, percs slowly.	Too arid, excess salt, excess sodium.
Winnett							
106*:							
Winz-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
Rock outcrop----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

See footnote at end of table.

Table 15.--Water management--continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
107----- Witt	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Too arid, erodes easily.
108----- Wrayha	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Too arid, slope, percs slowly.
109----- Zoltay	Severe: slope.	Moderate: piping, large stones.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, large stones.	Large stones, slope, percs slowly.
110----- Zoltay	Slight-----	Moderate: hard to pack.	Severe: no water.	Deep to water	Percs slowly---	Percs slowly---	Percs slowly.
111*: Zyme-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Too arid, slope, erodes easily.
Bodot-----	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, depth to rock, percs slowly.	Too arid, slope, depth to rock.
Rock outcrop-----	Severe: depth to rock, slope.	Severe: thin layer	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
W. Water							

\* See description of the map unit for composition and behavior characteristics of the map unit.

Table 16.--Engineering index properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
1:												
Abra-----	0-3	Loam	CL-ML	A-4	0	0	95-100	85-100	75-95	50-70	25-30	5-10
	3-13	Loam	CL, CL-ML	A-4	0	0	85-100	80-95	70-85	50-75	25-30	5-10
	13-32	Loam	CL-ML	A-4	0	0	90-100	85-95	70-90	50-65	25-30	5-10
	32-60	Sandy clay loam, clay loam, gravelly sandy loam	SC, SC-SM	A-1, A-2	0	0-10	65-85	55-75	30-55	15-25	25-30	5-10
2:												
Abra-----	0-3	Loam	CL-ML	A-4	0	0	95-100	85-100	75-95	50-70	25-30	5-10
	3-13	Loam	CL, CL-ML	A-4	0	0	85-100	80-95	70-85	50-75	25-30	5-10
	13-32	Loam	CL-ML	A-4	0	0	90-100	85-95	70-90	50-65	25-30	5-10
	32-60	Sandy clay loam, clay loam, gravelly sandy loam	SC, SC-SM	A-1, A-2	0	0-10	65-85	55-75	30-55	15-25	25-30	5-10
3:												
Abra-----	0-3	Loam	CL-ML	A-4	0	0	95-100	85-100	75-95	50-70	25-30	5-10
	3-13	Loam	CL, CL-ML	A-4	0	0	85-100	80-95	70-85	50-75	25-30	5-10
	13-32	Loam	CL-ML	A-4	0	0	90-100	85-95	70-90	50-65	25-30	5-10
	32-60	Clay loam, sandy clay loam, gravelly sandy loam	SC, SC-SM	A-1, A-2	0	0-10	65-85	55-75	30-55	15-25	25-30	5-10
4:												
Ackmen-----	0-5	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	5-41	Silt loam, loam	CL, CL-ML	A-4	0	0	100	100	85-100	60-90	25-30	5-10
	41-60	Loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
5:												
Acree-----	0-8	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-100	60-80	25-30	5-10
	8-30	Clay loam, clay	CL	A-7	0	0	75-100	70-100	60-95	55-90	35-50	15-25
	30-60	Clay loam, clay	CL	A-6, A-7	0	0	75-100	70-100	60-80	55-75	30-45	10-20
6:												
Acree-----	0-8	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-100	60-80	25-30	5-10
	8-30	Clay loam, clay	CL	A-7	0	0	75-100	70-100	60-95	55-90	35-50	15-25
	30-60	Clay loam, clay	CL	A-6, A-7	0	0	75-100	70-100	60-80	55-75	30-45	10-20
7:												
Acree-----	0-8	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-100	60-80	25-30	5-10
	8-30	Clay loam, clay	CL	A-7	0	0	75-100	70-100	60-95	55-90	35-50	15-25
	30-60	Clay loam, clay	CL	A-6, A-7	0	0	75-100	70-100	60-80	55-75	30-45	10-20
Zoltay-----	0-6	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	80-90	55-80	25-30	5-10
	6-14	Clay loam	CL	A-6	0	0-5	85-95	80-90	75-85	60-80	30-35	10-15
	14-29	Cobbly clay, cobbly clay loam, clay	CL	A-6, A-7	0-5	0-30	75-85	70-80	65-75	50-70	30-45	10-20
	29-46	Very cobbly clay loam, cobbly clay loam	CL, GC, SC	A-2, A-6	0-10	25-50	45-80	40-75	35-70	30-60	30-40	10-20
	46-60	Cobbly clay loam, very cobbly clay loam	CL, SC	A-6	0	25-50	55-80	55-80	45-70	40-60	30-40	10-20

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
7: Nortez-----	0-8	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	8-24	Clay loam, cobble clay loam, clay	CL	A-7	0	0-25	90-100	85-100	80-95	65-90	40-50	15-25
	24-32	Loam, clay loam, cobble clay loam	CL	A-7, A-6	0	0-25	90-100	85-100	75-95	60-75	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
8: Adel-----	0-50	Loam	CL, CL-ML	A-4	0	0-10	95-100	90-100	75-95	55-75	25-30	5-10
	50-60	Clay loam	CL	A-6	0	0-10	95-100	90-100	80-100	65-80	30-35	10-15
9: Adel, moist----	0-50	Loam	CL, CL-ML	A-4	0	0-10	95-100	90-100	75-95	55-75	25-30	5-10
	50-60	Clay loam	CL	A-6	0	0-10	95-100	90-100	80-100	65-80	30-35	10-15
10: Aquolls-----	0-3	Clay loam	CL	A-6	0	0	95-100	95-100	70-95	50-75	30-35	10-15
	3-21	Clay loam	CL	A-6	0	0	85-100	80-100	75-100	60-80	30-35	10-15
	21-38	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	30-35	10-15
	38-60	Sandy clay loam	CL, SC	A-2, A-6	0	0	85-100	80-100	65-85	30-55	30-35	10-15
11: Badland-----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
12: Baird Hollow----	0-14	Stony loam	CL, CL-ML	A-4	10-40	5-25	80-100	70-95	60-90	45-65	25-30	5-10
	14-28	Very cobbly sandy clay loam, very stony clay loam	CL, SC	A-2, A-6	5-40	20-60	70-90	60-85	50-80	20-65	30-35	10-15
	28-40	Very stony clay loam, very stony clay	CL, GC	A-6, A-7	25-60	10-40	70-100	60-95	50-90	40-80	35-45	15-20
	40-44	Very stony clay, very stony clay loam	CL	A-7	25-70	20-40	70-100	60-90	50-90	40-85	40-50	20-25
	44-60	Gravelly clay	CL, GC	A-7	0-10	5-15	60-80	55-75	50-75	40-70	40-50	20-25
Nordicol-----	0-15	Loam	CL	A-4	0-5	0-5	90-100	80-100	70-95	50-75	25-30	5-10
	15-24	Gravelly sandy clay loam	SC	A-2, A-4	0-10	0-15	65-85	60-75	45-65	20-40	25-30	5-10
	24-32	Very cobbly sandy clay loam, very cobble loam	SC	A-2, A-6	0-15	30-60	45-90	40-85	30-80	15-65	25-35	5-15
	32-48	Very cobbly sandy clay loam, very cobble clay loam	CL, CL-ML, SC	A-2, A-6, A-4	5-15	25-50	50-80	45-70	35-70	15-55	25-35	5-15
	48-60	Very stony sandy clay loam, extremely cobble loam	CL-ML, CL, SC	A-2, A-4	10-60	20-55	50-85	45-75	35-70	20-55	25-30	5-10

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
12: Ryman-----	0-23	Clay loam	CL	A-6	0	0-10	85-100	80-100	75-90	60-80	30-35	10-15
	23-27	Cobbly clay loam, clay loam	CL	A-6	0	5-25	75-95	70-95	65-90	50-75	35-40	15-20
	27-39	Cobbly clay, stony clay, clay loam	CL	A-6, A-7	0-30	5-25	75-95	70-95	65-90	50-80	35-45	15-20
	39-60	Cobbly clay, cobbly clay loam	CL	A-6, A-7	0-5	15-35	75-95	70-95	65-90	50-85	35-45	15-20
13: Barkelw-----	0-2	Very cobbly clay loam	CL	A-6	0-15	30-60	70-95	60-90	50-75	40-60	30-35	10-15
	2-10	Cobbly clay loam, cobbly loam	CL	A-6	0-5	15-35	75-95	70-90	65-75	45-60	30-35	10-15
	10-22	Extremely stony clay loam, very stony loam	CL, GC	A-2, A-4	25-70	20-50	60-95	50-90	40-70	30-60	25-30	5-10
	22-60	Extremely stony loam, very stony clay loam	CL, GC	A-2, A-4	25-70	20-50	60-95	50-90	40-70	30-60	25-30	5-10
Emmons-----	0-5	Very cobbly loam	CL-ML, GC, CL, SC	A-2, A-4	0-20	30-65	45-90	40-85	35-80	25-65	25-30	5-10
	5-15	Cobbly clay loam	CL, CL-ML	A-6	0-10	15-35	75-90	70-85	65-85	50-70	25-35	5-15
	15-60	Cobbly clay loam	CL, CL-ML	A-4	0-10	15-35	75-90	70-85	65-85	50-70	25-30	5-10
14: Barx-----	0-2	Fine sandy loam	SC, SC-SM	A-4	0	0	100	100	70-80	40-55	25-30	5-10
	2-23	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	100	100	75-95	60-80	25-30	5-10
	23-74	Loam, sandy clay loam	CL-ML	A-4	0	0	100	100	80-95	70-85	25-30	5-10
15: Barx-----	0-2	Fine sandy loam	SC, SC-SM	A-4	0	0	100	100	70-80	40-55	25-30	5-10
	2-23	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	100	100	75-95	60-80	25-30	5-10
	23-74	Loam, sandy clay loam	CL-ML	A-4	0	0	100	100	80-95	70-85	25-30	5-10
16: Barx-----	0-2	Fine sandy loam	SC, SC-SM	A-4	0	0	100	100	70-80	40-55	25-30	5-10
	2-23	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	100	100	75-95	60-80	25-30	5-10
	23-74	Loam, sandy clay loam	CL-ML	A-4	0	0	100	100	80-95	70-85	25-30	5-10





Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
27:												
Burnac-----	0-6	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	60-80	25-40	25-30	5-10
	6-28	Clay, clay loam	CL	A-6, A-7	0	0	80-100	75-100	75-100	60-95	35-45	15-20
	28-60	Very stony clay, stony clay	CH, CL	A-7	10-50	0-45	60-100	50-90	40-85	35-75	40-60	20-35
Delson-----	0-10	Sandy loam	SC, SC-SM	A-2, A-4	0	0	90-100	85-100	50-70	25-40	25-30	5-10
	10-34	Clay loam	CL	A-7	0	0-15	90-100	85-100	75-95	60-75	40-45	15-20
	34-60	Clay loam, clay, cobbly clay loam	CL	A-7	0-5	0-30	85-95	75-85	65-80	50-70	40-50	15-25
28:												
Burnac-----	0-6	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	60-80	25-40	25-30	5-10
	6-28	Clay, clay loam	CL	A-6, A-7	0	0	80-100	75-100	75-100	60-95	35-45	15-20
	28-60	Very stony clay, stony clay	CH, CL	A-7	10-50	0-45	60-100	50-90	40-85	35-75	40-60	20-35
Delson-----	0-10	Sandy loam	SC, SC-SM	A-2, A-4	0	0	90-100	85-100	50-70	25-40	25-30	5-10
	10-34	Clay loam	CL	A-7	0	0-15	90-100	85-100	75-95	60-75	40-45	15-20
	34-60	Clay loam, clay, cobbly clay loam	CL	A-7	0-5	0-30	85-95	75-85	65-80	50-70	40-50	15-25
Falcon-----	0-7	Sandy loam	SC-SM, SM	A-2, A-4	0-5	0-10	85-100	80-100	50-70	25-40	20-25	NP-5
	7-19	Sandy loam, gravelly sandy loam	SC-SM, SM	A-4, A-2	0-5	0-10	70-100	65-100	40-60	25-40	20-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
29:												
Bushvalley-----	0-5	Stony loam	CL-ML, SC, SC-SM	A-4	10-40	0-30	75-90	70-85	60-80	45-65	25-30	5-10
	5-12	Extremely channery clay loam, very channery clay loam	SC	A-2, A-6	0-25	35-85	65-85	50-70	30-60	30-50	30-35	10-15
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Nordicol Variant-----	0-14	Loam	CL-ML	A-4	0-5	0-10	85-100	80-100	75-90	55-80	25-30	5-10
	14-31	Cobbly clay loam	CL	A-6	0-10	15-35	85-95	75-95	65-80	50-65	30-35	10-15
	31-34	Sandy clay loam	CL, SC	A-2, A-6	0-10	5-15	85-95	75-90	60-75	30-55	30-35	10-15
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---
30:												
Callan-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	85-100	80-100	70-80	50-75	25-30	5-10
	4-14	Clay loam, silty clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-95	60-90	35-50	15-25
	14-60	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	50-90	25-35	5-15

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
31: Callan-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	85-100	80-100	70-80	50-75	25-30	5-10
	4-14	Clay loam, silty clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-95	60-90	35-50	15-25
	14-60	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	50-90	25-35	5-15
32: Callan-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	85-100	80-100	70-80	50-75	25-30	5-10
	4-14	Clay loam, silty clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-95	60-90	35-50	15-25
	14-60	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	50-90	25-35	5-15
33: Callan-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	85-100	80-100	70-80	50-75	25-30	5-10
	4-14	Clay loam, silty clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-95	60-90	35-50	15-25
	14-60	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	50-90	25-35	5-15
Gurley-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	70-85	50-70	25-30	5-10
	4-21	Clay loam	CL	A-6	0-5	0-5	85-100	80-100	75-85	60-80	35-40	15-20
	21-37	Loam, gravelly loam	CL, CL-ML, SC-SM, SC	A-4	0-5	0-5	60-95	50-85	45-70	40-70	25-30	5-10
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
34: Ceek-----	0-5	Very flaggy clay loam	CL, SC, GC	A-6	25-50	10-50	45-90	40-85	35-85	35-70	30-40	10-20
	5-13	Very cobbly clay loam	CL, GC, SC	A-6	0-5	30-60	70-100	65-95	55-85	40-70	30-40	10-20
	13-22	Very cobbly clay loam	CL, GC, SC	A-6	0-5	30-60	60-100	55-95	50-85	40-70	30-40	10-20
	22-60	Clay	CL	A-7	0	5-15	90-100	85-95	70-85	60-80	40-50	20-25
35: Clapper-----	0-5	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-95	70-90	50-75	25-30	5-10
	5-11	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-95	70-90	50-75	25-30	5-10
	11-20	Cobbly loam, very cobbly loam	CL-ML, CL, SC, SC-SM	A-4	0-10	15-40	70-95	60-85	50-80	35-65	25-30	5-10
	20-60	Very cobbly loam, extremely cobbly loam, very gravelly loam	GC, GC-GM, SC-SM, SC	A-2, A-4	0-20	15-75	55-80	40-70	40-65	30-55	25-30	5-10
36: Clapper-----	0-5	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-95	70-90	50-75	25-30	5-10
	5-11	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-95	70-90	50-75	25-30	5-10
	11-20	Cobbly loam, very cobbly loam	CL-ML, CL, SC, SC-SM	A-4	0-10	15-40	70-95	60-85	50-80	35-65	25-30	5-10
	20-60	Very cobbly loam, extremely cobbly loam, very gravelly loam	GC, SC-SM, GC-GM, SC	A-2, A-4	0-20	15-75	55-80	40-70	40-65	30-55	25-30	5-10





Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
46: Bond, cool-----	0-3	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-85	40-50	25-30	5-10
	3-16	Sandy clay loam, clay loam	CL, SC	A-6	0	0-5	95-100	90-100	70-90	40-70	25-35	10-20
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
47: Gurley-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	70-85	50-70	25-30	5-10
	4-21	Clay loam	CL	A-6	0-5	0-5	85-100	80-100	75-85	60-80	35-40	15-20
	21-37	Loam, gravelly loam	CL, CL-ML, SC-SM, SC	A-4	0-5	0-5	60-95	50-85	45-70	40-70	25-30	5-10
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
48: Gurley-----	0-4	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	70-85	50-70	25-30	5-10
	4-21	Clay loam	CL	A-6	0-5	0-5	85-100	80-100	75-85	60-80	35-40	15-20
	21-37	Loam, gravelly loam	CL, CL-ML, SC-SM, SC	A-4	0-5	0-5	60-95	50-85	45-70	40-70	25-30	5-10
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Skein-----	0-6	Loam	CL, CL-ML	A-4	0	0	85-100	80-90	70-80	50-70	25-30	5-10
	6-13	Loam, sandy loam, gravelly loam	CL, SC	A-2, A-4	0	0-5	60-90	50-85	45-80	25-75	25-30	5-10
	13-19	Very gravelly loam	GC-GM, GM	A-2, A-4	0-10	10-25	35-55	30-50	25-50	20-40	20-30	NP-10
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
49: Gypsiorthids----	0-1	Loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	85-95	60-75	20-25	NP-5
	1-11	Loam, fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0-5	0-5	95-100	90-100	70-95	40-75	20-25	NP-5
	11-23	Loam, fine sandy loam, silt loam	ML, SC-SM, CL-ML, SM	A-4, A-2	0-5	0-5	90-100	85-100	55-95	30-75	20-25	NP-5
	23-44	Silt loam	ML	A-4	0-5	0-5	90-100	85-100	75-100	55-90	25-30	NP-5
50: Gypsum land-----	0-60	Gypsiferous material			---	---	---	---	---	---	---	---
51: Haplaquolls-----	0-21	Loam	CL, CL-ML	A-4	0-5	0-5	85-100	80-100	70-80	50-70	25-30	5-10
	21-30	Cobbly sandy loam, gravelly sandy loam	SC, SC-SM	A-4, A-2	0-5	5-40	70-100	65-95	40-65	25-40	25-30	5-10
	30-60	Very gravelly sandy clay loam, very gravelly sandy loam	SC-SM	A-4, A-2	0-5	5-15	60-80	50-75	40-65	20-40	25-30	5-10

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
52:												
Killpack-----	0-9	Loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	9-30	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	95-100	85-95	30-40	10-20
	30-34	Weathered bedrock			---	---	---	---	---	---	---	---
Deaver-----	0-4	Loam	CL, CL-ML	A-4	0	0	85-100	80-100	70-95	50-75	25-30	5-10
	4-31	Clay loam, clay	CL	A-6, A-7	0	0	85-100	80-100	70-100	60-90	30-50	10-25
	31-35	Unweathered bedrock			---	---	---	---	---	---	---	---
53:												
Leaps-----	0-12	Loam	CL-ML	A-4	0	0-5	85-100	80-100	70-95	50-75	25-30	5-10
	12-60	Clay	CH, CL	A-6, A-7	0	0	80-100	75-100	65-90	55-80	35-60	15-35
Hofly-----	0-3	Loam	CL-ML	A-4	0	0-5	90-100	80-100	70-85	50-70	25-30	5-10
	3-32	Clay loam	CL	A-6	0	0-5	90-100	80-100	75-90	60-80	35-40	15-20
	32-60	Clay	CL	A-7	0	0-5	90-100	85-100	75-95	60-90	40-45	20-25
54:												
Leaps-----	0-10	Loam	CL-ML	A-4	0	0-5	85-100	80-100	70-95	50-75	25-30	5-10
	10-60	Clay	CH, CL	A-6, A-7	0	0	80-100	75-100	65-90	55-80	35-60	15-35
Tellura-----	0-14	Clay loam	CL	A-6	0-5	0-5	85-100	80-95	75-85	60-80	30-40	10-20
	14-36	Very gravelly clay, very cobbly clay, very gravelly clay loam	GC	A-2, A-6, A-7	0-20	5-35	35-55	30-50	30-50	20-50	35-50	15-25
	36-60	Very gravelly clay loam, very gravelly clay	GC	A-2, A-6, A-7	0-15	10-35	35-50	30-50	30-50	20-40	35-50	15-25
55:												
Lillylands-----	0-4	Loam	CL, CL-ML	A-4	0-5	0-10	90-100	80-100	65-85	50-80	25-30	5-10
	4-30	Clay loam	CL	A-6	0-5	0-10	90-100	80-100	65-85	60-75	30-35	10-15
	30-60	Gravelly clay, cobbly clay, clay	CL, GC	A-7	0-5	0-25	60-95	55-90	50-85	40-70	40-50	20-25
56:												
Mikim-----	0-6	Loam	CL, CL-ML	A-4	0	0-5	85-100	80-100	70-95	50-75	25-30	5-10
	6-45	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	50-75	25-35	5-15
	45-60	Gravelly sandy loam, sandy loam	GM, GC-GM, SC-SM, SM	A-1, A-2	0-20	0-20	60-95	55-90	35-65	20-35	20-25	NP-5
57:												
Minchey-----	0-5	Fine sandy loam	CL, CL-ML, SC	A-4	0	0	95-100	90-100	70-95	35-55	25-30	5-10
	5-30	Sandy clay loam, gravelly sandy clay loam, clay loam	CL, SC, CL-ML	A-2, A-4	0-10	0-10	80-100	70-95	55-95	30-55	25-30	5-10
	30-60	Very gravelly sandy loam	GM	A-1	0-5	0-5	35-55	30-50	20-35	10-20	20-25	NP-5

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
58: Mitch-----	0-14	Loam	CL-ML	A-4	0	0	100	95-100	70-95	60-75	25-30	5-10
	14-28	Silt loam	ML	A-4	0	0	100	95-100	90-100	80-95	30-35	5-10
	28-60	Silt loam	ML	A-4	0	0	100	95-100	90-100	80-95	30-35	5-10
59: Mivida-----	0-3	Fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0	90-100	90-100	55-85	30-55	20-25	NP-5
	3-60	Fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	90-100	90-100	55-85	30-55	20-25	NP-5
60: Monogram-----	0-3	Loam	CL-ML	A-4	0	0	100	95-100	90-100	70-80	25-30	5-10
	3-14	Loam, clay loam	CL, CL-ML	A-6	0	0	100	95-100	95-100	60-80	25-35	5-15
	14-28	Clay loam, loam, very fine sandy loam	CL-ML, CL, ML	A-4, A-6	0	0	100	95-100	85-100	50-80	20-35	NP-15
	28-60	Sandy clay loam, loam, clay loam	CL-ML, CL, SC, SC-SM	A-4	0	0	100	95-100	55-95	35-80	20-30	NP-10
61: Monticello-----	0-10	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	10-30	Loam, silt loam	CL, CL-ML	A-4	0	0	100	100	85-100	70-90	25-30	5-10
	30-74	Loam, silt loam, very fine sandy loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
Witt-----	0-9	Loam	CL-ML	A-4	0	0	100	100	95-100	60-90	25-30	5-10
	9-31	Clay loam, silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
	31-60	Loam, silt loam	ML	A-4	0	0	100	100	85-100	70-90	30-35	5-10
62: Monticello-----	0-10	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	10-30	Loam, silt loam	CL, CL-ML	A-4	0	0	100	100	85-100	70-90	25-30	5-10
	30-74	Loam, silt loam, very fine sandy loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
Witt-----	0-9	Loam	CL-ML	A-4	0	0	100	100	95-100	60-90	25-30	5-10
	9-31	Clay loam, silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
	31-60	Loam, silt loam	ML	A-4	0	0	100	100	85-100	70-90	30-35	5-10
63: Monticello-----	0-10	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	10-30	Loam, silt loam	CL, CL-ML	A-4	0	0	100	100	85-100	70-90	25-30	5-10
	30-74	Loam, silt loam, very fine sandy loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
Witt-----	0-9	Loam	CL-ML	A-4	0	0	100	100	95-100	60-90	25-30	5-10
	9-31	Clay loam, silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
	31-60	Loam, silt loam	ML	A-4	0	0	100	100	85-100	70-90	30-35	5-10

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
64: Narraguinnep, moist-----	0-7	Clay loam	CL	A-6	0	0	90-100	80-100	75-95	60-80	30-40	10-20
	7-33	Clay loam, clay	CL	A-6, A-7	0	0	90-100	80-100	75-95	60-90	35-50	15-25
	33-60	Clay loam, silty clay loam	CL	A-6	0	0	90-100	80-100	75-95	60-90	30-40	15-20
65: Narraguinnep----	0-7	Silty clay loam	ML	A-6, A-7	0	0	90-100	80-100	75-95	70-90	30-50	5-20
	7-30	Clay, clay loam	CL	A-6, A-7	0	0	90-100	80-100	75-95	60-90	35-50	15-25
	30-60	Silty clay loam, clay loam	CL	A-6	0	0	90-100	80-100	75-95	60-90	30-40	15-20
Dapoin-----	0-13	Clay loam	CL	A-6	0	0	95-100	90-100	70-85	60-80	30-35	10-15
	13-29	Clay	CL	A-7	0	0	85-100	80-100	75-90	65-85	40-45	20-25
	29-38	Clay loam, clay	CL	A-6, A-7	0	0	85-100	80-100	75-90	60-90	35-45	15-20
	38-60	Clay loam	CL	A-6	0	0	85-100	80-100	75-85	60-80	30-40	10-20
66: Nortez-----	0-8	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	8-24	Cobbly clay loam, clay loam, clay	CL	A-7	0	0-25	90-100	85-100	80-95	65-90	40-50	15-25
	24-32	Loam, cobbly clay loam, clay loam	CL	A-7, A-6	0	0-25	90-100	85-100	75-95	60-75	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
67: Nortez-----	0-8	Loam	CL-ML, CL	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	8-24	Cobbly clay loam, clay loam, clay	CL	A-7	0	0-25	90-100	85-100	80-95	65-90	40-50	15-25
	24-32	Loam, cobbly clay loam, clay loam	CL	A-7, A-6	0	0-25	90-100	85-100	75-95	60-75	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
68: Nortez-----	0-8	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	8-24	Cobbly clay loam, clay loam, clay	CL	A-7	0	0-25	90-100	85-100	80-95	65-90	40-50	15-25
	24-32	Loam, cobbly clay loam, clay loam	CL	A-7, A-6	0	0-25	90-100	85-100	75-95	60-75	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Acree-----	0-8	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-100	60-80	25-30	5-10
	8-30	Clay loam, clay	CL	A-7	0	0	75-100	70-100	60-95	55-90	35-50	15-25
	30-60	Clay loam, clay	CL	A-6, A-7	0	0	75-100	70-100	60-80	55-75	30-45	10-20

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
69:												
Nortez-----	0-8	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	8-24	Cobbly clay loam, clay loam, clay	CL	A-7	0	0-25	90-100	85-100	80-95	65-90	40-50	15-25
	24-32	Loam, cobbly clay loam, clay loam	CL	A-7, A-6	0	0-25	90-100	85-100	75-95	60-75	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Fivepine-----	0-5	Loam	CL, CL-ML	A-4	0-10	0-15	85-100	75-100	65-95	45-75	25-30	5-10
	5-9	Clay loam	CL	A-6	0-10	0-15	85-100	75-100	70-95	60-80	35-40	15-20
	9-15	Clay	CL	A-7	0-10	0-15	85-100	75-100	70-95	55-90	40-45	20-25
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
70:												
Nunemaker-----	0-3	Clay	CL	A-7	0	0	95-100	95-100	90-100	75-95	40-50	15-25
	3-26	Clay, silty clay	CH, CL	A-7	0	0	95-100	95-100	85-100	75-90	40-55	15-30
	26-60	Clay, clay loam	CL	A-6, A-7	0	0	95-100	90-100	80-100	70-90	35-50	15-25
71:												
Nyswonger-----	0-3	Silty clay loam	ML	A-4, A-6, A-7	0	0	95-100	90-100	80-95	75-90	30-50	5-20
	3-11	Clay	CL	A-7	0	0	95-100	95-100	80-90	70-85	40-50	15-25
	11-19	Clay loam	CL	A-6	0	0	95-100	95-100	85-90	65-80	30-40	10-20
	19-41	Sandy clay loam	CL-ML, CL, SC	A-4, A-6	0	0	95-100	95-100	70-85	35-55	25-35	5-15
	41-60	Clay	CL	A-7	0	0	95-100	95-100	80-90	75-85	40-50	15-25
72:												
Pagoda-----	0-4	Clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-35	10-15
	4-26	Clay, clay loam	CL	A-6, A-7	0	0-5	95-100	90-100	80-95	60-80	35-50	15-25
	26-60	Clay loam	CL	A-6	0-5	0-5	95-100	90-100	80-95	60-80	30-40	10-20
Coulterg-----	0-10	Clay loam	CL	A-6	0	0	95-100	95-100	85-95	70-80	25-35	10-15
	10-60	Clay loam, loam, sandy clay loam	CL, CL-ML	A-4	0-5	0-5	85-100	75-100	65-95	50-75	20-30	5-10
Cabba-----	0-4	Channery loam	GC, SC	A-4	0	0-5	65-95	60-70	45-65	35-50	25-30	5-10
	4-10	Very channery silty clay loam, channery silty clay loam	GM, ML	A-4, A-6	0	0-5	70-95	45-80	40-70	35-65	30-45	5-15
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
73:												
Paradox-----	0-5	Fine sandy loam	CL, SC	A-4	0	0	90-100	80-100	55-85	35-55	25-30	5-10
	5-19	Fine sandy loam	CL, SC	A-4	0	0	90-100	80-100	55-85	35-55	25-30	5-10
	19-60	Loam, sandy clay loam, fine sandy loam	CL, CL-ML	A-4	0	0	90-100	80-100	65-90	30-75	25-30	5-10







Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
84: Radersburg-----	0-7	Gravelly loam	CL-ML, CL, GC, SC	A-4	0-10	5-15	60-80	55-75	50-70	35-55	25-30	5-10
	7-12	Very cobbly clay loam	CL	A-6	0-15	20-55	50-95	45-85	40-85	35-70	35-40	10-15
	12-60	Extremely cobbly loam	CL-ML, CL, GC, GC-GM	A-2, A-4	5-30	40-75	50-80	40-75	30-70	20-55	25-30	5-10
85: Radersburg-----	0-7	Gravelly loam	CL-ML, CL, GC, SC	A-4	0-10	5-15	60-80	55-75	50-70	35-55	25-30	5-10
	7-12	Very cobbly clay loam	CL	A-6	0-15	20-55	50-95	45-85	40-85	35-70	35-40	10-15
	12-60	Extremely cobbly loam	CL-ML, GC, CL, GC-GM	A-2, A-4	5-30	40-75	50-80	40-75	30-70	20-55	25-30	5-10
86: Redlands-----	0-5	Sandy loam	SC, SC-SM	A-4	0	0	95-100	90-100	55-70	25-50	25-30	5-10
	5-24	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4	0	0	90-100	90-100	60-100	60-80	25-30	5-10
	24-60	Sandy loam, loam	ML, SM	A-4	0	0	85-100	80-95	70-90	45-70	20-25	NP-5
87: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
88: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Orthents-----	0-1	Stony loam	CL-ML, SC-SM	A-4	10-20	10-25	70-80	65-75	55-70	40-55	25-30	5-10
	1-14	Gravelly loam	CL-ML, SC-SM, GC	A-4	0-5	5-15	70-80	65-75	60-70	40-55	25-30	5-10
	14-24	Very cobbly loam, very cobbly clay loam, cobbly clay loam	CL, SC-SM, CL-ML, GC	A-4, A-6	5-15	15-60	70-90	60-90	50-85	35-70	25-40	5-20
	24-60	Very cobbly sandy loam, very cobbly loam, very cobbly clay loam	CL, GC-GM	A-1, A-4, A-6	5-15	20-70	50-90	40-85	25-85	15-65	25-40	5-20
89: Ryman, dry-----	0-21	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-100	75-85	50-75	25-30	5-10
	21-60	Cobbly clay loam, cobbly clay	CL	A-6, A-7	0-5	15-35	75-95	70-95	65-90	50-85	35-45	15-20

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
90:												
Ryman, warm-----	0-4	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-100	75-85	50-75	25-30	5-10
	4-18	Clay loam, cobbly clay loam	CL	A-6	0	5-25	75-95	70-95	65-90	50-75	35-40	15-20
	18-32	Cobbly clay, stony clay, clay loam	CL	A-6, A-7	0-30	5-25	75-95	70-95	65-90	50-80	35-45	15-20
	32-60	Cobbly clay, cobbly clay loam	CL	A-6, A-7	0-5	15-35	75-95	70-95	65-90	50-85	35-45	15-20
91:												
Ryman-----	0-23	Clay loam	CL	A-6	0	0-10	85-100	80-100	75-90	60-80	30-35	10-15
	23-27	Cobbly clay loam, clay loam	CL	A-6	0	5-25	75-95	70-95	65-90	50-75	35-40	15-20
	27-39	Cobbly clay, stony clay, clay loam	CL	A-6, A-7	0-30	5-25	75-95	70-95	65-90	50-80	35-45	15-20
	39-60	Cobbly clay, cobbly clay loam	CL	A-6, A-7	0-5	15-35	75-95	70-95	65-90	50-85	35-45	15-20
Adel, moist-----	0-21	Loam	CL, CL-ML	A-4	0	0-10	95-100	90-100	75-95	55-75	25-30	5-10
	21-60	Clay loam	CL	A-6	0	0-10	95-100	90-100	80-100	65-80	30-35	10-15
92:												
Sagedale-----	0-7	Clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-40	10-20
	7-18	Clay loam, clay, gravelly clay loam	CL	A-6, A-7	0	0	75-100	70-100	65-100	60-95	35-45	15-20
	18-41	Clay, clay loam, gravelly clay loam	CL	A-6, A-7	0	0	75-100	70-100	65-100	60-95	35-45	10-20
	41-60	Clay loam, clay, gravelly clay loam	CL	A-6, A-7	0	0	75-100	70-100	65-100	60-95	35-45	15-20
93:												
Sapeha-----	0-5	Very cobbly loam	CL, SC, CL-ML, GC	A-4	0-20	30-60	45-90	40-85	35-80	25-65	25-30	5-10
	5-12	Cobbly clay loam	CL	A-6	0-10	15-35	75-90	70-85	65-80	50-70	30-35	10-15
	12-32	Very cobbly clay, very cobbly clay loam, cobbly clay loam, extremely cobbly clay	CL, GC	A-6, A-7	0-20	15-70	45-90	40-85	35-85	30-85	35-45	15-20
	32-60	Extremely cobbly clay, very cobbly clay loam, very stony clay	CL	A-6, A-7	0-40	30-70	45-90	40-85	35-80	30-75	35-45	15-20



Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
97: Cryoborolls-----	0-14	Loam, gravelly loam, cobbly loam	CL-ML, CL, SC, SC-SM	A-4	0-10	5-35	75-100	70-100	60-90	45-75	25-30	5-10
	14-18	Gravelly clay loam, very gravelly clay loam	GC, CL, SC	A-6	0-10	5-10	40-85	35-75	30-75	25-55	30-35	10-15
	18-30	Gravelly sandy loam, very gravelly sandy loam, gravelly loam	GC, SC	A-1, A-2	0-10	5-10	40-85	35-55	20-40	10-40	25-30	5-10
	30-34	Unweathered bedrock			---	---	---	---	---	---	---	---
98: Specie-----	0-3	Gravelly loam	CL-ML, SC-SM, GC-GM	A-4	0-5	5-15	60-80	55-75	50-70	35-55	25-30	5-10
	3-16	Very stony loam	CL-ML, SC-SM	A-2, A-4	25-65	10-50	45-90	40-85	35-80	25-65	25-30	5-10
	16-60	Extremely gravelly loam, extremely stony loam, very stony loam	GC-GM	A-2	0-65	20-50	40-90	35-85	25-80	15-65	25-30	5-10
99: Specie, moist---	0-14	Gravelly loam	CL-ML, GC-GM, SC-SM	A-4	0-5	5-15	60-80	55-75	50-70	35-55	25-30	5-10
	14-60	Very cobbly loam, very cobbly sandy loam, extremely gravelly loam	GC-GM	A-2	0-20	20-50	40-90	35-85	25-80	15-65	25-30	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
100: Spectacle-----	0-10	Loam	CL-ML	A-4	0-5	0-5	90-100	80-100	65-80	50-75	25-30	5-10
	10-23	Very cobbly clay loam, clay loam, loam	CL	A-6	0-10	5-55	75-90	70-85	60-85	45-70	30-35	10-15
	23-34	Very cobbly clay loam, very cobbly clay, very gravelly clay loam	CL, GC	A-7	0-10	15-60	55-95	50-90	40-80	30-75	35-45	15-20
	34-60	Clay, extremely cobbly clay loam, very cobbly clay loam	CL, GC	A-7	0-10	5-70	55-100	50-95	40-85	35-80	35-45	15-20
Kinesava-----	0-21	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	75-95	55-75	25-30	5-10
	21-28	Clay loam	CL	A-6	0	0	95-100	90-100	80-100	65-80	30-35	10-15
	28-40	Cobbly clay, clay	CL	A-7	0-5	0-25	80-100	75-95	70-95	60-75	40-45	20-25
	40-60	Cobbly clay	CL	A-7	0-5	25-35	75-95	70-90	65-90	50-80	40-45	20-25

Table 16.--Engineering index properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
101: Tellura-----	0-14	Clay loam	CL	A-6	0-5	0-5	85-100	80-95	75-85	60-80	30-40	10-20
	14-36	Very gravelly clay, very cobbly clay, very gravelly clay loam	GC	A-2, A-6, A-7	0-20	5-35	35-55	30-50	30-50	20-50	35-50	15-25
	36-60	Very gravelly clay loam, very gravelly clay	GC	A-2, A-7, A-6	0-15	10-35	35-50	30-50	30-50	20-40	35-50	15-25
Leaps-----	0-10	Clay loam	CL	A-6	0	0	85-100	80-100	75-90	60-80	30-40	10-20
	10-60	Clay	CH, CL	A-6, A-7	0	0	80-100	75-100	65-90	55-80	35-60	15-35
102: Typic Torriorthents--	0-2	Channery silty clay loam	ML	A-6, A-4, A-7	0	0-5	55-80	55-75	55-70	50-70	30-45	5-15
	2-4	Very channery silty clay loam, very channery clay loam	GC	A-2, A-6	0	0-5	35-55	30-50	30-50	20-50	30-35	10-15
	4-8	Weathered bedrock			---	---	---	---	---	---	---	---
103: Ustic Torriorthents--	0-5	Very gravelly clay loam	GC	A-6	0-25	5-25	35-55	30-50	30-50	20-40	30-40	10-20
	5-60	Clay loam, cobbly clay loam	CH, CL	A-7, A-6	0-10	0-35	75-95	70-90	65-80	50-70	30-65	10-40
Ustochreptic Calciorthids---	0-9	Very gravelly clay loam	GC	A-2, A-6	0-5	0-10	35-55	30-50	30-50	20-40	30-35	10-15
	9-24	Clay loam	CL, CL-ML	A-4	0-5	0-10	95-100	90-100	80-95	65-80	25-30	5-10
	24-60	Gravelly clay	CL, GC	A-6, A-7	0-5	5-15	65-80	55-75	50-75	40-70	35-45	15-20
104: Vananda-----	0-6	Silty clay	MH, ML	A-7	0	0	100	100	95-100	90-100	45-70	15-35
	6-17	Silty clay, clay	CH, CL	A-7	0	0-5	90-100	85-100	75-100	70-100	40-65	15-40
	17-60	Silty clay, clay	CH, CL	A-7	0	0-5	90-100	85-100	75-100	70-100	40-65	15-40
105: Winnett-----	0-1	Silty clay loam	ML	A-7	0	0	100	100	95-100	85-95	40-45	10-15
	1-2	Silty clay, silty clay loam	MH, ML	A-7	0	0	100	100	95-100	90-95	45-55	15-25
	2-6	Silty clay, silty clay loam	MH, ML	A-7	0	0	100	100	95-100	90-95	45-55	15-25
	6-37	Silty clay loam	ML	A-6, A-4, A-7	0	0	100	100	95-100	85-95	30-50	5-20
	37-60	Silty clay	MH, ML	A-7	0	0	100	100	95-100	90-95	45-55	15-25





Table 17.--Physical properties of the soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
1: Abra-----	0-3	18-25	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	4	4L	86
	3-13	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	13-32	20-30	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.0-0.5	.43	.43			
	32-60	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
2: Abra-----	0-3	18-25	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	4	4L	86
	3-13	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	13-32	20-30	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.0-0.5	.43	.43			
	32-60	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
3: Abra-----	0-3	18-25	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	4	4L	86
	3-13	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	13-32	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.0-0.5	.43	.43			
	32-60	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
4: Ackmen-----	0-5	15-27	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	2.0-5.0	.28	.28	5	4L	86
	5-41	18-27	1.25-1.35	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.28	.28			
	41-60	15-27	1.25-1.35	0.6-2	0.15-0.17	0.0-2.9	0.5-3.0	.28	.28			
5: Acree-----	0-8	15-27	1.35-1.40	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	8-30	35-42	1.20-1.35	0.06-0.2	0.13-0.16	6.0-8.9	1.0-2.0	.20	.20			
	30-60	30-42	1.30-1.40	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.24			
6: Acree-----	0-8	15-27	1.35-1.40	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	8-30	35-42	1.20-1.35	0.06-0.2	0.13-0.16	6.0-8.9	1.0-2.0	.20	.20			
	30-60	30-42	1.30-1.40	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.24			
7: Acree-----	0-8	15-27	1.35-1.40	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	8-30	35-42	1.20-1.35	0.06-0.2	0.13-0.16	6.0-8.9	1.0-2.0	.20	.20			
	30-60	30-42	1.30-1.40	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.24			
Zoltay-----	0-6	20-27	1.20-1.30	0.2-0.6	0.17-0.19	0.0-2.9	3.0-6.0	.20	.20	5	6	48
	6-14	27-35	1.20-1.30	0.2-0.6	0.17-0.19	3.0-5.9	2.0-4.0	.17	.17			
	14-29	35-45	1.30-1.40	0.06-0.2	0.13-0.15	3.0-5.9	0.0-0.5	.15	.28			
	29-46	27-40	1.35-1.40	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.28			
	46-60	27-40	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.17	.28			
Nortez-----	0-8	15-27	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	8-24	35-45	1.35-1.45	0.2-0.6	0.17-0.20	6.0-8.9	1.0-2.0	.20	.20			
	24-32	20-40	1.25-1.35	0.06-0.2	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			
8: Adel-----	0-50	20-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	3.0-5.0	.20	.20	5	6	48
	50-60	27-35	1.20-1.30	0.6-2	0.16-0.18	3.0-5.9	0.5-1.0	.24	.24			
9: Adel, moist-----	0-50	20-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	3.0-5.0	.20	.20	5	6	48
	50-60	27-35	1.20-1.30	0.6-2	0.16-0.18	3.0-5.9	0.5-1.0	.24	.24			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
10: Aqulls-----	0-3	27-30	1.20-1.30	0.2-0.6	0.17-0.19	3.0-5.9	2.0-4.0	.17	.17	5	4L	86
	3-21	27-35	1.20-1.30	0.2-0.6	0.17-0.19	3.0-5.9	0.5-3.0	.20	.20			
	21-38	27-35	1.20-1.30	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.24	.24			
	38-60	27-35	1.20-1.30	0.2-0.6	0.13-0.15	3.0-5.9	0.0-1.0	.20	.20			
11: Badland-----	0-60	---	---	0.0015-0.06	---	---	---	---	---	--	8	0
12: Baird Hollow-----	0-14	18-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	2.0-5.0	.10	.20	5	6	48
	14-28	21-30	1.25-1.35	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.05	.17			
	28-40	35-45	1.20-1.30	0.2-0.6	0.08-0.10	3.0-5.9	0.5-1.0	.10	.24			
	40-44	35-45	1.15-1.25	0.06-0.2	0.11-0.13	3.0-5.9	0.5-1.0	.05	.17			
	44-60	40-50	1.15-1.25	0.06-0.2	0.11-0.13	3.0-5.9	0.5-1.0	.10	.17			
Nordicol-----	0-15	20-27	1.25-1.35	0.6-2	0.13-0.18	0.0-2.9	2.0-3.0	.28	.28	5	6	48
	15-24	20-27	1.25-1.35	0.6-2	0.09-0.11	0.0-2.9	1.0-3.0	.10	.17			
	24-32	18-35	1.30-1.40	0.6-2	0.08-0.10	0.0-2.9	1.0-2.0	.05	.17			
	32-48	18-35	1.30-1.40	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.05	.20			
	48-60	20-27	1.25-1.35	0.6-2	0.07-0.09	0.0-2.9	0.5-1.0	.05	.20			
Ryman-----	0-23	28-35	1.25-1.35	0.2-0.6	0.17-0.19	0.0-2.9	2.0-4.0	.17	.17	5	6	48
	23-27	35-40	1.20-1.30	0.06-0.2	0.13-0.16	3.0-5.9	0.0-1.0	.15	.24			
	27-39	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-1.0	.10	.17			
	39-60	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-0.5	.10	.17			
13: Barkelw-----	0-2	27-35	1.20-1.30	0.6-2	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24	5	8	0
	2-10	25-35	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.15	.24			
	10-22	25-35	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	0.0-0.5	.10	.28			
	22-60	25-35	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	0.0-0.5	.10	.28			
Emmons-----	0-5	20-27	1.25-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.10	.28	5	8	0
	5-15	27-35	1.30-1.35	0.2-0.6	0.15-0.19	0.0-2.9	1.0-2.0	.10	.20			
	15-60	27-35	1.30-1.40	0.2-0.6	0.15-0.19	0.0-2.9	0.0-1.0	.15	.24			
14: Barx-----	0-2	14-19	1.25-1.35	0.6-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	2-23	20-34	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.32	.32			
	23-74	15-25	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
15: Barx-----	0-2	14-19	1.25-1.35	0.6-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	2-23	20-34	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.32	.32			
	23-74	15-25	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
16: Barx-----	0-2	14-19	1.25-1.35	0.6-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	2-23	20-34	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.32	.32			
	23-74	15-25	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
17: Barx-----	0-2	14-19	1.25-1.35	0.6-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	2-23	20-34	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.32	.32			
	23-74	15-25	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
Progresso-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
18: Begay-----	0-3	8-15	1.40-1.50	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	3-12	12-18	1.40-1.50	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.32	.32			
	12-60	5-12	1.40-1.50	2-6	0.10-0.15	0.0-2.9	0.0-0.5	.37	.37			
19: Beje-----	0-5	10-15	1.35-1.45	2-6	0.14-0.17	0.0-2.9	1.0-4.0	.24	.24	1	3	86
	5-9	15-20	1.35-1.45	2-6	0.11-0.13	0.0-2.9	0.5-2.0	.28	.28			
	9-14	20-35	1.25-1.35	0.2-2	0.14-0.16	0.0-2.9	0.5-1.0	.20	.20			
	14-18	---	---	0.06-0.2	---	---	---	---	---			
20: Billings-----	0-2	20-27	1.15-1.25	0.6-2	0.15-0.20	0.0-2.9	0.0-0.5	.49	.49	5	4L	86
	2-21	20-27	1.15-1.25	0.6-2	0.12-0.14	0.0-2.9	0.0-0.5	.49	.49			
	21-60	27-35	1.20-1.30	0.2-0.6	0.13-0.15	3.0-5.9	0.0-0.5	.37	.37			
21: Billings, moist-----	0-9	27-35	1.25-1.35	0.2-0.6	0.15-0.17	0.0-2.9	0.0-0.5	.28	.28	5	4L	86
	9-60	27-35	1.20-1.30	0.2-0.6	0.13-0.15	3.0-5.9	0.0-0.5	.37	.37			
22: Bodot, dry-----	0-3	27-40	1.30-1.40	0.2-0.6	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32	3	4L	86
	3-38	28-50	1.35-1.40	0.06-0.2	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28			
	38-42	---	---	0.06-0.2	---	---	---	---	---			
23: Bodot, dry-----	0-3	28-35	1.25-1.35	0.2-0.6	0.12-0.18	0.0-2.9	0.5-1.0	.15	.43	3	8	0
	3-30	40-55	1.30-1.40	0.06-0.2	0.10-0.15	6.0-8.9	---	.28	.49			
	30-34	---	---	0.0000-2	---	---	---	---	---			
Ustic Torriorthents-	0-4	27-40	1.25-1.35	0.2-0.6	0.11-0.13	3.0-5.9	0.5-1.0	.15	.24	2	4L	86
	4-31	27-60	1.25-1.35	0.2-0.6	0.11-0.13	6.0-8.9	0.0-0.5	.15	.28			
	31-35	---	---	0.06-0.2	---	---	---	---	---			
24: Bodot, dry-----	0-3	27-40	1.30-1.40	0.2-0.6	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32	3	4L	86
	3-38	28-50	1.35-1.40	0.06-0.2	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28			
	38-42	---	---	0.06-0.2	---	---	---	---	---			
Zyme, dry-----	0-6	35-40	1.25-1.30	0.2-0.6	0.16-0.20	0.0-2.9	1.0-2.0	.28	.28	2	4L	86
	6-15	35-45	1.30-1.40	0.06-0.2	0.14-0.19	3.0-5.9	0.0-0.5	.28	.28			
	15-19	---	---	0.06-0.2	---	---	---	---	---			
25: Bond-----	0-3	10-20	1.35-1.45	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	3-16	20-35	1.25-1.35	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5	.24	.24			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
Progresso-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			
26: Borolls-----	0-10	18-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.15	.28	3	6	48
	10-13	20-35	1.25-1.35	0.2-0.6	0.13-0.15	0.0-2.9	0.5-1.0	.10	.20			
	13-35	30-45	1.15-1.25	0.2-0.6	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	35-60	35-50	1.15-1.25	0.2-0.6	0.06-0.08	0.0-2.9	0.0-0.5	.05	.17			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
27:												
Burnac-----	0-6	15-20	1.35-1.45	2-6	0.10-0.12	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	6-28	35-45	1.15-1.25	0.06-0.2	0.14-0.17	3.0-5.9	0.5-1.0	.24	.24			
	28-60	40-55	1.20-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.0-1.0	.05	.17			
Delson-----	0-10	15-20	1.35-1.45	2-6	0.10-0.13	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	10-34	35-40	1.25-1.35	0.06-0.2	0.15-0.17	3.0-5.9	0.5-2.0	.24	.24			
	34-60	35-45	1.20-1.30	0.06-0.2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.37			
28:												
Burnac-----	0-6	15-20	1.35-1.45	2-6	0.10-0.12	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	6-28	35-45	1.15-1.25	0.06-0.2	0.14-0.17	3.0-5.9	0.5-1.0	.24	.24			
	28-60	40-55	1.20-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.0-1.0	.05	.17			
Delson-----	0-10	15-20	1.35-1.45	2-6	0.10-0.13	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	10-34	35-40	1.25-1.35	0.06-0.2	0.15-0.17	3.0-5.9	0.5-2.0	.24	.24			
	34-60	35-45	1.20-1.30	0.06-0.2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.37			
Falcon-----	0-7	5-20	1.30-1.40	2-6	0.09-0.12	0.0-2.9	3.0-5.0	.15	.15	1	3	86
	7-19	14-18	1.35-1.45	2-6	0.06-0.08	0.0-2.9	1.0-2.0	.15	.24			
	19-23	---	---	0.06-0.2	---	---	---	---	---			
29:												
Bushvalley-----	0-5	15-25	1.15-1.25	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.15	.28	1	5	56
	5-12	27-35	1.30-1.40	0.2-0.6	0.04-0.11	0.0-2.9	0.5-1.0	.05	.24			
	12-16	---	---	0.06-0.2	---	---	---	---	---			
Nordicol Variant----	0-14	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	14-31	27-35	1.25-1.35	0.2-0.6	0.17-0.19	2.9-5.9	1.0-3.0	.10	.20			
	31-34	22-32	1.20-1.30	0.2-0.6	0.14-0.16	0.0-2.9	0.5-2.0	.20	.20			
	34-38	---	---	0.06-0.2	---	---	---	---	---			
30:												
Callan-----	0-4	15-20	1.15-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	3	5	56
	4-14	35-40	1.15-1.30	0.06-0.2	0.19-0.21	6.0-8.9	0.5-2.0	.24	.24			
	14-60	20-35	1.15-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.43	.43			
31:												
Callan-----	0-4	15-20	1.15-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	3	5	56
	4-14	35-40	1.15-1.30	0.06-0.2	0.19-0.21	6.0-8.9	0.5-2.0	.24	.24			
	14-60	20-35	1.15-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.43	.43			
32:												
Callan-----	0-4	15-20	1.15-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	3	5	56
	4-14	35-40	1.15-1.30	0.06-0.2	0.19-0.21	6.0-8.9	0.5-2.0	.24	.24			
	14-60	20-35	1.15-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.43	.43			
33:												
Callan-----	0-4	15-20	1.15-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	3	5	56
	4-14	35-40	1.15-1.30	0.06-0.2	0.19-0.21	6.0-8.9	0.5-2.0	.24	.24			
	14-60	20-35	1.15-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.43	.43			
Gurley-----	0-4	20-27	1.35-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-3.0	.28	.28	2	4L	86
	4-21	35-40	1.30-1.40	0.06-0.2	0.19-0.21	3.0-5.9	1.0-2.0	.20	.20			
	21-37	18-27	1.30-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	37-41	---	---	0.06-0.2	---	---	---	---	---			
34:												
Ceek-----	0-5	27-40	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	1.0-3.0	.05	.20	5	8	0
	5-13	27-40	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	0.0-1.0	.10	.24			
	13-22	35-40	1.30-1.40	0.2-0.6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
	22-60	40-50	1.20-1.30	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
35: Clapper-----	0-5	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28	3	4L	86
	5-11	18-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	11-20	18-27	1.25-1.35	2-6	0.10-0.12	0.0-2.9	0.0-0.5	.24	.43			
	20-60	18-27	1.25-1.35	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.15	.43			
36: Clapper-----	0-5	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28	3	4L	86
	5-11	18-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	11-20	18-27	1.25-1.35	2-6	0.10-0.12	0.0-2.9	0.0-0.5	.24	.43			
	20-60	18-27	1.25-1.35	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.15	.43			
Ustic Torriorthents-	0-4	27-40	1.25-1.35	0.2-0.6	0.11-0.13	3.0-5.9	0.5-1.0	.15	.24	2	4L	86
	4-31	27-60	1.25-1.35	0.2-0.6	0.11-0.13	6.0-8.9	0.0-0.5	.15	.28			
	31-35	---	---	0.06-0.2	---	---	---	---	---			
37: Cryaquolls-----	0-6	20-27	1.20-1.30	0.6-2	0.17-0.19	3.0-5.9	2.0-4.0	.24	.24	5	8	0
	6-17	28-40	1.20-1.30	0.6-2	0.18-0.21	3.0-5.9	2.0-4.0	.24	.24			
	17-22	40-50	1.35-1.45	0.06-0.2	0.12-0.14	6.0-8.9	0.5-1.5	.17	.17			
	22-27	40-50	1.35-1.45	0.06-0.2	0.12-0.14	6.0-8.9	0.5-1.5	.17	.17			
	27-35	40-50	1.35-1.45	0.06-0.2	0.12-0.14	6.0-8.9	0.5-1.0	.17	.17			
	35-38	30-40	1.35-1.45	0.2-0.6	0.18-0.20	3.0-5.9	0.0-0.5	.20	.20			
	38-60	40-50	1.35-1.45	0.06-0.2	0.12-0.14	6.0-8.9	0.0-0.5	.17	.17			
38: Evanston-----	0-6	15-20	1.35-1.45	2-6	0.13-0.15	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	6-24	27-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	1.0-2.0	.20	.20			
	24-36	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	36-60	27-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
39: Falcon-----	0-7	5-20	1.30-1.40	2-6	0.09-0.12	0.0-2.9	3.0-5.0	.15	.15	1	3	86
	7-19	14-18	1.35-1.45	2-6	0.06-0.08	0.0-2.9	1.0-2.0	.15	.24			
	19-23	---	---	0.06-0.2	---	---	---	---	---			
Burnac-----	0-6	15-20	1.35-1.45	2-6	0.10-0.12	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	6-28	35-45	1.15-1.25	0.06-0.2	0.14-0.17	3.0-5.9	0.5-1.0	.24	.24			
	28-60	40-55	1.20-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.0-1.0	.05	.17			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
40: Farb-----	0-3	15-20	1.35-1.45	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	3-11	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.24	.32			
	11-15	---	---	0.06-0.2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
41: Fivepine-----	0-5	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-3.0	.28	.28	1	6	48
	5-9	35-40	1.30-1.40	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.24	.24			
	9-15	40-50	1.30-1.40	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.17	.17			
	15-19	---	---	0.06-0.2	---	---	---	---	---			
Nortez-----	0-8	15-27	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	8-24	35-45	1.35-1.45	0.2-0.6	0.17-0.20	6.0-8.9	1.0-2.0	.20	.20			
	24-32	20-40	1.25-1.35	0.06-0.2	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
42: Fivepine-----	0-5	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-3.0	.28	.28	1	6	48
	5-9	35-40	1.30-1.40	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.24	.24			
	9-15	40-50	1.30-1.40	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.17	.17			
	15-19	---	---	0.06-0.2	---	---	---	---	---			
Pino-----	0-8	20-27	1.15-1.25	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.28	.28	2	6	48
	8-24	35-40	1.25-1.35	0.2-0.6	0.18-0.20	3.0-5.9	0.5-2.0	.24	.24			
	24-32	30-40	1.30-1.40	0.06-0.2	0.16-0.18	3.0-5.9	0.0-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			
43: Fluvaquents-----	0-11	10-18	1.10-1.40	0.2-20	0.12-0.22	0.0-2.9	0.5-1.0	.37	.37	3	8	0
	11-60	10-35	1.15-1.60	0.2-2	0.10-0.20	0.0-2.9	0.0-0.5	.10	.32			
44: Fruitland-----	0-5	18-27	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37	5	4L	86
	5-60	10-18	1.40-1.50	2-6	0.12-0.16	0.0-2.9	0.0-0.5	.37	.37			
45: Gladel-----	0-8	12-18	1.35-1.45	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	1	3	86
	8-12	---	---	0.06-0.2	---	---	---	---	---			
Bond-----	0-3	10-20	1.35-1.45	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	3-16	20-35	1.25-1.35	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5	.24	.24			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
46: Gladel, cool-----	0-8	12-18	1.35-1.45	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	1	3	86
	8-12	---	---	0.06-0.2	---	---	---	---	---			
Bond, cool-----	0-3	10-20	1.35-1.45	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	3-16	20-35	1.25-1.35	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5	.24	.24			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
47: Gurley-----	0-4	20-27	1.35-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-3.0	.28	.28	2	4L	86
	4-21	35-40	1.30-1.40	0.06-0.2	0.19-0.21	3.0-5.9	1.0-2.0	.20	.20			
	21-37	18-27	1.30-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	37-41	---	---	0.06-0.2	---	---	---	---	---			
48: Gurley-----	0-4	20-27	1.35-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-3.0	.28	.28	2	4L	86
	4-21	35-40	1.30-1.40	0.06-0.2	0.19-0.21	3.0-5.9	1.0-2.0	.20	.20			
	21-37	18-27	1.30-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	37-41	---	---	0.06-0.2	---	---	---	---	---			
Skein-----	0-6	15-25	1.30-1.40	0.6-2	0.14-0.17	0.0-2.9	1.0-3.0	.28	.28	1	4L	86
	6-13	15-27	1.30-1.40	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.20	.37			
	13-19	18-27	1.25-1.35	0.6-2	0.07-0.09	0.0-2.9	0.0-0.5	.15	.43			
	19-23	---	---	0.06-0.2	---	---	---	---	---			
49: Gypsiorthids-----	0-1	12-18	1.30-1.40	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.37	.37	3	4L	86
	1-11	15-20	1.30-1.40	0.6-2	0.10-0.12	0.0-2.9	0.0-0.5	.37	.37			
	11-23	10-15	1.30-1.40	0.6-2	0.10-0.12	0.0-2.9	0.0-0.5	.37	.37			
	23-44	7-15	1.15-1.25	2-6	0.11-0.13	0.0-2.9	0.0-0.5	.49	.49			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
50: Gypsum land-----	0-60	---	---	0.0015-0.2	---	---	---	---	---	--	1	310
51: Haplaquolls-----	0-21	17-27	1.35-1.45	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.24	3	4L	86
	21-30	15-20	1.40-1.50	2-6	0.10-0.12	0.0-2.9	0.5-2.0	.15	.28			
	30-60	15-25	1.35-1.45	2-6	0.07-0.11	0.0-2.9	0.5-1.0	.05	.17			
52: Killpack-----	0-9	18-27	1.25-1.35	0.2-0.6	0.14-0.18	0.0-2.9	0.5-1.0	.37	.37	3	4L	86
	9-30	27-40	1.10-1.15	0.06-0.2	0.15-0.19	3.0-5.9	0.0-0.5	.37	.37			
	30-34	---	---	0.01-0.06	---	---	---	---	---			
Deaver-----	0-4	18-27	1.15-1.25	0.2-0.6	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37	3	4L	86
	4-31	35-50	1.15-1.25	0.06-0.2	0.14-0.16	3.0-5.9	0.0-0.5	.28	.28			
	31-35	---	---	0.06-0.2	---	---	---	---	---			
53: Leaps-----	0-12	18-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	12-60	40-50	1.25-1.35	0.06-0.2	0.12-0.17	6.0-8.9	0.5-1.0	.15	.24			
Hofly-----	0-3	20-27	1.15-1.25	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	3-32	35-40	1.25-1.35	0.06-0.2	0.16-0.19	3.0-5.9	2.0-3.0	.20	.20			
	32-60	40-45	1.15-1.25	0.06-0.2	0.14-0.16	6.0-8.9	0.5-1.0	.17	.17			
54: Leaps-----	0-10	18-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	10-60	40-50	1.25-1.35	0.06-0.2	0.12-0.17	6.0-8.9	0.5-1.0	.15	.24			
Tellura-----	0-14	27-40	1.20-1.30	0.2-0.6	0.16-0.19	3.0-5.9	3.0-5.0	.15	.15	3	6	48
	14-36	35-50	1.30-1.40	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.05	.20			
	36-60	30-50	1.25-1.40	0.2-0.6	0.05-0.08	0.0-2.9	0.5-1.0	.10	.24			
55: Lillylands-----	0-4	18-27	1.25-1.35	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	4-30	27-40	1.25-1.35	0.2-0.6	0.15-0.19	3.0-5.9	1.0-3.0	.20	.20			
	30-60	40-80	1.15-1.25	0.06-0.2	0.11-0.13	3.0-5.9	0.5-1.0	.10	.17			
56: Mikim-----	0-6	10-25	1.30-1.40	0.6-2	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	5	5	56
	6-45	18-30	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.32	.32			
	45-60	20-30	1.35-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.20	.32			
57: Minchey-----	0-5	15-20	1.30-1.35	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	5-30	20-35	1.30-1.35	0.6-2	0.17-0.19	3.0-5.9	0.5-1.0	.20	.20			
	30-60	10-15	1.40-1.45	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.10	.32			
58: Mitch-----	0-14	18-25	1.15-1.25	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	4L	86
	14-28	18-25	1.15-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37			
	28-60	18-25	1.15-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37			
59: Mivida-----	0-3	5-18	1.35-1.45	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	3-60	14-18	1.35-1.45	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.32	.32			
60: Monogram-----	0-3	15-25	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.28	.28	3	5	56
	3-14	18-35	1.30-1.40	0.2-0.6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.37			
	14-28	18-35	1.30-1.40	0.2-2	0.15-0.18	0.0-2.9	0.5-1.0	.32	.32			
	28-60	20-35	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.20	.20			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
61: Monticello-----	0-10	15-20	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	10-30	18-25	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	30-74	18-25	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
Witt-----	0-9	10-25	1.20-1.30	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37	3	5	56
	9-31	27-35	1.20-1.30	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.32	.32			
	31-60	18-27	1.20-1.30	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.49	.49			
62: Monticello-----	0-10	15-20	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	10-30	18-25	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	30-74	18-25	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
Witt-----	0-9	10-25	1.20-1.30	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37	3	5	56
	9-31	27-35	1.20-1.30	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.32	.32			
	31-60	18-27	1.20-1.30	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.49	.49			
63: Monticello-----	0-10	15-20	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	10-30	18-25	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	30-74	18-25	1.35-1.45	0.6-2	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
Witt-----	0-9	10-25	1.20-1.30	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37	3	5	56
	9-31	27-35	1.20-1.30	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.32	.32			
	31-60	18-27	1.20-1.30	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.49	.49			
64: Narraguinnep, moist-	0-7	27-40	1.25-1.35	0.06-0.2	0.16-0.19	3.0-5.9	1.0-3.0	.20	.20	5	6	48
	7-33	35-50	1.15-1.25	0.06-0.2	0.14-0.16	6.0-8.9	1.0-3.0	.20	.20			
	33-60	27-40	1.25-1.35	0.06-0.2	0.16-0.21	3.0-5.9	0.5-1.0	.32	.32			
65: Narraguinnep-----	0-7	27-40	1.20-1.30	0.06-0.2	0.16-0.21	3.0-5.9	1.0-3.0	.28	.28	5	7	38
	7-30	35-50	1.15-1.25	0.06-0.2	0.14-0.16	6.0-8.9	1.0-3.0	.20	.20			
	30-60	27-40	1.25-1.35	0.06-0.2	0.16-0.21	3.0-5.9	0.5-1.0	.32	.32			
Dapoin-----	0-13	27-35	1.25-1.35	0.2-0.6	0.19-0.21	0.0-2.9	2.0-4.0	.17	.17	5	6	48
	13-29	40-50	1.15-1.30	0.06-0.2	0.14-0.16	6.0-8.9	0.0-1.0	.17	.17			
	29-38	35-50	1.25-1.35	0.06-0.2	0.15-0.17	3.0-5.9	0.0-0.5	.28	.28			
	38-60	30-40	1.25-1.35	0.2-0.6	0.16-0.19	3.0-5.9	0.0-0.5	.28	.28			
66: Nortez-----	0-8	15-27	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	8-24	35-45	1.35-1.45	0.2-0.6	0.17-0.20	6.0-8.9	1.0-2.0	.20	.20			
	24-32	20-40	1.25-1.35	0.06-0.2	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			
67: Nortez-----	0-8	15-27	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	8-24	35-45	1.35-1.45	0.2-0.6	0.17-0.20	6.0-8.9	1.0-2.0	.20	.20			
	24-32	20-40	1.25-1.35	0.06-0.2	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			
68: Nortez-----	0-8	15-27	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	8-24	35-45	1.35-1.45	0.2-0.6	0.17-0.20	6.0-8.9	1.0-2.0	.20	.20			
	24-32	20-40	1.25-1.35	0.06-0.2	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
68: Acree-----	0-8	15-27	1.35-1.40	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	8-30	35-42	1.20-1.35	0.06-0.2	0.13-0.16	6.0-8.9	1.0-2.0	.20	.20			
	30-60	30-42	1.30-1.40	0.06-0.2	0.13-0.16	3.0-5.9	0.5-1.0	.24	.24			
69: Nortez-----	0-8	15-27	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	8-24	35-45	1.35-1.45	0.2-0.6	0.17-0.20	6.0-8.9	1.0-2.0	.20	.20			
	24-32	20-40	1.25-1.35	0.06-0.2	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	32-36	---	---	0.06-0.2	---	---	---	---	---			
Fivepine-----	0-5	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-3.0	.28	.28	1	6	48
	5-9	35-40	1.30-1.40	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.24	.24			
	9-15	40-50	1.30-1.40	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.17	.17			
	15-19	---	---	0.06-0.2	---	---	---	---	---			
70: Nunemaker-----	0-3	40-50	1.15-1.30	0.06-0.2	0.14-0.18	6.0-8.9	1.0-3.0	.15	.15	5	4	86
	3-26	40-50	1.20-1.30	0.06-0.2	0.12-0.15	6.0-8.9	0.0-0.5	.28	.28			
	26-60	35-50	1.20-1.30	0.06-0.2	0.12-0.15	6.0-8.9	0.0-0.5	.28	.28			
71: Nyswonger-----	0-3	35-40	1.15-1.25	0.2-0.6	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	5	4L	86
	3-11	40-50	1.15-1.25	0.2-0.6	0.14-0.16	6.0-8.9	1.0-3.0	.15	.15			
	11-19	28-35	1.25-1.35	0.06-0.2	0.17-0.19	3.0-5.9	1.0-2.0	.20	.20			
	19-41	20-35	1.25-1.35	0.6-2	0.14-0.16	3.0-5.9	0.5-1.0	.20	.20			
	41-60	40-50	1.15-1.25	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			
72: Pagoda-----	0-4	27-35	1.15-1.25	0.2-0.6	0.19-0.21	3.0-5.9	1.0-3.0	.20	.20	5	6	48
	4-26	35-50	1.15-1.25	0.06-0.2	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	26-60	27-35	1.25-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.24	.24			
Coulterg-----	0-10	27-35	1.35-1.40	0.2-0.6	0.12-0.18	3.0-5.9	4.0-6.0	.15	.15	5	4L	86
	10-60	18-30	1.25-1.50	0.6-2	0.16-0.20	0.0-2.9	0.0-1.0	.28	.28			
Cabba-----	0-4	20-27	1.25-1.35	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28	2	4L	86
	4-10	27-35	1.15-1.25	0.2-0.6	0.10-0.14	0.0-2.9	0.0-1.0	.17	.32			
	10-14	---	---	0.06-0.2	---	---	---	---	---			
73: Paradox-----	0-5	15-20	1.25-1.35	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	5-19	15-20	1.30-1.40	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.32	.32			
	19-60	18-27	1.30-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.32	.32			
74: Persayo-----	0-2	27-35	1.35-1.40	0.2-0.6	0.15-0.17	3.0-5.9	0.5-1.0	.24	.24	2	4L	86
	2-14	27-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.37	.37			
	14-18	---	---	0.06-0.2	---	---	---	---	---			
Chipeta-----	0-2	40-50	1.15-1.25	0.06-0.2	0.14-0.17	3.0-5.9	0.5-2.0	.24	.24	2	4	86
	2-8	40-50	1.15-1.25	0.06-0.2	0.14-0.17	3.0-5.9	0.5-2.0	.24	.24			
	8-15	35-50	1.15-1.25	0.06-0.2	0.11-0.16	6.0-8.9	0.0-0.5	.37	.37			
	15-19	---	---	0.0000-0.06	---	---	---	---	---			
75: Pinon, cool-----	0-5	18-27	1.25-1.35	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.28	.28	1	4L	86
	5-16	18-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	0.5-1.0	.37	.37			
	16-20	---	---	0.06-0.2	---	---	---	---	---			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
75:												
Bowdish, cool-----	0-5	10-15	1.20-1.30	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	4L	86
	5-12	18-35	1.25-1.35	0.2-0.6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	12-23	18-35	1.25-1.35	0.2-0.6	0.11-0.13	0.0-2.9	0.0-0.5	.24	.43			
	23-27	---	---	0.0000-2	---	---	---	---	---			
Progresso, cool-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			
76:												
Pinon-----	0-5	18-27	1.25-1.35	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.28	.28	1	4L	86
	5-16	18-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	0.5-1.0	.37	.37			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
Bowdish-----	0-5	10-15	1.20-1.30	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	4L	86
	5-12	18-35	1.25-1.35	0.2-0.6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	12-23	18-35	1.25-1.35	0.2-0.6	0.11-0.13	0.0-2.9	0.0-0.5	.24	.43			
	23-27	---	---	0.0000-2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
77:												
Pinon-----	0-5	18-27	1.25-1.35	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.28	.28	1	4L	86
	5-16	18-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	0.5-1.0	.37	.37			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
Progresso-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			
78:												
Pinon-----	0-5	18-27	1.25-1.35	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.28	.28	1	4L	86
	5-16	18-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	0.5-1.0	.37	.37			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
Ustic Torriorthents-	0-4	27-40	1.25-1.35	0.2-0.6	0.11-0.13	3.0-5.9	0.5-1.0	.15	.24	2	4L	86
	4-31	27-60	1.25-1.35	0.2-0.6	0.11-0.13	6.0-8.9	0.0-0.5	.15	.28			
	31-35	---	---	0.06-0.2	---	---	---	---	---			
79:												
Pojoaque-----	0-4	18-25	1.25-1.35	0.6-2	0.07-0.09	0.0-2.9	0.0-2.0	.15	.37	5	8	0
	4-60	18-25	1.35-1.50	0.6-2	0.10-0.13	0.0-2.9	0.0-1.0	.20	.37			
Chilton-----	0-6	14-20	1.35-1.45	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28	5	3	86
	6-60	18-27	1.35-1.45	0.6-2	0.07-0.09	0.0-2.9	0.0-0.5	.10	.28			
80:												
Progresso-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
81: Progresso-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			
82: Progresso-----	0-7	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37	2	6	48
	7-14	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.24	.24			
	14-24	28-35	1.25-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.0-0.5	.28	.28			
	24-36	15-20	1.35-1.45	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-40	---	---	0.06-0.2	---	---	---	---	---			
83: Pulpit-----	0-8	10-25	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	4L	86
	8-20	18-30	1.25-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	20-25	10-30	1.35-1.45	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	25-29	---	---	0.06-0.2	---	---	---	---	---			
Bond, cool-----	0-3	10-20	1.35-1.45	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	3-16	20-35	1.25-1.35	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5	.24	.24			
	16-20	---	---	0.06-0.2	---	---	---	---	---			
84: Radersburg-----	0-7	20-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	2.0-4.0	.15	.24	2	6	48
	7-12	35-40	1.30-1.40	0.2-0.6	0.08-0.10	0.0-2.9	1.0-2.0	.05	.20			
	12-60	20-27	1.25-1.35	0.6-2	0.04-0.06	0.0-2.9	0.0-1.0	.05	.37			
85: Radersburg-----	0-7	20-27	1.25-1.35	0.6-2	0.11-0.13	0.0-2.9	2.0-4.0	.15	.24	2	6	48
	7-12	35-40	1.30-1.40	0.2-0.6	0.08-0.10	0.0-2.9	1.0-2.0	.05	.20			
	12-60	20-27	1.25-1.35	0.6-2	0.04-0.06	0.0-2.9	0.0-1.0	.05	.37			
86: Redlands-----	0-5	15-20	1.30-1.40	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	5-24	18-30	1.30-1.40	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.28	.28			
	24-60	10-18	1.35-1.45	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.32	.32			
87: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
88: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
Orthents-----	0-1	18-25	1.15-1.25	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.20	.37	3	6	48
	1-14	20-25	1.15-1.25	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.20	.37			
	14-24	15-40	1.15-1.25	0.2-2	0.10-0.12	0.0-2.9	0.0-0.5	.10	.28			
	24-60	15-40	1.15-1.25	0.2-2	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
89: Ryman, dry-----	0-21	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	21-60	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-0.5	.10	.17			
90: Ryman, warm-----	0-4	20-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	4-18	35-40	1.20-1.30	0.06-0.2	0.13-0.16	3.0-5.9	0.0-1.0	.15	.24			
	18-32	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-1.0	.10	.17			
	32-60	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-0.5	.10	.17			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
91:												
Ryman-----	0-23	28-35	1.25-1.35	0.2-0.6	0.17-0.19	0.0-2.9	2.0-4.0	.17	.17	5	6	48
	23-27	35-40	1.20-1.30	0.06-0.2	0.13-0.16	3.0-5.9	0.0-1.0	.15	.24			
	27-39	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-1.0	.10	.17			
	39-60	35-45	1.15-1.25	0.06-0.2	0.12-0.15	3.0-5.9	0.0-0.5	.10	.17			
Adel, moist-----	0-21	20-27	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	3.0-5.0	.20	.20	5	6	48
	21-60	27-35	1.20-1.30	0.6-2	0.16-0.18	3.0-5.9	0.5-1.0	.24	.24			
92:												
Sagedale-----	0-7	30-40	1.20-1.40	0.06-0.2	0.17-0.20	3.0-5.9	1.0-2.0	.20	.20	5	4L	86
	7-18	35-45	1.20-1.30	0.06-0.2	0.15-0.18	3.0-5.9	1.0-2.0	.20	.20			
	18-41	35-45	1.20-1.30	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.24	.24			
	41-60	35-45	1.20-1.30	0.06-0.2	0.14-0.16	3.0-5.9	0.0-0.5	.28	.28			
93:												
Sapeha-----	0-5	18-27	1.25-1.35	2-6	0.11-0.14	0.0-2.9	1.0-3.0	.10	.28	5	8	0
	5-12	27-35	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.10	.20			
	12-32	35-45	1.20-1.30	0.2-0.6	0.07-0.11	3.0-5.9	0.5-1.0	.05	.17			
	32-60	35-45	1.15-1.25	0.2-0.6	0.07-0.11	3.0-5.9	0.5-1.0	.05	.17			
94:												
Seitz-----	0-3	20-27	1.25-1.35	0.6-2	0.12-0.15	0.0-2.9	0.5-1.0	.20	.37	5	6	48
	3-11	27-35	1.20-1.30	0.2-0.6	0.13-0.15	0.0-2.9	0.0-1.0	.15	.24			
	11-60	40-50	1.15-1.25	0.06-0.2	0.08-0.11	3.0-5.9	0.0-1.0	.05	.17			
95:												
Skein-----	0-6	18-25	1.30-1.40	0.6-2	0.14-0.17	0.0-2.9	1.0-3.0	.28	.28	1	4L	86
	6-13	18-27	1.30-1.40	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.20	.37			
	13-19	18-27	1.25-1.35	0.6-2	0.07-0.09	0.0-2.9	0.0-0.5	.15	.43			
	19-23	---	---	0.06-0.2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
96:												
Skisams-----	0-4	18-27	1.25-1.40	0.6-6	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	1	6	48
	4-11	18-27	1.25-1.40	0.6-2	0.11-0.13	0.0-2.9	0.5-2.0	.20	.37			
	11-15	---	---	0.06-0.2	---	---	---	---	---			
Bushvalley-----	0-5	15-25	1.15-1.25	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.15	.28	1	5	56
	5-12	27-35	1.30-1.40	0.2-0.6	0.04-0.11	0.0-2.9	0.5-1.0	.05	.24			
	12-16	---	---	0.06-0.2	---	---	---	---	---			
Cryoborolls, moderately deep----	0-14	18-27	1.30-1.40	0.6-2	0.14-0.16	0.0-2.9	2.0-3.0	.28	.28	2	6	48
	14-18	27-35	1.25-1.35	0.6-2	0.08-0.10	0.0-2.9	1.0-2.0	.10	.20			
	18-30	18-27	1.35-1.45	2-6	0.05-0.07	0.0-2.9	0.5-1.0	.15	.28			
	30-34	---	---	0.06-0.2	---	---	---	---	---			
97:												
Skisams-----	0-4	18-27	1.25-1.40	0.6-6	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	1	6	48
	4-11	18-27	1.25-1.40	0.6-2	0.11-0.13	0.0-2.9	0.5-2.0	.20	.37			
	11-15	---	---	0.06-0.2	---	---	---	---	---			
Cryoborolls-----	0-14	18-27	1.30-1.40	0.6-2	0.14-0.16	0.0-2.9	2.0-3.0	.28	.28	2	6	48
	14-18	27-35	1.25-1.35	0.6-2	0.08-0.10	0.0-2.9	1.0-2.0	.10	.20			
	18-30	18-27	1.35-1.45	2-6	0.05-0.07	0.0-2.9	0.5-1.0	.15	.28			
	30-34	---	---	0.06-0.2	---	---	---	---	---			
98:												
Specie-----	0-3	17-22	1.15-1.25	2-6	0.11-0.14	0.0-2.9	1.0-3.0	.15	.28	5	4L	86
	3-16	17-22	1.25-1.35	2-6	0.11-0.13	0.0-2.9	0.5-1.0	.15	.37			
	16-60	18-25	1.25-1.35	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.10	.32			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
99:												
Specie, moist-----	0-14	17-22	1.15-1.25	2-6	0.11-0.14	0.0-2.9	1.0-3.0	.15	.28	5	4L	86
	14-60	18-25	1.25-1.35	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.10	.32			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
100:												
Spectacle-----	0-10	18-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24	3	6	48
	10-23	25-35	1.20-1.30	0.6-2	0.10-0.16	0.0-2.9	1.0-3.0	.10	.20			
	23-34	35-45	1.15-1.25	0.06-0.2	0.07-0.10	3.0-5.9	0.5-2.0	.05	.17			
	34-60	35-45	1.15-1.25	0.2-0.6	0.08-0.12	3.0-5.9	0.5-1.0	.15	.17			
Kinesava-----	0-21	15-27	1.25-1.35	0.6-2	0.14-0.16	0.0-2.9	2.0-3.0	.28	.28	5	6	48
	21-28	27-35	1.25-1.35	0.2-0.6	0.17-0.19	0.0-2.9	1.0-2.0	.20	.20			
	28-40	40-45	1.15-1.25	0.06-0.2	0.10-0.13	3.0-5.9	0.5-1.0	.10	.17			
	40-60	40-45	1.15-1.25	0.06-0.2	0.10-0.13	3.0-5.9	0.0-0.5	.10	.17			
101:												
Tellura-----	0-14	27-40	1.20-1.30	0.2-0.6	0.16-0.19	3.0-5.9	3.0-5.0	.15	.15	3	6	48
	14-36	35-50	1.30-1.40	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.05	.20			
	36-60	30-50	1.25-1.40	0.2-0.6	0.05-0.08	0.0-2.9	0.5-1.0	.10	.24			
Leaps-----	0-10	27-40	1.25-1.35	0.2-0.6	0.16-0.19	3.0-5.9	2.0-4.0	.17	.17	5	6	48
	10-60	40-50	1.25-1.35	0.06-0.2	0.12-0.17	6.0-8.9	0.5-1.0	.15	.24			
102:												
Typic Torriorthents-	0-2	27-40	1.15-1.25	0.2-0.6	0.17-0.19	0.0-2.9	0.5-1.0	.17	.32	3	4L	86
	2-4	18-40	1.15-1.25	0.2-2	0.10-0.12	0.0-2.9	0.0-0.5	.15	.37			
	4-8	---	---	0.06-0.2	---	---	---	---	---			
103:												
Ustic Torriorthents-	0-5	27-40	1.25-1.35	0.2-0.6	0.11-0.13	0.0-2.9	0.5-1.0	.10	.24	2	8	0
	5-60	27-60	1.25-1.35	0.06-0.6	0.11-0.13	3.0-5.9	0.0-0.5	.15	.28			
Ustochreptic Calciorthids-----	0-9	27-35	1.25-1.35	0.6-2	0.09-0.11	0.0-2.9	0.5-1.0	.10	.28	5	8	0
	9-24	27-40	1.25-1.35	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.24	.24			
	24-60	40-45	1.15-1.25	0.06-0.2	0.13-0.15	3.0-5.9	0.0-0.5	.10	.17			
104:												
Vananda-----	0-6	40-50	1.20-1.30	0.06-0.2	0.14-0.16	6.0-8.9	1.0-3.0	.20	.20	5	4	86
	6-17	40-50	1.15-1.30	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.24	.24			
	17-60	40-50	1.15-1.30	0.01-0.06	0.14-0.16	6.0-8.9	0.0-0.5	.28	.28			
105:												
Winnett-----	0-1	35-40	1.20-1.30	0.06-2	0.06-0.09	0.0-2.9	0.0-0.5	.37	.37	2	4L	86
	1-2	35-50	1.20-1.30	0.0000-0.06	0.06-0.09	6.0-8.9	0.0-0.5	.28	.28			
	2-6	35-50	1.20-1.30	0.0000-0.06	0.05-0.08	6.0-8.9	0.0-0.5	.28	.28			
	6-37	35-40	1.20-1.30	0.06-0.2	0.05-0.08	6.0-8.9	0.0-0.5	.37	.37			
	37-60	40-50	1.20-1.30	0.0000-0.06	0.05-0.08	6.0-8.9	0.0-0.5	.28	.28			
106:												
Winz-----	0-9	18-27	1.25-1.35	2-6	0.04-0.07	0.0-2.9	1.0-2.0	.05	.28	5	8	0
	9-23	30-40	1.30-1.40	0.2-0.6	0.04-0.06	0.0-2.9	0.5-1.0	.10	.24			
	23-60	35-50	1.30-1.40	0.2-0.6	0.04-0.06	3.0-5.9	0.0-0.5	.05	.17			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
107:												
Witt, dry-----	0-9	10-25	1.20-1.30	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37	3	5	56
	9-31	27-35	1.20-1.30	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.32	.32			
	31-60	18-27	1.20-1.30	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.49	.49			

Table 17.--Physical properties of the soils--continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
108: Wrayha-----	0-7	35-40	1.25-1.40	0.06-0.2	0.13-0.16	3.0-5.9	1.0-3.0	.10	.20	5	4L	86
	7-60	35-50	1.15-1.40	0.06-0.2	0.13-0.21	3.0-5.9	0.0-0.5	.20	.20			
109: Zoltay-----	0-6	20-27	1.20-1.30	0.2-0.6	0.17-0.19	0.0-2.9	3.0-6.0	.20	.20	5	6	48
	6-14	27-35	1.20-1.30	0.2-0.6	0.17-0.19	3.0-5.9	2.0-4.0	.17	.17			
	14-29	35-45	1.30-1.40	0.06-0.2	0.13-0.15	3.0-5.9	0.0-0.5	.15	.28			
	29-46	27-40	1.35-1.40	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.28			
	46-60	27-40	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.17	.28			
110: Zoltay-----	0-12	27-35	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-6.0	.15	.15	5	6	48
	12-38	35-45	1.20-1.30	0.06-0.2	0.18-0.20	3.0-5.9	1.0-3.0	.28	.28			
	38-60	30-45	1.30-1.40	0.2-0.6	0.18-0.20	3.0-5.9	0.5-1.0	.32	.32			
111: Zyme-----	0-6	35-40	1.25-1.30	0.2-0.6	0.16-0.20	0.0-2.9	1.0-2.0	.28	.28	2	4L	86
	6-15	35-45	1.30-1.40	0.06-0.2	0.14-0.19	3.0-5.9	0.0-0.5	.28	.28			
	15-19	---	---	0.06-0.2	---	---	---	---	---			
Bodot-----	0-3	27-40	1.30-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.5-1.0	.24	.24	3	4L	86
	3-38	28-50	1.35-1.40	0.06-0.2	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28			
	38-42	---	---	0.06-0.2	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	--	8	0
112: Water-----	---	---	---	---	---	---	---	---	---	--	---	---

Table 18--Chemical properties of the soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
1: Abra-----	0-3	10-15	7.9-8.4	0-5	0	0.0-2.0	0
	3-13	10-20	7.9-8.4	5-15	0	0.0-2.0	0
	13-32	5.0-15	7.9-8.4	10-40	0	0.0-2.0	0
	32-60	5.0-10	7.9-8.4	5-20	1-5	0.0-2.0	0
2: Abra-----	0-3	10-15	7.9-8.4	0-5	0	0.0-2.0	0
	3-13	10-20	7.9-8.4	5-15	0	0.0-2.0	0
	13-32	5.0-15	7.9-8.4	10-40	0	0.0-2.0	0
	32-60	5.0-10	7.9-8.4	5-20	1-5	0.0-2.0	0
3: Abra-----	0-3	10-15	7.9-8.4	0-5	0	0.0-2.0	0
	3-13	10-20	7.9-8.4	5-15	0	0.0-2.0	0
	13-32	5.0-15	7.9-8.4	10-40	0	0.0-2.0	0
	32-60	5.0-10	7.9-8.4	5-20	1-5	0.0-2.0	0
4: Ackmen-----	0-5	10-25	6.6-7.8	0-5	0	0.0-2.0	0-5
	5-41	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	41-60	5.0-20	7.4-7.8	0-10	0	0.0-2.0	0
5: Acree-----	0-8	15-30	6.6-7.8	0	0	0	0
	8-30	25-45	6.6-7.8	0-10	0	0.0-2.0	0
	30-60	20-40	7.4-8.4	3-15	0	0.0-2.0	0
6: Acree-----	0-8	15-30	6.6-7.8	0	0	0	0
	8-30	25-45	6.6-7.8	0-10	0	0.0-2.0	0
	30-60	20-40	7.4-8.4	3-15	0	0.0-2.0	0
7: Acree-----	0-8	15-30	6.6-7.8	0	0	0	0
	8-30	25-45	6.6-7.8	0-10	0	0.0-2.0	0
	30-60	20-40	7.4-8.4	3-15	0	0.0-2.0	0
Zoltay-----	0-6	20-35	6.6-7.8	0	0	0	0
	6-14	20-35	6.6-7.8	0	0	0	0
	14-29	20-35	6.6-8.4	1-15	0	0.0-2.0	0
	29-46	15-35	7.4-8.4	1-15	0	0.0-2.0	0
	46-60	15-35	7.4-8.4	1-15	0	0.0-2.0	0
Nortez-----	0-8	10-25	7.4-7.8	0	0	0	0
	8-24	20-30	7.4-8.4	0-10	0	0.0-2.0	0
	24-32	30-50	7.4-8.4	3-10	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
8: Adel-----	0-50	15-25	6.6-7.8	0	0	0	0
	50-60	10-25	6.6-7.8	0	0	0	0
9: Adel, moist-----	0-50	15-25	6.6-7.8	0	0	0	0
	50-60	10-25	6.6-7.8	0	0	0	0

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
10:							
Aquolls-----	0-3	15-25	7.4-8.4	0-5	0	0.0-4.0	0
	3-21	10-25	7.4-8.4	0-5	0	0.0-4.0	0
	21-38	10-25	7.4-8.4	0-10	0	0.0-4.0	0
	38-60	10-25	7.9-8.4	0-10	0	0.0-4.0	0
11:							
Badland-----	0-60	---	---	---	---	---	---
12:							
Baird Hollow-----	0-14	15-30	5.6-7.3	0	0	0	0
	14-28	10-20	6.6-7.3	0	0	0	0
	28-40	20-40	6.6-7.3	0	0	0	0
	40-44	25-40	6.6-7.3	0	0	0	0
	44-60	25-40	6.6-7.3	0	0	0	0
Nordicol-----	0-15	10-20	6.6-7.3	0	0	0	0
	15-24	10-20	6.6-7.3	0	0	0	0
	24-32	10-25	6.6-7.3	0	0	0	0
	32-48	10-25	6.6-7.3	0	0	0	0
	48-60	10-20	6.6-7.3	0	0	0	0
Ryman-----	0-23	15-30	6.6-7.3	0	0	0	0
	23-27	15-25	6.6-7.3	0	0	0	0
	27-39	15-30	6.6-7.3	0	0	0	0
	39-60	15-30	6.6-7.3	0	0	0	0
13:							
Barkelaw-----	0-2	10-25	7.4-7.8	0-5	0	0.0-2.0	0
	2-10	10-25	7.4-7.8	1-10	0	0.0-2.0	0
	10-22	10-20	7.9-8.4	15-30	0	0.0-2.0	0
	22-60	10-20	7.9-8.4	15-30	0	0.0-2.0	0
Emmons-----	0-5	10-20	7.4-8.4	1-10	0	0.0-2.0	0
	5-15	10-25	7.4-8.4	15-25	0	0.0-2.0	0
	15-60	10-20	7.9-8.4	15-25	0	0.0-2.0	0
14:							
Barx-----	0-2	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	2-23	5.0-20	7.9-9.0	5-15	0	2.0-4.0	0-10
	23-74	10-20	7.9-9.0	15-45	0	2.0-4.0	0-10
15:							
Barx-----	0-2	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	2-23	5.0-20	7.9-9.0	5-15	0	2.0-4.0	0-10
	23-74	10-20	7.9-9.0	15-45	0	2.0-4.0	0-10
16:							
Barx-----	0-2	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	2-23	5.0-20	7.9-9.0	5-15	0	2.0-4.0	0-10
	23-74	10-20	7.9-9.0	15-45	0	2.0-4.0	0-10
17:							
Barx-----	0-2	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	2-23	5.0-20	7.9-9.0	5-15	0	2.0-4.0	0-10
	23-74	10-20	7.9-9.0	15-45	0	2.0-4.0	0-10
Progresso-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
18:							
Begay-----	0-3	5.0-15	7.4-7.9	3-15	0-2	0.0-2.0	1-10
	3-12	5.0-10	7.4-9.0	5-10	0-2	0.0-2.0	1-10
	12-60	5.0-10	7.4-9.0	5-10	0-2	0.0-2.0	1-10
19:							
Beje-----	0-5	5.0-15	6.6-7.8	0	0	0.0-2.0	0
	5-9	5.0-15	6.6-7.8	0	0	0.0-2.0	0
	9-14	10-25	7.4-7.8	1-5	0	0.0-2.0	0
	14-18	---	---	---	---	---	---
20:							
Billings-----	0-2	10-15	7.9-9.0	1-5	0-3	2.0-8.0	0-10
	2-21	10-15	7.9-9.0	1-5	0-3	2.0-8.0	0-10
	21-60	10-20	7.9-9.0	1-5	0-3	2.0-8.0	0-10
21:							
Billings, moist-----	0-9	10-20	7.9-9.0	1-5	0-3	2.0-8.0	0-10
	9-60	10-20	7.9-9.0	1-5	0-3	2.0-8.0	0-10
22:							
Bodot, dry-----	0-3	15-35	7.4-8.4	5-10	0	0.0-2.0	0
	3-38	20-40	7.9-9.0	5-10	0	2.0-8.0	0-10
	38-42	---	---	---	---	---	---
23:							
Bodot, dry-----	0-3	---	7.9-8.4	5-10	0	0	0
	3-30	---	8.5-9.0	5-10	0	2.0-8.0	0-10
	30-34	---	---	---	---	---	---
Ustic Torriorthents--	0-4	10-25	7.9-8.4	0-15	0	0.0-2.0	0
	4-31	10-25	7.9-8.4	0-15	0	0.0-2.0	0
	31-35	---	---	---	---	---	---
24:							
Bodot, dry-----	0-3	15-35	7.4-8.4	5-10	0	0.0-2.0	0
	3-38	20-40	7.9-9.0	5-10	0	2.0-8.0	0-10
	38-42	---	---	---	---	---	---
Zyme, dry-----	0-6	20-35	7.4-8.4	1-5	0	0.0-2.0	0
	6-15	20-35	7.4-8.4	1-10	0	0.0-2.0	0
	15-19	---	---	---	---	---	---
25:							
Bond-----	0-3	5.0-15	6.6-7.8	0	0	0.0-2.0	0-5
	3-16	10-20	6.6-8.4	0-5	0	0.0-2.0	0-5
	16-20	---	---	---	---	---	---
Progresso-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---
26:							
Borolls-----	0-10	10-20	6.6-7.8	0	0	0.0-2.0	0
	10-13	10-25	6.6-7.8	0	0	0.0-2.0	0
	13-35	15-30	7.4-8.4	0	0	0.0-2.0	0
	35-60	15-30	7.4-8.4	1-5	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
27:							
Burnac-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-28	20-40	6.6-7.3	0	0	0	0
	28-60	25-45	6.6-7.8	0-5	0	0.0-2.0	0
Delson-----	0-10	10-25	6.6-7.3	0	0	0	0
	10-34	20-35	6.6-7.3	0	0	0	0
	34-60	20-35	6.6-7.3	0	0	0	0
28:							
Burnac-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-28	20-40	6.6-7.3	0	0	0	0
	28-60	25-45	6.6-7.8	0-5	0	0.0-2.0	0
Delson-----	0-10	10-25	6.6-7.3	0	0	0	0
	10-34	20-35	6.6-7.3	0	0	0	0
	34-60	20-35	6.6-7.3	0	0	0	0
Falcon-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-19	5.0-15	5.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
29:							
Bushvalley-----	0-5	10-20	6.6-7.3	0	0	0	0
	5-12	10-25	6.6-7.3	0	0	0	0
	12-16	---	---	---	---	---	---
Nordicol Variant-----	0-14	10-20	6.6-7.3	0	0	0	0
	14-31	15-25	6.6-7.3	0	0	0	0
	31-34	10-25	6.6-7.3	0	0	0	0
	34-38	---	---	---	---	---	---
30:							
Callan-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-14	15-35	6.6-7.8	1-3	0	0	0
	14-60	5.0-20	7.9-8.4	10-50	0	0.0-2.0	5-10
31:							
Callan-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-14	15-35	6.6-7.8	1-3	0	0	0
	14-60	5.0-20	7.9-8.4	10-50	0	0.0-2.0	5-10
32:							
Callan-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-14	15-35	6.6-7.8	1-3	0	0	0
	14-60	5.0-20	7.9-8.4	10-50	0	0.0-2.0	5-10
33:							
Callan-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-14	15-35	6.6-7.8	1-3	0	0	0
	14-60	5.0-20	7.9-8.4	10-50	0	0.0-2.0	5-10
Gurley-----	0-4	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	4-21	15-30	7.4-8.4	1-25	0	0.0-2.0	0
	21-37	5.0-15	7.9-8.4	20-50	0	0.0-2.0	0
	37-41	---	---	---	---	---	---
34:							
Ceek-----	0-5	20-40	6.6-7.3	0	0	0	0
	5-13	15-35	6.6-7.3	0	0	0	0
	13-22	20-35	6.6-7.3	0	0	0	0
	22-60	25-40	7.4-8.4	3-10	0	0.0-2.0	0

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
35:							
Clapper-----	0-5	10-20	7.4-7.9	10-15	0	0.0-2.0	0
	5-11	5.0-15	7.9-8.4	10-15	0	0.0-2.0	0
	11-20	5.0-15	7.9-9.0	15-50	0	0.0-4.0	0-10
	20-60	5.0-15	7.9-9.0	15-50	0	0.0-4.0	0-10
36:							
Clapper-----	0-5	10-20	7.4-7.9	10-15	0	0.0-2.0	0
	5-11	5.0-15	7.9-8.4	10-15	0	0.0-2.0	0
	11-20	5.0-15	7.9-9.0	15-50	0	0.0-4.0	0-10
	20-60	5.0-15	7.9-9.0	15-50	0	0.0-4.0	0-10
Ustic Torriorthents--	0-4	10-25	7.9-8.4	0-15	0	0.0-2.0	0
	4-31	10-25	7.9-8.4	0-15	0	0.0-2.0	0
	31-35	---	---	---	---	---	---
37:							
Cryaquolls-----	0-6	20-30	6.1-7.3	0	0	0	0
	6-17	25-35	6.1-7.3	0	0	0	0
	17-22	30-40	6.1-7.3	0	0	0	0
	22-27	30-40	6.1-7.8	0	0	0	0
	27-35	30-40	6.1-7.8	0	0	0	0
	35-38	20-30	6.6-7.8	0	0	0	0
	38-60	25-30	6.6-7.8	0	0	0	0
38:							
Evanston-----	0-6	10-20	7.4-7.8	0	0	0	0
	6-24	15-25	7.4-7.8	0	0	0.0-2.0	0
	24-36	5.0-20	7.4-7.8	1-10	0	0.0-2.0	0
	36-60	10-25	7.4-8.4	1-15	0	0.0-2.0	0
39:							
Falcon-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-19	5.0-15	5.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Burnac-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-28	20-40	6.6-7.3	0	0	0	0
	28-60	25-45	6.6-7.8	0-5	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
40:							
Farb-----	0-3	5.0-15	7.4-8.4	0	0	0	0
	3-11	5.0-15	7.4-8.4	1-10	0	0.0-2.0	0
	11-15	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
41:							
Fivepine-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	20-35	6.6-7.8	0	0	0	0
	9-15	25-40	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Nortez-----	0-8	10-25	7.4-7.8	0	0	0	0
	8-24	20-30	7.4-8.4	0-10	0	0.0-2.0	0
	24-32	30-50	7.4-8.4	3-10	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
42:							
Fivepine-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	20-35	6.6-7.8	0	0	0	0
	9-15	25-40	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Pino-----	0-8	10-20	6.1-7.8	0	0	0.0-1.0	0-2
	8-24	15-30	6.1-7.8	0	0	0.0-1.0	0-2
	24-32	15-35	6.6-8.4	0-5	0	0.0-2.0	0-2
	32-36	---	---	---	---	---	---
43:							
Fluvaquents-----	0-11	2.0-25	7.4-8.4	0	0	0.0-8.0	0
	11-60	2.0-20	7.4-8.4	0	0	0.0-8.0	0
44:							
Fruitland-----	0-5	5.0-20	7.4-8.4	5-10	0	2.0-4.0	0
	5-60	5.0-10	7.4-8.4	5-10	0	2.0-4.0	0
45:							
Gladel-----	0-8	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0
	8-12	---	---	---	---	---	---
Bond-----	0-3	5.0-15	6.6-7.8	0	0	0.0-2.0	0-5
	3-16	10-20	6.6-8.4	0-5	0	0.0-2.0	0-5
	16-20	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
46:							
Gladel, cool-----	0-8	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0
	8-12	---	---	---	---	---	---
Bond, cool-----	0-3	5.0-15	6.6-7.8	0	0	0.0-2.0	0-5
	3-16	10-20	6.6-8.4	0-5	0	0.0-2.0	0-5
	16-20	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
47:							
Gurley-----	0-4	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	4-21	15-30	7.4-8.4	1-25	0	0.0-2.0	0
	21-37	5.0-15	7.9-8.4	20-50	0	0.0-2.0	0
	37-41	---	---	---	---	---	---
48:							
Gurley-----	0-4	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	4-21	15-30	7.4-8.4	1-25	0	0.0-2.0	0
	21-37	5.0-15	7.9-8.4	20-50	0	0.0-2.0	0
	37-41	---	---	---	---	---	---
Skein-----	0-6	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	6-13	5.0-15	7.4-8.4	15-30	0	0.0-2.0	0
	13-19	5.0-15	7.4-8.4	20-40	0	0.0-2.0	0
	19-23	---	---	---	---	---	---
49:							
Gypsiorthids-----	0-1	2.0-10	7.9-8.4	1-15	40-70	2.0-8.0	0
	1-11	2.0-10	7.9-8.4	1-15	75-85	2.0-8.0	0
	11-23	1.0-5.0	7.9-8.4	1-15	55-65	2.0-8.0	0
	23-44	0.0-5.0	7.9-8.4	1-15	35-60	4.0-8.0	0

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
50: Gypsum land-----	0-60	---	---	---	50-100	8.0-32.0	---
51: Haplaquolls-----	0-21	10-25	7.9-8.4	1-15	0	0.0-2.0	0
	21-30	5.0-15	7.9-8.4	1-15	0	0.0-2.0	0
	30-60	10-15	7.9-8.4	1-15	0	4.0-8.0	0
52: Killpack-----	0-9	5.0-20	7.4-8.4	0-10	0	2.0-8.0	0
	9-30	10-20	7.4-8.4	1-15	0-1	2.0-8.0	0
	30-34	---	---	---	---	---	---
Deaver-----	0-4	10-25	7.9-8.4	0-10	0	0.0-4.0	1-5
	4-31	20-40	7.9-8.4	5-15	5-10	0.0-4.0	3-10
	31-35	---	---	---	---	---	---
53: Leaps-----	0-12	15-30	6.6-7.3	0	0	0	0
	12-60	20-45	6.6-7.3	0	0	0	0
Hofly-----	0-3	15-30	6.6-7.3	0	0	0	0
	3-32	25-40	6.6-7.3	0	0	0	0
	32-60	25-40	6.6-7.3	0	0	0	0
54: Leaps-----	0-10	15-30	6.6-7.3	0	0	0	0
	10-60	20-45	6.6-7.3	0	0	0	0
Tellura-----	0-14	20-40	6.1-7.3	0	0	0	0
	14-36	25-45	6.1-7.8	0	0	0	0
	36-60	20-35	6.1-7.8	0-5	0	0.0-2.0	0
55: Lillylands-----	0-4	10-25	6.6-7.3	0	0	0	0
	4-30	15-25	6.6-7.3	0	0	0	0
	30-60	15-30	6.6-7.3	0	0	0	0
56: Mikim-----	0-6	5.0-20	6.6-8.4	0	0	0	0
	6-45	5.0-20	7.4-9.0	1-10	0	0.0-2.0	0-10
	45-60	5.0-20	7.4-9.0	1-10	0	0.0-2.0	0-10
57: Minchey-----	0-5	5.0-15	7.9-8.4	1-15	0	0.0-4.0	0
	5-30	10-20	7.9-9.0	18-40	0	0.0-4.0	0-10
	30-60	2.0-10	7.9-9.0	18-30	0	0.0-4.0	0-10
58: Mitch-----	0-14	10-25	7.4-8.4	1-5	0	0.0-2.0	0
	14-28	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	28-60	10-20	7.4-8.4	1-15	0	0.0-2.0	0
59: Mivida-----	0-3	5.0-15	7.9-8.4	5-10	0	0.0-2.0	0
	3-60	5.0-10	7.9-8.4	10-40	0-2	0.0-2.0	0
60: Monogram-----	0-3	5.0-15	6.6-7.8	0	0	0	0
	3-14	10-25	6.6-7.8	0-10	0	0.0-2.0	0
	14-28	5.0-20	7.9-8.4	10-50	0	0.0-2.0	0-10
	28-60	10-25	7.9-8.4	20-70	0	0.0-2.0	0-10

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
61:							
Monticello-----	0-10	10-15	6.6-7.8	0	0	0.0-2.0	0
	10-30	10-15	6.6-7.8	0-5	0	0.0-2.0	0
	30-74	5.0-15	7.4-8.4	5-25	0	0.0-2.0	0
Witt-----	0-9	5.0-15	6.6-8.4	0	0	0	0
	9-31	10-25	6.6-8.4	0-10	0	0.0-2.0	0
	31-60	5.0-20	7.9-8.4	15-45	0	0.0-2.0	0
62:							
Monticello-----	0-10	10-15	6.6-7.8	0	0	0.0-2.0	0
	10-30	10-15	6.6-7.8	0-5	0	0.0-2.0	0
	30-74	5.0-15	7.4-8.4	5-25	0	0.0-2.0	0
Witt-----	0-9	5.0-15	6.6-8.4	0	0	0	0
	9-31	10-25	6.6-8.4	0-10	0	0.0-2.0	0
	31-60	5.0-20	7.9-8.4	15-45	0	0.0-2.0	0
63:							
Monticello-----	0-10	10-15	6.6-7.8	0	0	0.0-2.0	0
	10-30	10-15	6.6-7.8	0-5	0	0.0-2.0	0
	30-74	5.0-15	7.4-8.4	5-25	0	0.0-2.0	0
Witt-----	0-9	5.0-15	6.6-8.4	0	0	0	0
	9-31	10-25	6.6-8.4	0-10	0	0.0-2.0	0
	31-60	5.0-20	7.9-8.4	15-45	0	0.0-2.0	0
64:							
Narraguinnep, moist--	0-7	20-40	6.6-7.3	0	0	0	0
	7-33	25-45	6.6-8.4	0-5	0	0.0-2.0	0
	33-60	15-35	7.9-8.4	5-15	0	0.0-2.0	0
65:							
Narraguinnep-----	0-7	20-40	6.6-7.3	0	0	0	0
	7-30	25-45	6.6-8.4	0-5	0	0.0-2.0	0
	30-60	15-35	7.9-8.4	5-15	0	0.0-2.0	0
Dapoin-----	0-13	20-35	6.6-7.8	0	0	0	0
	13-29	25-40	7.4-7.8	1-5	0	0.0-2.0	0
	29-38	20-35	7.9-8.4	5-15	0	0.0-2.0	0
	38-60	20-35	7.9-8.4	5-15	0	0.0-2.0	0
66:							
Nortez-----	0-8	10-25	7.4-7.8	0	0	0	0
	8-24	20-30	7.4-8.4	0-10	0	0.0-2.0	0
	24-32	30-50	7.4-8.4	3-10	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
67:							
Nortez-----	0-8	10-25	7.4-7.8	0	0	0	0
	8-24	20-30	7.4-8.4	0-10	0	0.0-2.0	0
	24-32	30-50	7.4-8.4	3-10	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
68:							
Nortez-----	0-8	10-25	7.4-7.8	0	0	0	0
	8-24	20-30	7.4-8.4	0-10	0	0.0-2.0	0
	24-32	30-50	7.4-8.4	3-10	0	0.0-2.0	0
	32-36	---	---	---	---	---	---

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
68:							
Acree-----	0-8	15-30	6.6-7.8	0	0	0	0
	8-30	25-45	6.6-7.8	0-10	0	0.0-2.0	0
	30-60	20-40	7.4-8.4	3-15	0	0.0-2.0	0
69:							
Nortez-----	0-8	10-25	7.4-7.8	0	0	0	0
	8-24	20-30	7.4-8.4	0-10	0	0.0-2.0	0
	24-32	30-50	7.4-8.4	3-10	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
Fivepine-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	20-35	6.6-7.8	0	0	0	0
	9-15	25-40	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
70:							
Nunemaker-----	0-3	25-45	7.9-8.4	1-15	0	0.0-2.0	0
	3-26	20-25	7.9-8.4	5-15	0	2.0-4.0	0
	26-60	20-40	8.5-9.0	5-15	1-3	2.0-4.0	0-10
71:							
Nyswonger-----	0-3	15-30	7.9-8.4	1-15	0	0.0-2.0	0
	3-11	15-35	7.9-8.4	1-15	0	0.0-2.0	0
	11-19	15-30	7.9-8.4	1-15	0	0.0-2.0	0
	19-41	10-25	7.9-8.4	1-15	0	0.0-2.0	0
	41-60	15-30	7.9-8.4	1-15	0	0.0-2.0	0
72:							
Pagoda-----	0-4	15-35	6.1-7.3	0	0	0	0
	4-26	20-40	6.6-7.8	0	0	0	0
	26-60	15-30	7.9-8.4	1-10	0	0.0-2.0	0
Coulterg-----	0-10	20-35	7.4-8.4	0-5	0	0.0-2.0	0
	10-60	5.0-20	7.4-8.4	5-15	1-5	0.0-4.0	0
Cabba-----	0-4	10-20	7.9-8.4	1-5	0	0.0-4.0	0
	4-10	10-25	7.9-8.4	2-15	0	0.0-4.0	0
	10-14	---	---	---	---	---	---
73:							
Paradox-----	0-5	5.0-15	7.4-7.8	0-5	0	0.0-2.0	0
	5-19	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	19-60	5.0-15	7.4-8.4	5-15	0	0.0-2.0	0
74:							
Persayo-----	0-2	10-20	7.9-8.4	5-15	0	0.0-8.0	0
	2-14	10-20	7.4-8.4	5-15	0-5	0.0-8.0	0
	14-18	---	---	---	---	---	---
Chipeta-----	0-2	15-35	7.4-8.4	5-10	1-10	8.0-16.0	5-15
	2-8	15-35	7.4-8.4	5-10	1-10	8.0-16.0	5-15
	8-15	5.0-15	7.4-8.4	5-10	1-10	8.0-16.0	5-15
	15-19	---	---	---	---	---	---
75:							
Pinon, cool-----	0-5	10-20	7.4-8.4	1-15	0	0.0-2.0	0
	5-16	5.0-15	7.9-8.4	15-40	0	0.0-2.0	0
	16-20	---	---	---	---	---	---

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
75:							
Bowdish, cool-----	0-5	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	5-12	5.0-20	7.9-8.4	10-25	0	0.0-4.0	0
	12-23	5.0-20	7.9-9.0	15-40	0	0.0-4.0	0-10
	23-27	---	---	---	---	---	---
Progresso, cool-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---
76:							
Pinon-----	0-5	10-20	7.4-8.4	1-15	0	0.0-2.0	0
	5-16	5.0-15	7.9-8.4	15-40	0	0.0-2.0	0
	16-20	---	---	---	---	---	---
Bowdish-----	0-5	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	5-12	5.0-20	7.9-8.4	10-25	0	0.0-4.0	0
	12-23	5.0-20	7.9-9.0	15-40	0	0.0-4.0	0-10
	23-27	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
77:							
Pinon-----	0-5	10-20	7.4-8.4	1-15	0	0.0-2.0	0
	5-16	5.0-15	7.9-8.4	15-40	0	0.0-2.0	0
	16-20	---	---	---	---	---	---
Progresso-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---
78:							
Pinon-----	0-5	10-20	7.4-8.4	1-15	0	0.0-2.0	0
	5-16	5.0-15	7.9-8.4	15-40	0	0.0-2.0	0
	16-20	---	---	---	---	---	---
Ustic Torriorthents--	0-4	10-25	7.9-8.4	0-15	0	0.0-2.0	0
	4-31	10-25	7.9-8.4	0-15	0	0.0-2.0	0
	31-35	---	---	---	---	---	---
79:							
Pojoaque-----	0-4	5.0-20	7.4-7.8	1-10	0	0.0-2.0	0
	4-60	5.0-15	7.4-7.8	1-15	0	0.0-2.0	0
Chilton-----	0-6	5.0-15	7.9-8.4	1-10	0	0.0-2.0	0
	6-60	5.0-20	7.9-8.4	1-15	0	0.0-2.0	0
80:							
Progresso-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
81:							
Progresso-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---
82:							
Progresso-----	0-7	10-20	7.4-7.8	0	0	0	0
	7-14	10-25	7.4-7.8	0	0	0	0
	14-24	10-20	7.9-8.4	10-25	0	0.0-2.0	0
	24-36	5.0-10	7.9-8.4	15-35	0	0.0-2.0	0
	36-40	---	---	---	---	---	---
83:							
Pulpit-----	0-8	5.0-20	6.6-7.8	0-3	0	0	0
	8-20	5.0-25	6.6-8.4	0-5	0	0.0-2.0	0
	20-25	5.0-20	7.4-8.4	5-25	0	0.0-2.0	0
	25-29	---	---	---	---	---	---
Bond, cool-----	0-3	5.0-15	6.6-7.8	0	0	0.0-2.0	0-5
	3-16	10-20	6.6-8.4	0-5	0	0.0-2.0	0-5
	16-20	---	---	---	---	---	---
84:							
Radersburg-----	0-7	10-25	6.6-7.8	0	0	0	0
	7-12	20-40	7.4-7.8	20-40	0	0.0-2.0	0
	12-60	5.0-15	7.9-8.4	20-40	0	0.0-2.0	0
85:							
Radersburg-----	0-7	10-25	6.6-7.8	0	0	0	0
	7-12	20-40	7.4-7.8	20-40	0	0.0-2.0	0
	12-60	5.0-15	7.9-8.4	20-40	0	0.0-2.0	0
86:							
Redlands-----	0-5	5.0-15	7.4-8.4	0-2	0	0	0
	5-24	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-4.0	0-10
87:							
Rock outcrop-----	0-60	---	---	---	---	---	---
88:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Orthents-----	0-1	10-15	7.9-8.4	0	0	0	0
	1-14	10-15	7.9-8.4	10-40	0	0.0-2.0	0
	14-24	5.0-25	7.9-8.4	10-40	0	0.0-2.0	0
	24-60	5.0-25	7.9-8.4	5-25	0	0.0-2.0	0
89:							
Ryman, dry-----	0-21	10-25	6.6-7.3	0	0	0	0
	21-60	15-30	6.6-7.3	0	0	0	0
90:							
Ryman, warm-----	0-4	10-25	6.6-7.3	0	0	0	0
	4-18	15-25	6.6-7.3	0	0	0	0
	18-32	15-30	6.6-7.3	0	0	0	0
	32-60	15-30	6.6-7.3	0	0	0	0

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm	
91:							
Ryman-----	0-23	15-30	6.6-7.3	0	0	0	0
	23-27	15-25	6.6-7.3	0	0	0	0
	27-39	15-30	6.6-7.3	0	0	0	0
	39-60	15-30	6.6-7.3	0	0	0	0
Adel, moist-----	0-21	15-25	6.6-7.3	0	0	0	0
	21-60	10-25	7.4-7.8	0	0	0	0
92:							
Sagedale-----	0-7	20-35	6.6-7.8	1-10	0	0.0-2.0	0
	7-18	20-40	6.6-7.8	1-10	0	0.0-2.0	0
	18-41	20-35	7.4-8.4	5-15	1-5	0.0-4.0	0
	41-60	20-35	7.4-9.0	5-10	1-5	0.0-4.0	0-10
93:							
Sapeha-----	0-5	10-20	6.6-7.3	0	0	0	0
	5-12	15-25	6.6-7.3	0	0	0	0
	12-32	15-30	6.6-7.3	0	0	0	0
	32-60	15-30	6.6-7.3	0	0	0	0
94:							
Seitz-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-11	15-30	6.6-7.3	0	0	0	0
	11-60	25-40	6.6-7.3	0	0	0	0
95:							
Skein-----	0-6	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	6-13	5.0-15	7.4-8.4	15-30	0	0.0-2.0	0
	13-19	5.0-15	7.4-8.4	20-40	0	0.0-2.0	0
	19-23	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
96:							
Skisams-----	0-4	10-25	6.6-7.3	0	0	0	0
	4-11	5.0-20	6.6-7.3	0	0	0	0
	11-15	---	---	---	---	---	---
Bushvalley-----	0-5	10-20	6.6-7.3	0	0	0	0
	5-12	10-25	6.6-7.3	0	0	0	0
	12-16	---	---	---	---	---	---
Cryoborolls, moderately deep----	0-14	10-20	6.6-7.3	0	0	0	0
	14-18	15-25	6.6-7.3	0	0	0	0
	18-30	10-20	6.6-7.3	0	0	0	0
	30-34	---	---	---	---	---	---
97:							
Skisams-----	0-4	10-25	6.6-7.3	0	0	0	0
	4-11	5.0-20	6.6-7.3	0	0	0	0
	11-15	---	---	---	---	---	---
Cryoborolls-----	0-14	10-20	6.6-7.3	0	0	0	0
	14-18	15-25	6.6-7.3	0	0	0	0
	18-30	10-20	6.6-7.3	0	0	0	0
	30-34	---	---	---	---	---	---
98:							
Specie-----	0-3	10-20	6.6-7.8	1-10	0	0.0-2.0	0
	3-16	5.0-15	7.9-8.4	5-15	0	0.0-2.0	0
	16-60	5.0-15	7.9-8.4	5-20	0	0.0-2.0	0

Table 18--Chemical properties of the soils--continued

Map symbol and soil name	Depth		Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meg/100 g	pH	Pct	Pct	mmhos/cm		
99:								
Specie, moist-----	0-14	10-20	6.6-8.4	1-10	0	0.0-2.0	0	
	14-60	5.0-15	7.9-8.4	5-20	0	0.0-2.0	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	
100:								
Spectacle-----	0-10	10-25	6.6-7.3	0	0	0	0	
	10-23	10-25	6.6-7.3	0	0	0	0	
	23-34	15-30	6.6-7.3	0	0	0	0	
	34-60	15-30	6.6-7.3	0	0	0	0	
Kinesava-----	0-21	10-20	6.6-7.3	0	0	0	0	
	21-28	15-25	6.6-7.3	0	0	0	0	
	28-40	15-30	6.6-7.8	0	0	0	0	
	40-60	15-30	6.6-7.8	0	0	0	0	
101:								
Tellura-----	0-14	20-40	6.1-7.3	0	0	0	0	
	14-36	25-45	6.1-7.8	0	0	0	0	
	36-60	20-35	6.1-7.8	0-5	0	0.0-2.0	0	
Leaps-----	0-10	20-40	6.6-7.3	0	0	0	0	
	10-60	20-45	6.6-7.3	0	0	0	0	
102:								
Typic Torriorthents--	0-2	10-25	7.4-8.4	0-5	0	0.0-4.0	0	
	2-4	10-20	7.4-8.4	1-15	0	0.0-4.0	0	
	4-8	---	---	---	---	---	---	
103:								
Ustic Torriorthents--	0-5	10-25	7.9-8.4	0-15	0	0.0-2.0	0	
	5-60	10-25	7.9-8.4	0-15	0	0.0-2.0	0	
Ustochreptic Calciorthids-----	0-9	10-20	7.9-8.4	10-25	0	0.0-2.0	0	
	9-24	10-20	7.9-8.4	20-40	0	0.0-2.0	0	
	24-60	15-25	7.9-8.4	5-20	0	0.0-2.0	0	
104:								
Vananda-----	0-6	25-55	7.4-8.4	1-5	0	2.0-4.0	0-4	
	6-17	25-50	7.9-8.4	1-5	0	2.0-8.0	0-4	
	17-60	20-50	7.9-8.4	1-10	0	2.0-8.0	10-15	
105:								
Winnett-----	0-1	20-35	7.9-9.0	1-10	0	2.0-8.0	1-15	
	1-2	20-40	9.1-9.6	1-15	0	2.0-8.0	15-40	
	2-6	20-40	9.1-9.6	1-20	0	2.0-8.0	15-40	
	6-37	20-35	8.5-9.0	1-20	0	2.0-8.0	15-40	
	37-60	20-40	7.9-9.0	5-25	0	2.0-8.0	5-25	
106:								
Winz-----	0-9	15-25	6.1-7.3	0	0	0	0	
	9-23	15-25	6.1-7.3	0	0	0	0	
	23-60	20-40	6.1-7.3	0	0	0	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	
107:								
Witt, dry-----	0-9	5.0-15	6.6-8.4	0	0	0	0	
	9-31	10-25	6.6-8.4	0-10	0	0.0-2.0	0	
	31-60	5.0-20	7.9-8.4	15-45	0	0.0-2.0	0	



Table 19.--Water features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit Ft	Lower limit Ft		Duration	Frequency	Duration	Frequency
1: Abra-----	B	Jan-Dec	---	---	---	---	None	---	None
2: Abra-----	B	Jan-Dec	---	---	---	---	None	---	None
3: Abra-----	B	Jan-Dec	---	---	---	---	None	---	None
4: Ackmen-----	B	March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
5: Acree-----	C	Jan-Dec	---	---	---	---	None	---	None
6: Acree-----	C	Jan-Dec	---	---	---	---	None	---	None
7: Acree-----	C	Jan-Dec	---	---	---	---	None	---	None
	C	Jan-Dec	---	---	---	---	None	---	None
	C	Jan-Dec	---	---	---	---	None	---	None
8: Adel-----	B	Jan-Dec	---	---	---	---	None	---	None
9: Adel, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
10: Aguolls-----	D	April	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		May	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		June	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		July	1.0-3.0	>6.0	---	---	None	---	None
		August	1.0-3.0	>6.0	---	---	None	---	None
		September	1.0-3.0	>6.0	---	---	None	---	None
11: Badland-----	D	Jan-Dec	---	---	---	---	None	---	None
12: Baird Hollow-----	C	Jan-Dec	---	---	---	---	None	---	None
	B	Jan-Dec	---	---	---	---	None	---	None
	C	Jan-Dec	---	---	---	---	None	---	None
13: Barkelew-----	B	Jan-Dec	---	---	---	---	None	---	None
	B	Jan-Dec	---	---	---	---	None	---	None
14: Barx-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
15: Barx-----	B	Jan-Dec	---	---	---	---	None	---	None
16: Barx-----	B	Jan-Dec	---	---	---	---	None	---	None
17: Barx-----	B	Jan-Dec	---	---	---	---	None	---	None
Progresso-----	C	Jan-Dec	---	---	---	---	None	---	None
18: Begay-----	B	Jan-Dec	---	---	---	---	None	---	None
19: Beje-----	D	Jan-Dec	---	---	---	---	None	---	None
20: Billings-----	B	March April May June	---	---	---	---	None None None None	Brief Brief Brief Brief	Rare Rare Rare Rare
21: Billings, moist-----	B	March April May June	---	---	---	---	None None None None	Brief Brief Brief Brief	Rare Rare Rare Rare
22: Bodot, dry-----	C	Jan-Dec	---	---	---	---	None	---	None
23: Bodot, dry-----	C	Jan-Dec	---	---	---	---	None	---	None
Ustic Torriorthents-----	C	Jan-Dec	---	---	---	---	None	---	None
24: Bodot, dry-----	C	Jan-Dec	---	---	---	---	None	---	None
Zyme, dry-----	D	Jan-Dec	---	---	---	---	None	---	None
25: Bond-----	D	Jan-Dec	---	---	---	---	None	---	None
Progresso-----	C	Jan-Dec	---	---	---	---	None	---	None
26: Borolls-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
27: Burnac-----	C	Jan-Dec	---	---	---	---	None	---	None
Delson-----	C	Jan-Dec	---	---	---	---	None	---	None
28: Burnac-----	C	Jan-Dec	---	---	---	---	None	---	None
Delson-----	C	Jan-Dec	---	---	---	---	None	---	None
Falcon-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<u>Ft</u>	<u>Ft</u>	<u>Ft</u>				
29: Bushvalley-----	D	Jan-Dec	---	---	---	---	None	---	None
Nordicol Variant-----	C	Jan-Dec	---	---	---	---	None	---	None
30: Callan-----	C	Jan-Dec	---	---	---	---	None	---	None
31: Callan-----	C	Jan-Dec	---	---	---	---	None	---	None
32: Callan-----	C	Jan-Dec	---	---	---	---	None	---	None
33: Callan-----	C	Jan-Dec	---	---	---	---	None	---	None
Gurley-----	C	Jan-Dec	---	---	---	---	None	---	None
34: Ceek-----	B	Jan-Dec	---	---	---	---	None	---	None
35: Clapper-----	B	Jan-Dec	---	---	---	---	None	---	None
36: Clapper-----	B	Jan-Dec	---	---	---	---	None	---	None
Ustic Torriorthents-----	C	Jan-Dec	---	---	---	---	None	---	None
37: Cryaquolls-----	C	April	0.5-2.5	>6.0	---	---	None	---	None
		May	0.5-2.5	>6.0	---	---	None	Brief	Frequent
		June	0.5-2.5	>6.0	---	---	None	Brief	Frequent
		July	0.5-2.5	>6.0	---	---	None	Brief	Frequent
		August	0.5-2.5	>6.0	---	---	None	---	None
		September	0.5-2.5	>6.0	---	---	None	---	None
		October	0.5-2.5	>6.0	---	---	None	---	None
		November	0.5-2.5	>6.0	---	---	None	---	None
38: Evanston-----	B	Jan-Dec	---	---	---	---	None	---	None
39: Falcon-----	D	Jan-Dec	---	---	---	---	None	---	None
Burnac-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
40: Farb-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
41: Fivepine-----	D	Jan-Dec	---	---	---	---	None	---	None
Nortez-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
42: Fivepine-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit Ft	Lower limit Ft		Duration	Frequency	Duration	Frequency
42: Pino-----	C	Jan-Dec	---	---	---	---	None	---	None
43: Fluvaquents-----	D	January	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		February	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		March	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		April	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		May	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		June	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		July	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		August	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		September	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		October	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		November	1.0-4.0	>6.0	---	---	None	Brief	Frequent
		December	1.0-4.0	>6.0	---	---	None	Brief	Frequent
44: Fruitland-----	B	Jan-Dec	---	---	---	---	None	---	None
45: Gladel-----	D	Jan-Dec	---	---	---	---	None	---	None
Bond-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
46: Gladel, cool-----	D	Jan-Dec	---	---	---	---	None	---	None
Bond, cool-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
47: Gurley-----	C	Jan-Dec	---	---	---	---	None	---	None
48: Gurley-----	C	Jan-Dec	---	---	---	---	None	---	None
Skein-----	D	Jan-Dec	---	---	---	---	None	---	None
49: Gypsiorthids-----	B	Jan-Dec	---	---	---	---	None	---	None
50: Gypsum land-----	C	Jan-Dec	---	---	---	---	None	---	None
51: Haplaquolls-----	D	January	---	---	---	---	None	Brief	Frequent
		February	---	---	---	---	None	Brief	Frequent
		March	---	---	---	---	None	Brief	Frequent
		April	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		May	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		June	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		July	1.5-3.0	>6.0	---	---	None	---	None
		August	1.5-3.0	>6.0	---	---	None	---	None
52: Killpack-----	C	Jan-Dec	---	---	---	---	None	---	None
Deaver-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<u>Ft</u>	<u>Ft</u>	<u>Ft</u>				
53: Leaps-----	C	Jan-Dec	---	---	---	---	None	---	None
Hofly-----	C	Jan-Dec	---	---	---	---	None	---	None
54: Leaps-----	C	Jan-Dec	---	---	---	---	None	---	None
Tellura-----	C	Jan-Dec	---	---	---	---	None	---	None
55: Lillylands-----	C	Jan-Dec	---	---	---	---	None	---	None
56: Mikim-----	B	March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
57: Minchey-----	B	Jan-Dec	---	---	---	---	None	---	None
58: Mitch-----	C	March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	2.0-4.0	>6.0	---	---	None	Brief	Rare
		June	2.0-4.0	>6.0	---	---	None	Brief	Rare
59: Mivida-----	B	Jan-Dec	---	---	---	---	None	---	None
60: Monogram-----	B	Jan-Dec	---	---	---	---	None	---	None
61: Monticello-----	B	Jan-Dec	---	---	---	---	None	---	None
Witt-----	B	Jan-Dec	---	---	---	---	None	---	None
62: Monticello-----	B	Jan-Dec	---	---	---	---	None	---	None
Witt-----	B	Jan-Dec	---	---	---	---	None	---	None
63: Monticello-----	B	Jan-Dec	---	---	---	---	None	---	None
Witt-----	B	Jan-Dec	---	---	---	---	None	---	None
64: Narraguinnep, moist-----	D	Jan-Dec	---	---	---	---	None	---	None
65: Narraguinnep-----	D	Jan-Dec	---	---	---	---	None	---	None
Dapoin-----	C	Jan-Dec	---	---	---	---	None	---	None
66: Nortez-----	C	Jan-Dec	---	---	---	---	None	---	None
67: Nortez-----	C	Jan-Dec	---	---	---	---	None	---	None
68: Nortez-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<u>Ft</u>	<u>Ft</u>	<u>Ft</u>				
68: Acree-----	C	Jan-Dec	---	---	---	---	None	---	None
69: Nortez-----	C	Jan-Dec	---	---	---	---	None	---	None
Fivepine-----	D	Jan-Dec	---	---	---	---	None	---	None
70: Nunemaker-----	D	Jan-Dec	---	---	---	---	None	---	None
71: Nyswonger-----	D	March	---	---	---	---	None	Brief	Rare
		April	3.5-4.0	>6.0	---	---	None	Brief	Rare
		May	3.5-4.0	>6.0	---	---	None	Brief	Rare
		June	3.5-4.0	>6.0	---	---	None	Brief	Rare
72: Pagoda-----	C	Jan-Dec	---	---	---	---	None	---	None
Coulterg-----	B	Jan-Dec	---	---	---	---	None	---	None
Cabba-----	D	Jan-Dec	---	---	---	---	None	---	None
73: Paradox-----	B	Jan-Dec	---	---	---	---	None	---	None
74: Persayo-----	D	Jan-Dec	---	---	---	---	None	---	None
Chipeta-----	D	Jan-Dec	---	---	---	---	None	---	None
75: Pinon, cool-----	D	Jan-Dec	---	---	---	---	None	---	None
Bowdish, cool-----	C	Jan-Dec	---	---	---	---	None	---	None
Progresso, cool-----	C	Jan-Dec	---	---	---	---	None	---	None
76: Pinon-----	D	Jan-Dec	---	---	---	---	None	---	None
Bowdish-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
77: Pinon-----	D	Jan-Dec	---	---	---	---	None	---	None
Progresso-----	C	Jan-Dec	---	---	---	---	None	---	None
78: Pinon-----	D	Jan-Dec	---	---	---	---	None	---	None
Ustic Torriorthents-----	C	Jan-Dec	---	---	---	---	None	---	None
79: Pojoaque-----	B	Jan-Dec	---	---	---	---	None	---	None
Chilton-----	B	Jan-Dec	---	---	---	---	None	---	None
80: Progresso-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<u>Ft</u>	<u>Ft</u>	<u>Ft</u>				
81: Progresso-----	C	Jan-Dec	---	---	---	---	None	---	None
82: Progresso-----	C	Jan-Dec	---	---	---	---	None	---	None
83: Pulpit-----	C	Jan-Dec	---	---	---	---	None	---	None
Bond, cool-----	D	Jan-Dec	---	---	---	---	None	---	None
84: Radersburg-----	B	Jan-Dec	---	---	---	---	None	---	None
85: Radersburg-----	B	Jan-Dec	---	---	---	---	None	---	None
86: Redlands-----	B	Jan-Dec	---	---	---	---	None	---	None
87: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
88: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Orthents-----	B	Jan-Dec	---	---	---	---	None	---	None
89: Ryman, dry-----	C	Jan-Dec	---	---	---	---	None	---	None
90: Ryman, warm-----	C	Jan-Dec	---	---	---	---	None	---	None
91: Ryman-----	C	Jan-Dec	---	---	---	---	None	---	None
Adel, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
92: Sagedale-----	C	Jan-Dec	---	---	---	---	None	---	None
93: Sapeha-----	B	Jan-Dec	---	---	---	---	None	---	None
94: Seitz-----	C	Jan-Dec	---	---	---	---	None	---	None
95: Skein-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
96: Skisams-----	D	Jan-Dec	---	---	---	---	None	---	None
Bushvalley-----	D	Jan-Dec	---	---	---	---	None	---	None
Cryborolls, moderately deep-----	C	Jan-Dec	---	---	---	---	None	---	None
97: Skisams-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water features--continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<u>Ft</u>	<u>Ft</u>	<u>Ft</u>				
97: Cryoborolls-----	C	Jan-Dec	---	---	---	---	None	---	None
98: Specie-----	B	Jan-Dec	---	---	---	---	None	---	None
99: Specie, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
100: Spectacle-----	C	Jan-Dec	---	---	---	---	None	---	None
Kinesava-----	B	Jan-Dec	---	---	---	---	None	---	None
101: Tellura-----	C	Jan-Dec	---	---	---	---	None	---	None
Leaps-----	C	Jan-Dec	---	---	---	---	None	---	None
102: Typic Torriorthents-----	D	Jan-Dec	---	---	---	---	None	---	None
103: Ustic Torriorthents-----	C	Jan-Dec	---	---	---	---	None	---	None
Ustochreptic Calciorthids-	B	Jan-Dec	---	---	---	---	None	---	None
104: Vananda-----	D	Jan-Dec	---	---	---	---	None	---	None
105: Winnett-----	D	March April May June	---	---	---	---	None None None None	Brief Brief Brief Brief	Rare Rare Rare Rare
106: Winz-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
107: Witt, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
108: Wrayha-----	D	Jan-Dec	---	---	---	---	None	---	None
109: Zoltay-----	C	Jan-Dec	---	---	---	---	None	---	None
110: Zoltay-----	C	Jan-Dec	---	---	---	---	None	---	None
111: Zyme-----	D	Jan-Dec	---	---	---	---	None	---	None
Bodot-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
112: Water-----	---	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Soil features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
1: Abra-----	---	<u>In</u> ---	---	Low	Moderate	Low
2: Abra-----	---	---	---	Low	Moderate	Low
3: Abra-----	---	---	---	Low	Moderate	Low
4: Ackmen-----	---	---	---	Low	Moderate	Low
5: Acree-----	---	---	---	Low	High	Moderate
6: Acree-----	---	---	---	Low	High	Moderate
7: Acree-----	---	---	---	Low	High	Moderate
Zoltay-----	---	---	---	Moderate	High	Low
Nortez-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
8: Adel-----	---	---	---	Moderate	Moderate	Low
9: Adel, moist-----	---	---	---	Moderate	Moderate	Low
10: Aquolls-----	---	---	---	High	Moderate	Low
11: Badland-----	Bedrock (paralithic)	0-3	Weakly cemented	None	---	---
12: Baird Hollow-----	---	---	---	Moderate	Moderate	Low
Nordicol-----	---	---	---	Moderate	Moderate	Low
Ryman-----	---	---	---	Low	Moderate	Low
13: Barkelaw-----	---	---	---	Low	High	Low
Emmons-----	---	---	---	Moderate	High	Low
14: Barx-----	---	---	---	Low	High	Moderate
15: Barx-----	---	---	---	Low	High	Moderate
16: Barx-----	---	---	---	Low	High	Moderate
17: Barx-----	---	---	---	Low	High	Moderate

Table 20.--Soil features--continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
17: Progresso-----	Bedrock (lithic)	<u>In</u> 20-40	Indurated	Low	Moderate	Low
18: Begay-----	---	---	---	Low	High	Moderate
19: Beje-----	Bedrock (lithic)	10-20	Indurated	Moderate	Moderate	Low
20: Billings-----	---	---	---	Low	High	High
21: Billings, moist-----	---	---	---	Low	High	High
22: Bodot, dry-----	Bedrock (paralithic)	20-40	Weakly cemented	Low	High	Moderate
23: Bodot, dry-----	Bedrock (paralithic)	20-40	Weakly cemented	Low	High	Low
Ustic Torriorthents----	Bedrock (lithic)	10-80	Indurated	Low	Moderate	Low
24: Bodot, dry-----	Bedrock (paralithic)	20-40	Weakly cemented	Low	High	Moderate
Zyme, dry-----	Bedrock (paralithic)	10-20	Weakly cemented	Low	High	Low
25: Bond-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Progresso-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
26: Borolls-----	Bedrock (paralithic)	15-80	Weakly cemented	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
27: Burnac-----	---	---	---	Moderate	Moderate	Low
Delson-----	---	---	---	Low	Moderate	Low
28: Burnac-----	---	---	---	Moderate	Moderate	Low
Delson-----	---	---	---	Low	Moderate	Low
Falcon-----	Bedrock (lithic)	10-20	Indurated	Low	Low	Low
29: Bushvalley-----	Bedrock (lithic)	10-20	Indurated	Moderate	Moderate	Moderate
Nordicol Variant-----	Bedrock (lithic)	20-40	Indurated	Moderate	Moderate	Low
30: Callan-----	---	---	---	Moderate	High	Low

Table 20.--Soil features--continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
31: Callan-----	---	---	---	Moderate	High	Low
32: Callan-----	---	---	---	Moderate	High	Low
33: Callan-----	---	---	---	Moderate	High	Low
Gurley-----	Bedrock (lithic)	20-40	Indurated	Moderate	High	Low
34: Ceek-----	---	---	---	Low	High	Low
35: Clapper-----	---	---	---	Low	Moderate	Low
36: Clapper-----	---	---	---	Low	Moderate	Low
Ustic Torriorthents----	Bedrock (lithic)	10-80	Indurated	Low	Moderate	Low
37: Cryaquolls-----	---	---	---	High	Moderate	Moderate
38: Evanston-----	---	---	---	Low	Moderate	Low
39: Falcon-----	Bedrock (lithic)	10-20	Indurated	Low	Low	Low
Burnac-----	---	---	---	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
40: Farb-----	Bedrock (lithic)	8-15	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
41: Fivepine-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Nortez-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
42: Fivepine-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Pino-----	Bedrock (lithic)	20-40	Indurated	Low	High	Low
43: Fluvaquents-----	---	---	---	High	High	Moderate
44: Fruitland-----	---	---	---	Low	High	Low
45: Gladel-----	Bedrock (lithic)	5-15	Indurated	Low	High	Low
Bond-----	Bedrock (lithic)	6-20	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---

Table 20.--Soil features--continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
46:		<u>In</u>				
Gladel, cool-----	Bedrock (lithic)	5-15	Indurated	Low	High	Low
Bond, cool-----	Bedrock (lithic)	6-20	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
47:						
Gurley-----	Bedrock (lithic)	20-40	Indurated	Moderate	High	Low
48:						
Gurley-----	Bedrock (lithic)	20-40	Indurated	Moderate	High	Low
Skein-----	Bedrock (lithic)	10-20	Indurated	Low	High	Low
49:						
Gypsiorthids-----	Bedrock (paralithic)	20-80	Weakly cemented	Low	High	High
50:						
Gypsum land-----	---	---	---	None	High	High
51:						
Haplaquolls-----	Bedrock (lithic)	20-80	Indurated	High	Moderate	Low
52:						
Killpack-----	Bedrock (paralithic)	20-40	Weakly cemented	High	High	High
Deaver-----	Bedrock (paralithic)	20-40	Weakly cemented	Low	High	High
53:						
Leaps-----	---	---	---	Low	Moderate	Moderate
Hofly-----	---	---	---	Low	Moderate	Low
54:						
Leaps-----	---	---	---	Low	Moderate	Moderate
Tellura-----	---	---	---	Moderate	Moderate	Low
55:						
Lillylands-----	---	---	---	Low	Moderate	Low
56:						
Mikim-----	---	---	---	Low	High	Low
57:						
Minchey-----	---	---	---	Moderate	High	Moderate
58:						
Mitch-----	---	---	---	Moderate	Moderate	Low
59:						
Mivida-----	---	---	---	Low	High	Moderate
60:						
Monogram-----	---	---	---	Low	High	Low
61:						
Monticello-----	---	---	---	Low	Moderate	Low
Witt-----	---	---	---	Moderate	High	Low

Table 20.--Soil features--continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
62:		<u>In</u>				
Monticello-----	---	---	---	Low	Moderate	Low
Witt-----	---	---	---	Moderate	High	Low
63:						
Monticello-----	---	---	---	Low	Moderate	Low
Witt-----	---	---	---	Moderate	High	Low
64:						
Narraguinnep, moist----	---	---	---	Low	High	Low
65:						
Narraguinnep-----	---	---	---	Low	High	Low
Dapoin-----	---	---	---	Low	High	Low
66:						
Nortez-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
67:						
Nortez-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
68:						
Nortez-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
Acree-----	---	---	---	Low	High	Moderate
69:						
Nortez-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
Fivepine-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
70:						
Nunemaker-----	---	---	---	Low	High	Low
71:						
Nyswonger-----	---	---	---	Low	High	Low
72:						
Pagoda-----	---	---	---	Low	High	Low
Coulterg-----	---	---	---	Moderate	High	High
Cabba-----	Bedrock (paralithic)	10-20	Weakly cemented	Moderate	High	Low
73:						
Paradox-----	---	---	---	Low	High	Low
74:						
Persayo-----	Bedrock (paralithic)	10-20	Weakly cemented	Low	High	Moderate
Chipeta-----	Bedrock (paralithic)	10-20	Weakly cemented	Low	High	High
75:						
Pinon, cool-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Bowdish, cool-----	Bedrock (lithic)	20-40	Indurated	Low	High	Moderate
Progresso, cool-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low

Table 20.--Soil features--continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
76:		<u>In</u>				
Pinon-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Bowdish-----	Bedrock (lithic)	20-40	Indurated	Low	High	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
77:						
Pinon-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Progresso-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
78:						
Pinon-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
Ustic Torriorthents----	Bedrock (lithic)	10-80	Indurated	Low	Moderate	Low
79:						
Pojoaque-----	---	---	---	Low	Moderate	Low
Chilton-----	---	---	---	Low	Moderate	Low
80:						
Progresso-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
81:						
Progresso-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
82:						
Progresso-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
83:						
Pulpit-----	Bedrock (lithic)	20-40	Indurated	Low	Moderate	Low
Bond, cool-----	Bedrock (lithic)	10-20	Indurated	Low	Moderate	Low
84:						
Radersburg-----	---	---	---	Low	Moderate	Low
85:						
Radersburg-----	---	---	---	Low	Moderate	Low
86:						
Redlands-----	---	---	---	Low	High	Low
87:						
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
88:						
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
Orthents-----	Bedrock (paralithic)	10-80	Weakly cemented	Low	Moderate	Low
89:						
Ryman, dry-----	---	---	---	Low	Moderate	Low
90:						
Ryman, warm-----	---	---	---	Low	Moderate	Low
91:						
Ryman-----	---	---	---	Low	Moderate	Low
Adel, moist-----	---	---	---	Moderate	Moderate	Low

Table 20.--Soil features--continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
92: Sagedale-----	---	---	---	Low	High	Low
93: Sapeha-----	---	---	---	Low	Moderate	Low
94: Seitz-----	---	---	---	Moderate	Moderate	Low
95: Skein-----	Bedrock (lithic)	10-20	Indurated	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
96: Skisams-----	Bedrock (lithic)	8-20	Indurated	Moderate	High	Low
Bushvalley-----	Bedrock (lithic)	10-20	Indurated	Moderate	Moderate	Moderate
Cryoborolls, moderately deep-----	Bedrock (lithic)	20-40	Indurated	Moderate	Moderate	Low
97: Skisams-----	Bedrock (lithic)	8-20	Indurated	Moderate	High	Low
Cryoborolls-----	Bedrock (lithic)	20-40	Indurated	Moderate	Moderate	Low
98: Specie-----	---	---	---	Moderate	High	Low
99: Specie, moist-----	---	---	---	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	None	---	---
100: Spectacle-----	---	---	---	Low	Moderate	Low
Kinesava-----	---	---	---	Low	Moderate	Low
101: Tellura-----	---	---	---	Moderate	Moderate	Low
Leaps-----	---	---	---	Low	Moderate	Moderate
102: Typic Torriorthents----	Bedrock (paralithic)	2-40	Weakly cemented	Low	Moderate	Low
103: Ustic Torriorthents----	---	---	---	Low	Moderate	Low
Ustochreptic Calciorthids-----	---	---	---	Low	Moderate	Low
104: Vananda-----	---	---	---	Low	High	High
105: Winnett-----	---	---	---	Low	High	Low
106: Winz-----	---	---	---	Moderate	Moderate	Low



Table 21.--Classification of the soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Abra-----	Fine-loamy, mixed, mesic Ustollic Calciorrhids
Ackmen-----	Fine-silty, mixed, mesic Cumulic Haplustolls
Acree-----	Fine, montmorillonitic Typic Argiborolls
Adel-----	Fine-loamy, mixed Pachic Cryoborolls
Aquolls-----	Aquolls
Baird Hollow-----	Clayey-skeletal, montmorillonitic Cryic Paleborolls
Barkeley-----	Loamy-skeletal, mixed Borollic Calciorrhids
Barx-----	Fine-loamy, mixed, mesic Ustollic Haplargids
Begay-----	Coarse-loamy, mixed, mesic Ustollic Camborrhids
Beje-----	Loamy, mixed Lithic Argiborolls
Billings-----	Fine-silty, mixed (calcareous), mesic Typic Torrifluvents
Bodot-----	Fine, montmorillonitic (calcareous), mesic Ustic Torriorthents
Bond-----	Loamy, mixed, mesic Lithic Ustollic Haplargids
Borolls-----	Borolls
Bowdish-----	Fine-loamy, mixed, mesic Ustollic Calciorrhids
Burnac-----	Fine, montmorillonitic Mollic Eutroboralfs
Bushvalley-----	Loamy-skeletal, mixed Argic Lithic Cryoborolls
Cabba-----	Loamy, mixed (calcareous), frigid, shallow Typic Ustorthents
Callan-----	Fine, mixed Aridic Argiborolls
Ceek-----	Clayey-skeletal, montmorillonitic Mollic Eutroboralfs
Chilton-----	Loamy-skeletal, mixed (calcareous), mesic Ustic Torriorthents
Chipeta-----	Clayey, mixed (calcareous), mesic, shallow Typic Torriorthents
Clapper-----	Loamy-skeletal, mixed, mesic Ustollic Calciorrhids
Coulterg-----	Fine-loamy, mixed Typic Haploborolls
Cryaquolls-----	Cryaquolls
Cryoborolls-----	Cryoborolls
Dapoin-----	Fine, montmorillonitic Typic Haploborolls
Deaver-----	Fine, montmorillonitic (calcareous), mesic Typic Torriorthents
Delson-----	Fine, montmorillonitic Typic Argiborolls
Emmons-----	Fine-loamy, mixed Aridic Calciborolls
*Evanston-----	Fine-loamy, mixed Aridic Argiborolls
Falcon-----	Loamy, mixed Lithic Haploborolls
Farb-----	Loamy, mixed (calcareous), mesic Lithic Torriorthents
Fivepine-----	Clayey, montmorillonitic Lithic Argiborolls
Fluvaquents-----	Fluvaquents
Fruitland-----	Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents
Gladel-----	Loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents
Gurley-----	Fine, mixed Aridic Argiborolls
Gypsiorthids-----	Gypsiorthids
Haplaquolls-----	Haplaquolls
Hofly-----	Fine, montmorillonitic Pachic Cryoborolls
Killpack-----	Fine-silty, mixed (calcareous), mesic Typic Torriorthents
Kinesava-----	Fine, mixed Pachic Paleborolls
Leaps-----	Fine, montmorillonitic Typic Cryoborolls
Lillylands-----	Fine, mixed Pachic Haploborolls
Mikim-----	Fine-loamy, mixed (calcareous), mesic Ustic Torriorthents
Minchey-----	Fine-loamy, mixed, mesic Typic Calciorrhids
Mitch-----	Fine-silty, mixed Cumulic Haploborolls
Mivida-----	Coarse-loamy, mixed, mesic Ustollic Calciorrhids
Monogram-----	Fine-silty, mixed, mesic Ustollic Haplargids
Monticello-----	Fine-silty, mixed, mesic Aridic Argiustolls
Narraguinnep-----	Fine, montmorillonitic Pachic Haploborolls
Nordicol-----	Loamy-skeletal, mixed Cryic Paleborolls
Nordicol Variant-----	Fine-loamy, mixed Cryic Pachic Paleborolls
Nortez-----	Fine, montmorillonitic Typic Argiborolls
Nunemaker-----	Fine, montmorillonitic Borollic Camborrhids
Nyswonger-----	Fine-loamy, mixed, mesic Torrifluventic Haplustolls
Orthents-----	Orthents
Pagoda-----	Fine, montmorillonitic Pachic Argiborolls
Paradox-----	Fine-loamy, mixed (calcareous), mesic Ustic Torriorthents
Persayo-----	Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents

Table 21.--Classification of the soils--continued

Soil name	Family or higher taxonomic class
Pino-----	Fine, mixed Typic Argiborolls
*Pinon-----	Loamy, mixed, mesic Lithic Ustollic Calciorthids
Pojoaque-----	Fine-loamy, mixed (calcareous), mesic Ustic Torriorthents
Progresso-----	Fine-loamy, mixed, mesic Ustollic Haplargids
Pulpit-----	Fine-silty, mixed, mesic Ustollic Haplargids
Radersburg-----	Clayey-skeletal, mixed Aridic Argiborolls
Redlands-----	Fine-loamy, mixed, mesic Typic Haplargids
Ryman-----	Fine, mixed Pachic Cryoborolls
Sagedale-----	Fine, montmorillonitic, frigid Typic Ustochrepts
Sapeha-----	Clayey-skeletal, mixed Typic Haploborolls
Seitz-----	Clayey-skeletal, montmorillonitic Typic Cryoboralfs
Skein-----	Loamy, mixed Borollic Lithic Calciorthids
Skisams-----	Loamy, mixed Lithic Cryoborolls
Specie-----	Loamy-skeletal, mixed (calcareous), frigid Typic Ustorthents
Spectacle-----	Clayey-skeletal, mixed Pachic Argiborolls
Tellura-----	Clayey-skeletal, montmorillonitic Argic Cryoborolls
Typic Torriorthents-----	Typic Torriorthents
Ustic Torriorthents-----	Ustic Torriorthents
Ustochreptic Calciorthids-----	Ustochreptic Calciorthids
Vananda-----	Fine, montmorillonitic (calcareous), mesic Ustic Torriorthents
Winnett-----	Fine, montmorillonitic, mesic Ustollic Natrargids
Winz-----	Clayey-skeletal, montmorillonitic Mollic Cryoboralfs
Witt-----	Fine-silty, mixed, mesic Ustollic Haplargids
Wrayha-----	Fine, montmorillonitic (calcareous), frigid Ustic Torriorthents
Zoltay-----	Fine, montmorillonitic Pachic Argiborolls
Zyme-----	Clayey, montmorillonitic (calcareous), mesic, shallow Ustic Torriorthents

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