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

Soil Survey of Humboldt County, Nevada, West Part

Part I

How To Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area; descriptions of the detailed soil map units and soil series in the area; and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. Part III includes the maps.

The **detailed soil map units** follow the general information about the survey area. These map units 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**, note the number of the map sheet, and turn to that sheet.

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

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

A **State Soil Geographic Database (STATSGO)** is available for this survey area. This database 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 database can be used for multi-county planning, and map output can be tailored for a specific use. More information about the State Soil Geographic Database for this survey area, or any portion of Nevada, is available at the local office of the Natural Resources Conservation Service, and on the internet at http://www.ftw.nrcs.usda.gov/stat_data.html.

Some standards or values may change as more information is collected and analyzed. Thus, as older published interpretive information becomes outdated, new interpretive data must be generated and tailored to local conditions. This information is added to the State Subset of the **National Soil Information System (NASIS)** database as needed. Map Unit Records are the soil survey specific data and interpretations in the state soil survey database.

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 has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1990. Soil names and descriptions were approved in 1993. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1990. This survey was made cooperatively by the Natural Resources Conservation Service and the U.S. Department of Interior, Bureau of Land Management, Bureau of Indian Affairs, and University of Nevada Agricultural Experiment Station. It is part of the technical assistance furnished to the Quinn River Conservation District.

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

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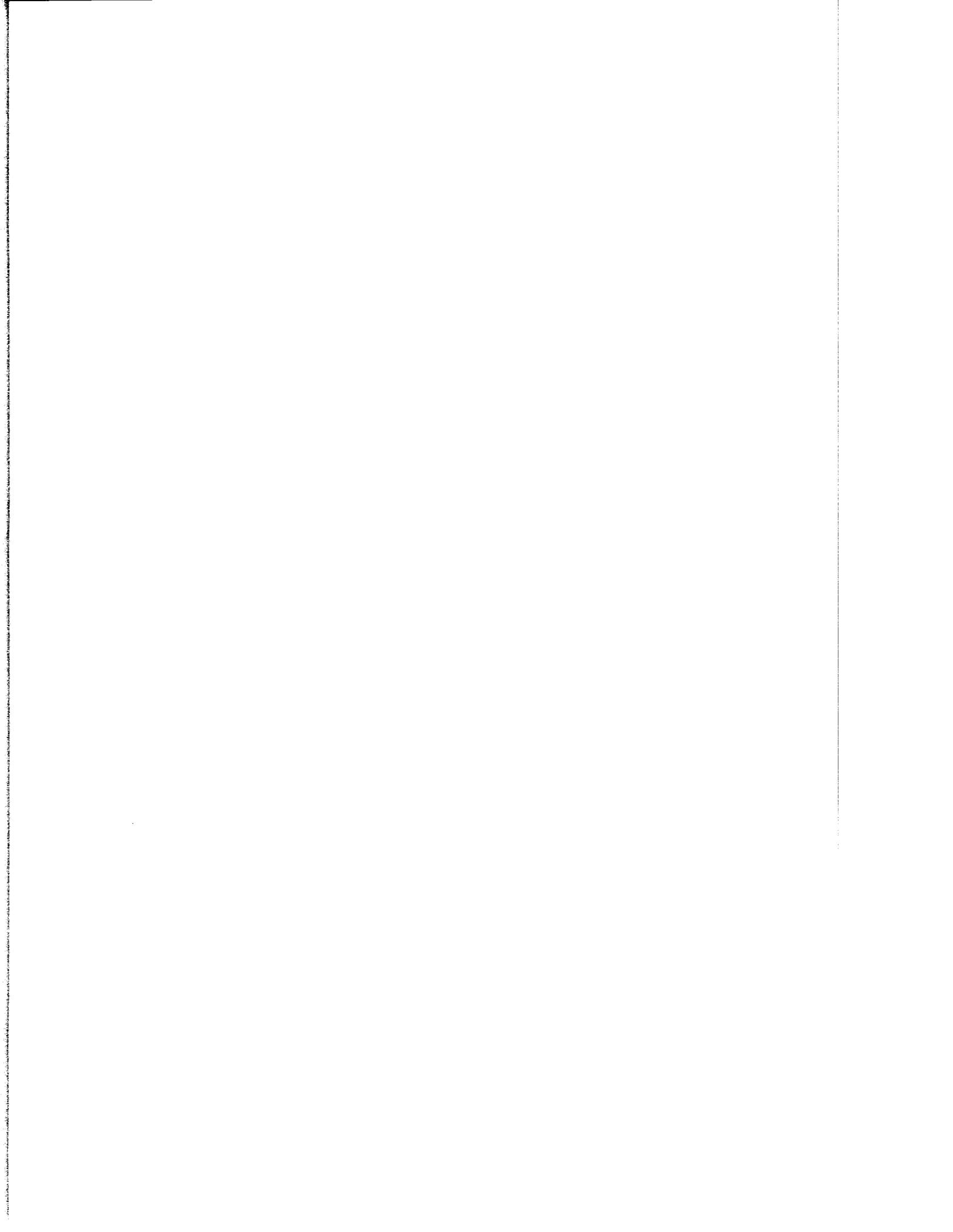
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1/ Unit was mapped at high intensity for detailed planning for farming, ranching or urban development.

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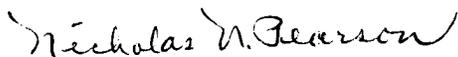
Foreword

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

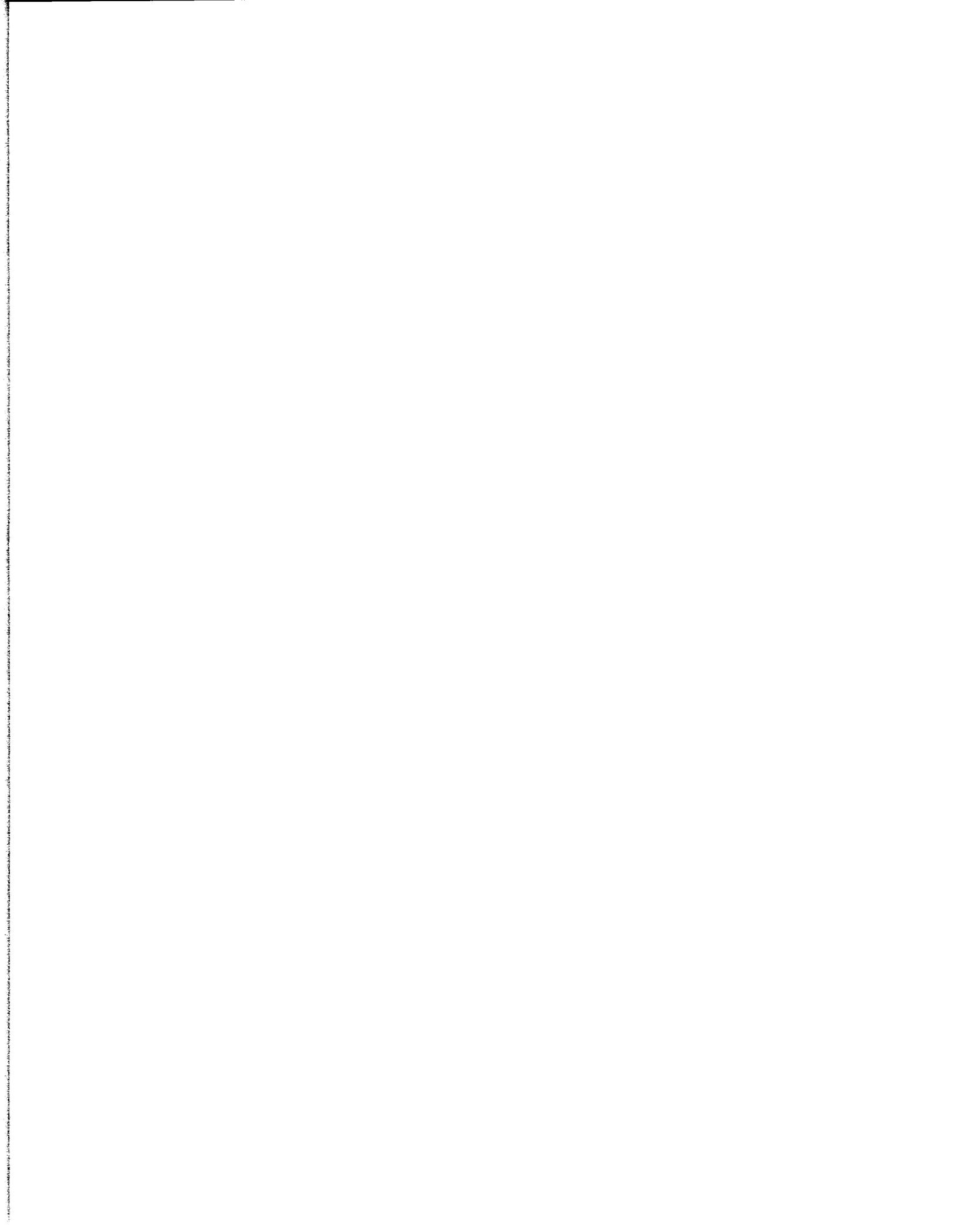
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use 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.

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 Nevada Cooperative Extension.



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Soil Survey of Humboldt County, Nevada, West Part

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

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 or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To

construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size, and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (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.

This survey area was mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals. The narrowly defined units are indicated by a footnote in the legend for the detailed soil maps. The detail of mapping was selected to meet the anticipated long-term use of the survey, and the map units were designed to meet the needs for that use.

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 area.

Humboldt County, Nevada, West Part has a total land area of about 1,935,580 acres, or 3,024 square miles. Denio is the only inhabited community in the survey area.

The survey area is located in the northwestern portion of the Basin and Range physiographic province. Numerous mountain ranges, volcanic plateaus, and intermountain valleys dominate the landscape. Prominent upland landforms include the Calico Mountains, Black Rock

Range, Jackson Mountains, Pine Forest Range, and Bilk Creek Mountains. The Black Rock Desert is the most notable valley. Elevations range from about 3,800 feet in the Black Rock Desert to about 9,400 feet in the Pine Forest Range.

General Nature of the Survey Area

This section gives general information about the survey area. It briefly discusses history; industries, transportation, and recreation; physiography, drainage, and geology; and climate.

History

This area was originally inhabited by the Northern Paiute Indian Nation when the first explorers on record arrived. Peter Ogden, a fur trapper, entered the area near the present community of Denio in 1828 and proceeded south and southeast to the Humboldt River. In 1846 the Applegate-Lassen immigrant trail was established across the Black Rock Desert, through Mud Meadows and Fly Canyon.

In the 1860's the discovery of gold and silver brought many miners to the area. The following communities: Ashdown, Hardin City, and Varyville flourished and died within a few years. Along with the miners came a demand for food and other agricultural products. Ranchers and farmers stayed in the area and established more permanent settlements.

Recently, ranch consolidation has resulted in fewer owners controlling larger areas of land. Modern irrigation technology has brought agricultural development to some lands south of Denio that previously were not farmed.

Industry, Transportation, and Recreation

The main industries in the area are ranching and mining.

The ranches are dominantly cow and calf operations, and the current year's crop generally is sold in the fall and exported. There are also a few bands of sheep in the area.

Interest in mining has recently increased. In 1986 an open pit gold mine was opened at Sulphur. Other mines operate intermittently and produce mainly gold.

Most of the survey area is accessible by dirt roads or off-road vehicle trails. The principal highway is State Route 140 which runs north to the Oregon border through the northeastern part of the survey area. Soldier Meadows Road runs north along the east side of the Calico Mountains to Summit Lake and to Denio. Maintained roads run along the east and west sides of the Jackson

Mountains. A farm to market road runs from Quinn River Crossing, through the Leonard Creek Ranch to the Paiute Meadows Ranch.

Humboldt County provides opportunities for diverse types of recreation. Fishing, boating, hunting, overnight camping, bird watching, and rock hounding are some of the many recreational activities that are available.

Several small streams, lakes, and reservoirs provide fishing opportunities. Camping is available at Little Onion Reservoir, Knot Creek Reservoir, and Blue Lake. Hunting opportunities abound for big game species such as mule deer and pronghorn antelope and bird species such as chukar partridge and sage grouse. Due to the variety of the local geology, rock hounding may be pursued in many locations throughout Humboldt County.

Physiography, Drainage, and Geology

Important physiographic units in the survey area include the Jackson Mountains, Pine Forest Range, Calico Mountains, Black Rock Range, and the Bilk Creek Mountains; major valleys are the Desert Valley, and the Black Rock Desert. In the northwest part of the area, plateaus or tablelands dominate the landscape. Elevations range from about 3,900 feet in the Black Rock Desert to 9,458 feet at Duffer Peak in the Pine Forest Range.

Most valleys in the survey area are internally drained. In such valleys, or bolsons, surface drainage is restricted by the bounding mountains and by lower hills or alluvial divides. The valley floor in this type of drainage basin is ephemerally flooded. The creeks and washes draining the area are often intermittent or ephemeral. Bolsons in the survey area are the Black Rock Desert, Continental Lake Valley, and Desert Valley. The Quinn River flows into the survey area from the east, draining a watershed that includes the Trout Creek Mountains and the Santa Rosa Range. The flow of the Quinn River terminates in the Black Rock Desert.

Much of the irrigation water in western Humboldt County comes from wells. Surface water from streams and springs are locally important sources of irrigation water. Ground water in lower Desert Valley and the Black Rock Desert region is generally of poor quality because of a high content of dissolved salt. There are few wells in the survey area. Depth to water is generally deep except near playas. Livestock and wildlife water is primarily at the higher elevations where springs and ephemeral streams are common. Water quality of the springs is usually good. Drilled wells comprise the major source of water for domestic use.

The geology of the survey area is variable and complex. Most outcrops of Permian age rocks in the area consists of intermediate to basic volcanic rocks. These are known as

the Happy Creek Group. Typical soils that formed in parent material derived from these rocks are Skedaddle and Sumya soils.

The metamorphic rocks in the area consist of phyllite, slate, and quartzite. They are Triassic and Jurassic in age. Wesfil and Sojur soils formed in material derived from these rocks.

The intrusive rocks in this area are mostly granodiorite of Cretaceous and Tertiary age. Typical soils that formed in this material include Acrelane, Ola, and Aycab soils.

The most extensive rocks in the area are volcanic rocks of Tertiary age. They include volcanic ash, tuff, rhyolite, andesite, and basalt. Typical soils that formed in these materials are Wylo, Bucklake, and Devada soils.

Many alluvial fans and fan piedmonts in the area are made up of older Quaternary alluvium. This alluvium is parent material for such soils as Deppy, Tumtum, and Oxcorel soils.

The younger alluvium includes Pleistocene lake sediments and shore line deposits of Lake Lahontan. Typical soils that formed in this material are Bluewing, Boton, and Mazuma soils.

Climate

In Humboldt County, summers are warm, especially at lower elevations, and winters are cold. At lower elevations, precipitation is normally light during all months of the year, and the land is mainly used for livestock grazing. At higher elevations, precipitation is much greater and snow accumulates to considerable depths. Some of the snowmelt is used to irrigate crops in adjacent valleys.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Denio Junction and Leonard Creek Ranch 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 length of the growing season.

In winter, the average temperature is 32 degrees at Leonard Creek Ranch and 33 degrees at Denio Junction and the average daily minimum temperature is 22 degrees at Leonard Creek Ranch and 21 degrees at Denio Junction. The lowest temperature on record, which occurred at Denio Junction on February 28, 1986 is -25 degrees. In summer the average temperature is 69 degrees at Denio Junction and 71 degrees at Leonard Creek Ranch, and the average daily maximum temperature is 88 degrees at Denio Junction and Leonard Creek Ranch. The highest recorded temperature, which occurred at Denio Junction is 107 degrees F.

Growing degree days, shown in Table 1, are equivalent to "heat units". Beginning in the spring, growing degree

days accumulate by the amount the average temperature 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 of spring and the first freeze of fall.

The total annual precipitation is about 9.1 inches at Denio Junction and 8.5 inches at Leonard Creek Ranch. Of this 3.1 inches, or 34 percent, falls in May through September at Denio Junction. At Leonard Creek Ranch, 2.7 inches, or 31 percent, falls during that period. The growing season for most crops is within this period. In 2 years out of 10, the rainfall in May through September is less than 1.1 inches at Denio Junction and .7 inches at Leonard Creek Ranch. The heaviest 1-day rainfall during the period of record was 2.0 inches on November 7, 1973.

Average seasonal snowfall is 22.5 inches. The greatest snow depth in Denio Junction at any one time during the period of record was 12 inches. On the average, 12 days at Denio Junction and 20 days at Leonard Creek Ranch in a year will have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was 10 inches.

The average relative humidity, based on the nearest available data from Winnemucca, Nevada, in mid-afternoon is about 33 percent. Humidity is higher at night, and the average at dawn is about 64 percent. The sun shines 84 percent of the time in summer and 56 percent in winter. The prevailing wind is from the west. Average windspeed at Winnemucca is highest, 8.7 miles per hour, in April.

Detailed Soil Map Units

The map units on the detailed maps in Part III of this publication 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. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

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

Most included soils have properties and behavioral characteristics 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, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. 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 included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit. The principal hazards and limitations to be considered in planning for specific uses are identified in the tables and narrative in Part II.

Kinds of Map Units

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, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Some 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, *Wendane silt loam, 0 to 2 percent slopes, rarely flooded* is a phase of the *Wendane* series.

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

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

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

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

Acreage and Extent

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of 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.

Headings and Introductory Phrases

In the map unit descriptions that follow, a semi-tabular format is used. In this format the major headings are centered in the column (for example, *Composition*). They identify the information grouped directly below them. Introducing each item of information under the centered heading is a term or phrase (for example, *Landscape*) that identifies or describes the information. Many of the centered headings and introductory terms are self-explanatory; however, some of them need further explanation and are defined in the Glossary. Explanations of the headings and introductory phrases are provided in the following paragraphs, generally in the order in which they are used in the map unit descriptions.

Map Unit Setting is given for the entire map unit. This section gives the position on the landscape. The landscape positions given for the entire map unit generally are broader than those given for each component. Elevation and climate information typical of the entire map unit are provided.

Composition is given for the components (soils or miscellaneous areas) identified in the name of the map unit as well as for the contrasting inclusions. *Contrasting Inclusions* are areas of components that differ

significantly in use and management from the soils or miscellaneous areas for which the map unit is named. As was explained earlier, inclusions can either be *similar* or *contrasting*. Note that in the *Composition* section a single percentage is provided for a named soil and its similar inclusions because their use and management are similar.

Component Description lists the characteristics of the major components. These include landform, parent material, typical vegetation, a brief description of a typical profile, slope, drainage class, and other soil property or soil quality data. *Typical Vegetation* lists the common plants growing on each soil at the present time. The present vegetation may be similar to the potential native plant community, but in some areas it consists of other plants, either cultivated or wild, that dominate the soils in the map unit.

Interpretive Groups provides a list of land capability classification and ecological site assignments for the component. *Ecological Site* is the assigned rangeland or grazed forest land ecological site that identifies a unique potential native plant community. The plant species and production typical of each ecological site are listed by map unit in the section "Rangeland Plants and Woodland Understory." Additional information about these sites is provided under the heading "Rangeland and Grazeable Woodland Resource Management" in Part II of this publication. Further information also can be obtained from the local office of the Natural Resources Conservation Service.

Contrasting Inclusions lists information about the small areas identified as contrasting soils or miscellaneous land types. Information is similar to that provided for major components, but is less detailed.

Map Unit Descriptions

102--Clever very stony sandy loam, 2 to 8 percent slopes

Map Unit Setting

MLRA: 27
Landscape: Fan piedmont
Elevation: 4,200 to 5,000 feet
Precipitation: 4 to 6 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Clever very stony sandy loam, 2 to 8 percent slopes--
90 percent
Bluewing very gravelly loamy sand, 2 to 4 percent
slopes--5 percent
Isolde fine sand, 2 to 8 percent slopes--5 percent

Component Description**Cleaver and similar soils**

Landform: Fan remnants
 Parent material: Alluvium derived from volcanic rocks
 Typical vegetation: Shadscale, Bailey greasewood,
 Indian ricegrass

Typical profile:

Layer 1--0 to 8 inches; very stony sandy loam
 Layer 2--8 to 13 inches; gravelly clay loam
 Layer 3--13 to 23 inches; indurated

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 10 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 1.2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions**Bluewing and similar soils**

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Spiny hopsage, littleleaf horsebrush,
 rubber rabbitbrush
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Isolde and similar soils

Composition: 0 to 5 percent
 Landform: Dunes
 Typical vegetation: Indian ricegrass, black greasewood
 Ecological site: 027XY016NV--Sodic Dunes

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:

"Range" section
 "Crops and Pasture" section

"Engineering" and "Soil Properties" sections

104--Anawalt-Devada-Tuffo complex**Map Unit Setting**

MLRA: 23
 Landscape: Plateau
 Elevation: 5,700 to 6,000 feet
 Precipitation: 8 to 12 inches
 Air temperature: 44 to 49 degrees Fahrenheit
 Frost-free period: 80 to 110 days

Composition

Anawalt very gravelly loam, 4 to 15 percent slopes--45
 percent
 Devada very stony loam, 4 to 15 percent slopes--25
 percent
 Tuffo fine sandy loam, 15 to 30 percent slopes--15
 percent
 Rock outcrop, 4 to 30 percent slopes--10 percent
 Softscrabble very stony loam, 4 to 15 percent slopes--3
 percent
 Puett very gravelly loam, 15 to 30 percent slopes--2
 percent

Component Description**Anawalt and similar soils**

Landform: Shoulders of plateaus
 Parent material: Colluvium derived from volcanic rocks
 over residuum weathered from volcanic rocks
 Typical vegetation: Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 6 inches; very gravelly loam
 Layer 2--6 to 15 inches; gravelly clay
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 12 to 20
 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY021NV--Scabland 10-14 P.Z.

Component Description

Devada and similar soils

Landform: Summits of plateaus
Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks
Typical vegetation: Low sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; very stony loam
Layer 2--5 to 19 inches; clay
Layer 3--19 to 29 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
Permeability class (root zone): Slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description

Tuffo and similar soils

Landform: Backslopes of plateaus
Parent material: Residuum weathered from tuff
Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, big sagebrush

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam
Layer 2--5 to 8 inches; very fine sandy loam
Layer 3--8 to 18 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 4 to 14 inches

Permeability class (root zone): Moderately rapid
Available water capacity: About 1.1 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 10 percent
Landform: Plateaus
Ecological site: None assigned

Softscrabble and similar soils

Composition: 0 to 3 percent
Landform: Footslopes of plateaus
Typical vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Puett and similar soils

Composition: 0 to 2 percent
Landform: Backslopes of plateaus
Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, desert needlegrass
Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

105--Goldrun-Alvodest complex

Map Unit Setting

MLRA: 24
Landscape: Semi-bolson
Elevation: 4,000 to 4,300 feet
Precipitation: 7 to 10 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 90 to 120 days

Composition

Goldrun fine sand, 4 to 15 percent slopes--55 percent

Alvodest silty clay loam, 0 to 2 percent slopes--30 percent
 Outerkirk sandy loam, 1 to 2 percent slopes--5 percent
 Playas, 0 to 1 percent slopes--5 percent
 Wendane silt loam, 0 to 2 percent slopes--5 percent

Component Description

Goldrun and similar soils

Landform: Basin floors
 Parent material: Volcanic ash and eolian sands
 Typical vegetation: Indian ricegrass, basin big sagebrush

Typical profile:

Layer 1--0 to 5 inches; fine sand
 Layer 2--5 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very low
 Permeability class (root zone): Rapid
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 024XY001NV--Dunes 6-10 P.Z.

Component Description

Alvodest and similar soils

Landform: Alluvial flats
 Parent material: Lacustrine deposits
 Typical vegetation: Black greasewood, basin wildrye

Typical profile:

Layer 1--0 to 4 inches; silty clay loam
 Layer 2--4 to 41 inches; silty clay
 Layer 3--41 to 60 inches; silty clay

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: High
 Permeability class (root zone): Slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches

Available water capacity: About 3 inches
 Present flooding: Rare
 Present ponding: Frequent
 Water table: Present
 Natural drainage class: Somewhat poorly drained

Interpretive Groups

Nonirrigated land capability: 7w
 Ecological site: 024XY011NV--Sodic Flat 6-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Outerkirk and similar soils

Composition: 0 to 5 percent
 Landform: Fan skirts
 Typical vegetation: Big sagebrush, basin wildrye, black greasewood
 Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Playas

Composition: 0 to 5 percent
 Landform: Playas
 Ecological site: None assigned

Wendane and similar soils

Composition: 0 to 5 percent
 Landform: Basin floors
 Typical vegetation: Black greasewood, alkali sacaton, basin wildrye
 Ecological site: 024XY007NV--Saline Bottom

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

106--Goldrun fine sand, 4 to 15 percent slopes

Map Unit Setting

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 4,300 feet
 Precipitation: 8 to 10 inches
 Air temperature: 46 to 50 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Goldrun fine sand, 4 to 15 percent slopes--90 percent
 Davey loamy fine sand, 2 to 8 percent slopes--5 percent
 Dun Glen very fine sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Goldrun and similar soils**

Landform: Basin floors
 Parent material: Volcanic ash and eolian sands
 Typical vegetation: Basin big sagebrush, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; fine sand
 Layer 2--5 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very low
 Permeability class (root zone): Rapid
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 024XY001NV--Dunes 6-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Davey and similar soils**

Composition: 0 to 5 percent
 Landform: Basin floors
 Typical vegetation: Big sagebrush, Indian ricegrass, other perennial forbs, needleandthread
 Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Dun Glen and similar soils

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

108--Anawalt-Oreneva complex**Map Unit Setting**

MLRA: 23
 Landscape: Plateau
 Elevation: 5,600 to 6,000 feet
 Precipitation: 8 to 10 inches
 Air temperature: 43 to 45 degrees Fahrenheit
 Frost-free period: 70 to 90 days

Composition

Anawalt very gravelly loam, 4 to 15 percent slopes--60 percent
 Oreneva gravelly loam, 4 to 15 percent slopes--25 percent
 Jaybee very gravelly sandy loam, 30 to 50 percent slopes--8 percent
 Rock outcrop, 8 to 50 percent slopes--7 percent

Component Description**Anawalt and similar soils**

Landform: Summits of plateaus
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 6 inches; very gravelly loam
 Layer 2--6 to 15 inches; gravelly clay
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY021NV--Scabland 10-14 P.Z.

Component Description**Orenea and similar soils**

Landform: Shoulders of plateaus
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 4 inches; gravelly loam
Layer 2--4 to 12 inches; loam
Layer 3--12 to 24 inches; very gravelly loam
Layer 4--24 to 34 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Permeability class (root zone): Moderately slow
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Jaybee and similar soils**

Composition: 0 to 8 percent
Landform: Backslopes of plateaus
Typical vegetation: Thurber needlegrass, Lahontan sagebrush
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Rock outcrop

Composition: 0 to 7 percent
Landform: Plateaus
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

110--Aycab-Tosp-Welch association**Map Unit Setting**

MLRA: 23
Landscape: Mountains
Elevation: 6,000 to 9,000 feet
Precipitation: 14 to 20 inches
Air temperature: 40 to 46 degrees Fahrenheit
Frost-free period: 50 to 75 days

Composition

Aycab very bouldery loamy coarse sand, 15 to 30 percent slopes--40 percent
Tosp bouldery loam, 15 to 30 percent slopes--30 percent
Welch loam, 0 to 4 percent slopes--15 percent
Alta extremely bouldery coarse sandy loam, 30 to 50 percent slopes--5 percent
Rodell extremely bouldery coarse sandy loam, 50 to 75 percent slopes--5 percent
Welch loam, 0 to 4 percent slopes--5 percent

Component Description**Aycab and similar soils**

Landform: Backslopes of mountains
Parent material: Residuum weathered from granite
Typical vegetation: Mountain brome, mountain big sagebrush, other perennial forbs

Typical profile:

Layer 1--0 to 2 inches; very bouldery loamy coarse sand
Layer 2--2 to 38 inches; gravelly coarse sandy loam
Layer 3--38 to 42 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 24 to 40 inches
Permeability class (root zone): Moderately rapid
Available water capacity: About 3 inches

Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY048NV--Granitic Slope 16+ P.Z.

Component Description

Tosp and similar soils

Landform: Backslopes of mountains
Parent material: Colluvium derived from granite over residuum weathered from granite
Typical vegetation: Nevada bluegrass, melic, meadowrue, groundsel, snowberry, other perennial forbs, quaking aspen, other shrubs, other perennial grasses, mountain brome, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 4 inches; bouldery loam
Layer 2--4 to 37 inches; sandy loam
Layer 3--37 to 50 inches; very gravelly coarse sandy loam
Layer 4--50 to 54 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent, northwest to northeast aspects
Runoff: Medium
Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches
Permeability class (root zone): Moderately rapid
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s
Ecological site: 023XY028NV--Potr Wsg: 1r7

Component Description

Welch and similar soils

Landform: Flood plains
Parent material: Alluvium derived from volcanic rocks and volcanic ash
Typical vegetation: Tufted hairgrass, bluegrass, other perennial forbs

Typical profile:

Layer 1--0 to 9 inches; loam
Layer 2--9 to 60 inches; stratified sandy loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 4 percent
Runoff: Medium
Permeability class (root zone): Moderately slow
Available water capacity: About 11 inches
Present flooding: Occasional
Water table: Present
Natural drainage class: Very poorly drained

Interpretive Groups

Nonirrigated land capability: 5w
Ecological site: 023XY025NV--Wet Meadow

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Alta and similar soils

Composition: 0 to 5 percent
Landform: Shoulders of mountains; backslopes of mountains
Typical vegetation: Curl-leaf mountain mahogany
Ecological site: 023XY073NV--Granitic Mahogany Thicket

Rodell and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Other perennial forbs, other shrubs, prairie junegrass, Columbia needlegrass, other trees, mountain brome, big squirreltail, mountain big sagebrush, other perennial grasses
Ecological site: 023XY070NV--PIAL Woodland Wsg:OR1

Welch and similar soils

Composition: 0 to 5 percent
Landform: Drainageways
Typical vegetation: Nevada bluegrass, other perennial forbs, sedge, other perennial grasses
Ecological site: 023XY013NV--Dry Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Forest land" section
"Engineering" and "Soil Properties" sections

111--Aycab-Alta-Tosp association**Map Unit Setting**

MLRA: 23
 Landscape: Mountains
 Elevation: 7,000 to 8,500 feet
 Precipitation: 14 to 20 inches
 Air temperature: 38 to 46 degrees Fahrenheit
 Frost-free period: 40 to 75 days

Composition

Aycab gravelly coarse sandy loam, 50 to 75 percent slopes--30 percent
 Alta extremely bouldery coarse sandy loam, 30 to 50 percent slopes--30 percent
 Tosp bouldery loam, 8 to 30 percent slopes--25 percent
 Rock outcrop, 15 to 75 percent slopes--8 percent
 Welch loam, 0 to 4 percent slopes--3 percent
 Pachic Cryoborolls very gravelly loam, 30 to 50 percent slopes--2 percent
 Rodell extremely bouldery coarse sandy loam, 50 to 75 percent slopes--2 percent

Component Description**Aycab and similar soils**

Landform: Backslopes of mountains
 Parent material: Residuum weathered from granite
 Typical vegetation: Mountain brome, other perennial forbs, mountain big sagebrush

Typical profile:

Layer 1--0 to 29 inches; gravelly coarse sandy loam
 Layer 2--29 to 38 inches; gravelly coarse sandy loam
 Layer 3--38 to 42 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent
 Runoff: High
 Depth to restrictive feature: Bedrock (paralithic): 24 to 40 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY048NV--Granitic Slope 16+ P.Z.

Component Description**Alta and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Curl-leaf mountain mahogany

Typical profile:

Layer 1--0 to 17 inches; extremely bouldery coarse sandy loam
 Layer 2--17 to 50 inches; very stony loamy coarse sand
 Layer 3--50 to 60 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Medium
 Depth to restrictive feature: Bedrock (paralithic): 40 to 60 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY073NV--Granitic Mahogany Thicket

Component Description**Tosp and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Quaking aspen, mountain brome, bluebunch wheatgrass, Nevada bluegrass, melic, meadowrue, groundsel, other shrubs, other perennial grasses, snowberry, other perennial forbs

Typical profile:

Layer 1--0 to 4 inches; bouldery loam
 Layer 2--4 to 37 inches; sandy loam
 Layer 3--37 to 50 inches; very gravelly coarse sandy loam
 Layer 4--50 to 54 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent, northwest to northeast aspects

Runoff: Low

Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches

Permeability class (root zone): Moderately rapid

Available water capacity: About 6 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s

Ecological site: 023XY028NV--Potr Wsg: 1r7

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Rock outcrop**

Composition: 0 to 8 percent

Landform: Mountains

Ecological site: None assigned

Welch and similar soils

Composition: 0 to 3 percent

Landform: Drainageways

Typical vegetation: Tufted hairgrass, bluegrass, other perennial forbs

Ecological site: 023XY025NV--Wet Meadow

Pachic Cryoborolls

Composition: 0 to 2 percent

Landform: Backslopes of mountains

Typical vegetation: Curl-leaf mountain mahogany, mountain big sagebrush

Ecological site: 023XY069NV--Granitic Mahogany Savanna

Rodell and similar soils

Composition: 0 to 2 percent

Landform: Backslopes of mountains

Typical vegetation: Mountain big sagebrush, mountain brome, other shrubs, other perennial forbs, other perennial grasses, Columbia needlegrass, prairie junegrass, big squirreltail, other trees

Ecological site: 023XY070NV--PIAL Woodland Wsg:OR1

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

116--Acrelane-Rock outcrop complex**Map Unit Setting**

MLRA: 23

Landscape: Mountains

Elevation: 4,000 to 7,500 feet

Precipitation: 8 to 12 inches

Air temperature: 48 to 50 degrees Fahrenheit

Frost-free period: 90 to 110 days

Composition

Acrelane very bouldery coarse sandy loam, 15 to 50 percent slopes--70 percent

Rock outcrop, 15 to 50 percent slopes--15 percent

Davey loamy fine sand, 2 to 8 percent slopes--5 percent

Deadyon sandy loam, 0 to 2 percent slopes--5 percent

Ola loam, 30 to 50 percent slopes--5 percent

Component Description**Acrelane and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, Thurber needlegrass

Typical profile:

Layer 1--0 to 7 inches; very bouldery coarse sandy loam

Layer 2--7 to 16 inches; very gravelly sandy clay loam

Layer 3--16 to 26 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent

Runoff: High

Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches

Permeability class (root zone): Moderate

Available water capacity: About 1.3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY057NV--Granitic Loam 10-12 P.Z.

Component Description**Rock outcrop**

Landform: Mountains

Component Properties and Qualities

Slope: 15 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Davey and similar soils**

Composition: 0 to 5 percent

Landform: Toeslopes of sand sheets

Typical vegetation: Indian ricegrass, big sagebrush, needleandthread, other perennial forbs

Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Deadyon and similar soils

Composition: 0 to 5 percent

Landform: Inset fans

Typical vegetation: Thurber needlegrass, basin wildrye, Wyoming big sagebrush, basin big sagebrush

Ecological site: 023XY040NV--Granitic Fan 8-10 P.Z.

Ola and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

117--Acrelane-Poisoncreek complex**Map Unit Setting**

MLRA: 23

Landscape: Mountains

Elevation: 5,000 to 7,000 feet

Precipitation: 13 to 16 inches

Air temperature: 39 to 50 degrees Fahrenheit

Frost-free period: 80 to 110 days

Composition

Acrelane very bouldery coarse sandy loam, 30 to 50 percent slopes--50 percent

Poisoncreek very gravelly coarse sandy loam, 30 to 50 percent slopes--40 percent

Ola gravelly coarse sandy loam, 30 to 50 percent slopes--5 percent

Siscab very bouldery loamy coarse sand, 30 to 50 percent slopes--4 percent

Fluventic Haploxerolls loam, 2 to 8 percent slopes--1 percent

Component Description**Acrelane and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 7 inches; very bouldery coarse sandy loam

Layer 2--7 to 16 inches; very gravelly sandy clay loam

Layer 3--16 to 26 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent

Runoff: High

Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches

Permeability class (root zone): Moderate

Available water capacity: About 1.3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY057NV--Granitic Loam 10-12 P.Z.

Component Description**Poisoncreek and similar soils**

Landform: Backslopes of mountains

Parent material: Residuum weathered from volcanic rocks

Typical vegetation: Idaho fescue, Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 5 inches; very gravelly coarse sandy loam
 Layer 2--5 to 13 inches; very gravelly sandy clay loam
 Layer 3--13 to 15 inches; weathered bedrock
 Layer 4--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 10 to 14
 inches
 Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions**Ola and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of mountains; footslopes of
 mountains
 Typical vegetation: Bluebunch wheatgrass, Idaho
 fescue, mountain big sagebrush
 Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Siscab and similar soils

Composition: 0 to 4 percent
 Landform: Backslopes of mountains
 Typical vegetation: Bluebunch wheatgrass, mountain big
 sagebrush
 Ecological site: 023XY042NV--Granitic South Slope 12-
 14 P.Z.

Fluventic Haploxerolls

Composition: 0 to 1 percent
 Landform: Mountain valleys
 Typical vegetation: Mountain big sagebrush, basin
 wildrye
 Ecological site: 023XY056NV--Loamy 12-16 P.Z.

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

120--Arclay-Acrelane complex**Map Unit Setting**

MLRA: 23
 Landscape: Mountains
 Elevation: 5,000 to 6,000 feet
 Precipitation: 8 to 12 inches
 Air temperature: 48 to 51 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Arclay very bouldery coarse sandy loam, 30 to 50
 percent slopes--60 percent
 Acrelane very bouldery coarse sandy loam, 30 to 50
 percent slopes--30 percent
 Rock outcrop, 15 to 50 percent slopes--5 percent
 Pickup very stony loam, 30 to 50 percent slopes--4
 percent
 Woofus loam, 0 to 2 percent slopes--1 percent

Component Description**Arclay and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over
 residuum weathered from granite
 Typical vegetation: Bluebunch wheatgrass, Lahontan
 sagebrush

Typical profile:

Layer 1--0 to 4 inches; very bouldery coarse sandy loam
 Layer 2--4 to 18 inches; gravelly clay loam
 Layer 3--18 to 46 inches; weathered bedrock
 Layer 4--46 to 56 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 14 to 20
 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 2 inches

Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Component Description

Acrelane and similar soils

Landform: Backslopes of mountains
Parent material: Colluvium derived from granite over residuum weathered from granite
Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 7 inches; very bouldery coarse sandy loam
Layer 2--7 to 16 inches; very gravelly sandy clay loam
Layer 3--16 to 26 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches
Permeability class (root zone): Moderate
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY057NV--Granitic Loam 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 5 percent
Landform: Mountains
Ecological site: None assigned

Pickup and similar soils

Composition: 0 to 4 percent
Landform: Backslopes of mountains
Typical vegetation: Bluebunch wheatgrass, low sagebrush

Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Woofus and similar soils

Composition: 0 to 1 percent
Landform: Flood plains
Typical vegetation: Basin wildrye
Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

130--Tenabo-Gwena-Fulstone association

Map Unit Setting

MLRA: 24
Landscape: Fan piedmont
Elevation: 4,500 to 5,000 feet
Precipitation: 8 to 12 inches
Air temperature: 47 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

Composition

Tenabo very fine sandy loam, 4 to 15 percent slopes--45 percent
Gwena very fine sandy loam, 4 to 15 percent slopes--30 percent
Fulstone gravelly loam, 4 to 15 percent slopes--15 percent
McConnel very fine sandy loam, 0 to 4 percent slopes--4 percent
Orovada fine sandy loam, 0 to 2 percent slopes--3 percent
Pumper very fine sandy loam, 0 to 4 percent slopes--3 percent

Component Description

Tenabo and similar soils

Landform: Summits of fan remnants; shoulders of fan remnants
Parent material: Alluvium derived from mixed rocks and loess
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 9 inches; very fine sandy loam
Layer 2--9 to 16 inches; clay loam
Layer 3--16 to 32 inches; indurated

Layer 4--32 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Duripan: 9 to 20 inches
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4e
 Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description

Gwena and similar soils

Landform: Summits of fan remnants; shoulders of fan remnants
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 6 inches; very fine sandy loam
 Layer 2--6 to 15 inches; clay loam
 Layer 3--15 to 31 inches; indurated
 Layer 4--31 to 49 inches; extremely gravelly sandy loam
 Layer 5--49 to 60 inches; very gravelly loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Duripan: 14 to 20 inches
 Permeability class (root zone): Slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Component Description

Fulstone and similar soils

Landform: Summits of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; gravelly loam
 Layer 2--3 to 18 inches; clay
 Layer 3--18 to 29 inches; indurated

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

McConnel and similar soils

Composition: 0 to 4 percent
 Landform: Inset fans
 Typical vegetation: Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Orovada and similar soils

Composition: 0 to 3 percent
 Landform: Inset fans
 Typical vegetation: Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Pumper and similar soils

Composition: 0 to 3 percent

Landform: Inset fans
 Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

140--Tenabo-Oxcorel association

Map Unit Setting

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,300 to 4,700 feet
 Precipitation: 5 to 8 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 90 to 110 days

Composition

Tenabo cobbly very fine sandy loam, 4 to 15 percent slopes--50 percent
 Oxcorel very stony loam, 15 to 30 percent slopes--35 percent
 Xerollic Durargids cobbly fine sandy loam, 15 to 30 percent slopes--8 percent
 Durixerollic Natrargids very gravelly fine sandy loam, 2 to 4 percent slopes--5 percent
 Rodock loam, 0 to 2 percent slopes--2 percent

Component Description

Tenabo and similar soils

Landform: Summits of fan remnants
 Parent material: Alluvium derived from mixed rocks and loess
 Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 9 inches; cobbly very fine sandy loam
 Layer 2--9 to 16 inches; clay loam
 Layer 3--16 to 32 inches; indurated
 Layer 4--32 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 9 to 20 inches
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description

Oxcorel and similar soils

Landform: Shoulders of fan remnants
 Parent material: Alluvium derived from mixed rocks and loess
 Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

Typical profile:

Layer 1--0 to 5 inches; very stony loam
 Layer 2--5 to 24 inches; clay
 Layer 3--24 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: Very high
 Permeability class (root zone): Very slow
 Sodicity: Sodic within 40 inches
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Xerollic Durargids

Composition: 0 to 8 percent
 Landform: Partial ballenas

Typical vegetation: Thurber needlegrass, Lahontan sagebrush
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Durixerollic Natrargids

Composition: 0 to 5 percent
Landform: Summits of fan remnants
Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass
Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Rodock and similar soils

Composition: 0 to 2 percent
Landform: Inset fans
Typical vegetation: Basin wildrye
Ecological site: 025XY003NV--Loamy Bottom 8-14 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

145--Boulder Lake silty clay, 0 to 2 percent slopes

Map Unit Setting

MLRA: 23
Landscape: Plateau
Elevation: 6,000 to 6,500 feet
Precipitation: 10 to 16 inches
Air temperature: 41 to 45 degrees Fahrenheit
Frost-free period: 60 to 90 days

Composition

Boulder Lake silty clay, 0 to 2 percent slopes--95 percent
Jesse Camp very fine sandy loam, 0 to 2 percent slopes--5 percent

Component Description

Boulder Lake and similar soils

Landform: Basin-floor remnants
Parent material: Lacustrine deposits
Typical vegetation: Silver sagebrush, beardless wildrye, Nevada bluegrass, other perennial grasses

Typical profile:

Layer 1--0 to 9 inches; silty clay
Layer 2--9 to 60 inches; silty clay

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Very high
Permeability class (root zone): Very slow
Available water capacity: About 9 inches
Present flooding: None
Present ponding: Frequent
Water table: Present
Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 6w
Nonirrigated land capability: 6w
Ecological site: 023XY003NV--Clay Basin

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Jesse Camp and similar soils

Composition: 0 to 5 percent
Landform: Stream terrace
Typical vegetation: Basin big sagebrush, basin wildrye
Ecological site: 023XY005NV--Dry Floodplain 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

149--Boton-Slawha complex

Map Unit Setting

MLRA: 27
Landscape: Bolson
Elevation: 4,000 to 4,100 feet
Precipitation: 5 to 8 inches
Air temperature: 45 to 55 degrees Fahrenheit
Frost-free period: 120 to 140 days

Composition

Boton silt loam, 0 to 2 percent slopes--50 percent

Slawha silt loam, 0 to 2 percent slopes--35 percent
 Sondoia silt loam, 0 to 2 percent slopes--8 percent
 Isolde fine sand, 4 to 15 percent slopes--5 percent
 Wendane silt loam, 0 to 2 percent slopes--2 percent

Component Description

Boton and similar soils

Landform: Basin-floor remnants
 Parent material: Volcanic ash and loess over lacustrine deposits
 Typical vegetation: Shadscale, Indian ricegrass, black greasewood

Typical profile:

Layer 1--0 to 10 inches; silt loam
 Layer 2--10 to 28 inches; silt loam
 Layer 3--28 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 12 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY024NV--Sodic Terrace

Component Description

Slawha and similar soils

Landform: Alluvial flats
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Torrey's saltbush, basin wildrye

Typical profile:

Layer 1--0 to 13 inches; silt loam
 Layer 2--13 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: High

Permeability class (root zone): Slow
 Salinity: Saline within 40 inches
 Available water capacity: About 12 inches
 Present flooding: Occasional
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3s
 Nonirrigated land capability: 7s
 Ecological site: 027XY041NV--Deep Sodic Fan

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Sondoia and similar soils

Composition: 0 to 8 percent
 Landform: Basin-floor remnants
 Typical vegetation: Inland saltgrass, black greasewood
 Ecological site: 027XY025NV--Sodic Flat

Isolde and similar soils

Composition: 0 to 5 percent
 Landform: Basin floors
 Typical vegetation: Indian ricegrass, black greasewood
 Ecological site: 027XY016NV--Sodic Dunes

Wendane and similar soils

Composition: 0 to 2 percent
 Landform: Basin floors
 Typical vegetation: Alkali sacaton, basin wildrye, black greasewood
 Ecological site: 024XY007NV--Saline Bottom

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

150--Boton complex, occasionally flooded

Map Unit Setting

MLRA: 27
 Landscape: Bolson
 Elevation: 4,000 to 4,200 feet
 Precipitation: 6 to 8 inches
 Air temperature: 51 to 55 degrees Fahrenheit
 Frost-free period: 125 to 140 days

Composition

Boton silt loam, 0 to 2 percent slopes--70 percent
 Boton silt loam, 0 to 2 percent slopes--15 percent
 Boton loamy fine sand, 0 to 2 percent slopes--8 percent
 Slawha silt loam, 0 to 2 percent slopes--7 percent

Component Description

Boton and similar soils

Landform: Basin-floor remnants
 Parent material: Volcanic ash and loess over lacustrine deposits
 Typical vegetation: Black greasewood, shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 10 inches; silt loam
 Layer 2--10 to 28 inches; silt loam
 Layer 3--28 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 12 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY024NV--Sodic Terrace

Component Description

Boton and similar soils

Landform: Basin-floor remnants
 Parent material: Volcanic ash and loess over lacustrine deposits
 Typical vegetation: Inland saltgrass, black greasewood

Typical profile:

Layer 1--0 to 10 inches; silt loam
 Layer 2--10 to 28 inches; silt loam
 Layer 3--28 to 60 inches; stratified very fine sandy loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 12 inches
 Present flooding: Occasional
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7w
 Ecological site: 027XY025NV--Sodic Flat

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Boton and similar soils

Composition: 0 to 8 percent
 Landform: Basin-floor remnants
 Typical vegetation: Black greasewood, basin wildrye, big sagebrush
 Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Slawha and similar soils

Composition: 0 to 7 percent
 Landform: Alluvial flats
 Typical vegetation: Torrey's saltbush, basin wildrye
 Ecological site: 027XY041NV--Deep Sodic Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

151--Boton complex, overblown

Map Unit Setting

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 4,200 feet
 Precipitation: 6 to 8 inches
 Air temperature: 51 to 55 degrees Fahrenheit
 Frost-free period: 125 to 140 days

Composition

Boton loamy fine sand, 0 to 2 percent slopes--70 percent
 Boton silt loam, 0 to 2 percent slopes--20 percent

Aeric Haplaquepts silt loam, 0 to 2 percent slopes--7 percent
Wendane silt loam, 0 to 2 percent slopes--3 percent

Component Description

Boton and similar soils

Landform: Basin-floor remnants
Parent material: Volcanic ash and loess over lacustrine deposits
Typical vegetation: Black greasewood, basin wildrye, big sagebrush

Typical profile:

Layer 1--0 to 10 inches; loamy fine sand
Layer 2--10 to 28 inches; silt loam
Layer 3--28 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Medium
Permeability class (root zone): Moderately slow
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 11 inches
Present flooding: Rare
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Component Description

Boton and similar soils

Landform: Basin-floor remnants
Parent material: Volcanic ash and loess over lacustrine deposits
Typical vegetation: Shadscale, black greasewood

Typical profile:

Layer 1--0 to 10 inches; silt loam
Layer 2--10 to 28 inches; silt loam
Layer 3--28 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Medium

Permeability class (root zone): Moderately slow
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Aeric Haplaquepts

Composition: 0 to 7 percent
Landform: Flood-plain playas
Typical vegetation: Torrey's saltbush, basin wildrye
Ecological site: 024XY015NV--Deep Sodic Fan

Wendane and similar soils

Composition: 0 to 3 percent
Landform: Drainageways
Typical vegetation: Basin wildrye, black greasewood, alkali sacaton
Ecological site: 024XY007NV--Saline Bottom

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

155--Bearbutte-Badgercamp association

Map Unit Setting

MLRA: 23
Landscape: Plateau
Elevation: 6,400 to 7,200 feet
Precipitation: 12 to 20 inches
Air temperature: 37 to 45 degrees Fahrenheit
Frost-free period: 50 to 80 days

Composition

Bearbutte stony loam, 4 to 30 percent slopes--60 percent
Badgercamp bouldery loam, 4 to 30 percent slopes--25 percent

Ninemile very gravelly loam, 4 to 15 percent slopes--5 percent
 Rock outcrop, 4 to 50 percent slopes--5 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--5 percent

Component Description

Bearbutte and similar soils

Landform: Shoulders of plateaus; backslopes of plateaus
 Parent material: Colluvium derived from tuff
 Typical vegetation: Idaho fescue, antelope bitterbrush, mountain big sagebrush

Typical profile:

Layer 1--0 to 9 inches; stony loam
 Layer 2--9 to 24 inches; sandy loam
 Layer 3--24 to 30 inches; extremely stony sandy loam
 Layer 4--30 to 53 inches; gravelly sandy loam
 Layer 5--53 to 57 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
 Runoff: Medium
 Depth to restrictive feature: Bedrock (paralithic): 40 to 60 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY066NV--Ashy Loam 12-14 P.Z.

Component Description

Badgercamp and similar soils

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Residuum weathered from tuff
 Typical vegetation: Idaho fescue, other perennial forbs, curl-leaf mountain mahogany

Typical profile:

Layer 1--0 to 6 inches; bouldery loam
 Layer 2--6 to 15 inches; very gravelly loam
 Layer 3--15 to 25 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY026NV--Mahogany Savanna

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Ninemile and similar soils

Composition: 0 to 5 percent
 Landform: Summits of plateaus
 Typical vegetation: Bluebunch wheatgrass, Idaho fescue, low sagebrush
 Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Rock outcrop

Composition: 0 to 5 percent
 Landform: Plateaus
 Ecological site: None assigned

Softscrabble and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

156--Bearbutte-Ninemile complex

Map Unit Setting

MLRA: 23
 Landscape: Plateau
 Elevation: 6,100 to 6,500 feet
 Precipitation: 12 to 16 inches

Air temperature: 41 to 45 degrees Fahrenheit
Frost-free period: 60 to 90 days

Composition

Bearbutte stony loam, 15 to 50 percent slopes--70 percent
Ninemile very stony loam, 4 to 15 percent slopes--15 percent
Badgercamp bouldery loam, 4 to 15 percent slopes--5 percent
Rock outcrop, 4 to 50 percent slopes--5 percent
Yellowhills sandy loam, 0 to 2 percent slopes--5 percent

Component Description

Bearbutte and similar soils

Landform: Backslopes of plateaus; footslopes of plateaus
Parent material: Colluvium derived from tuff
Typical vegetation: Antelope bitterbrush, mountain big sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 9 inches; stony loam
Layer 2--9 to 24 inches; sandy loam
Layer 3--24 to 30 inches; extremely stony sandy loam
Layer 4--30 to 53 inches; gravelly sandy loam
Layer 5--53 to 57 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 40 to 60 inches
Permeability class (root zone): Moderate
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
Ecological site: 023XY066NV--Ashy Loam 12-14 P.Z.

Component Description

Ninemile and similar soils

Landform: Summits of plateaus
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical profile:

Layer 1--0 to 3 inches; very stony loam
Layer 2--3 to 14 inches; clay
Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
Permeability class (root zone): Very slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Badgercamp and similar soils

Composition: 0 to 5 percent
Landform: Summits of plateaus; shoulders of plateaus
Typical vegetation: Idaho fescue, other perennial forbs, curl-leaf mountain mahogany
Ecological site: 023XY026NV--Mahogany Savanna

Rock outcrop

Composition: 0 to 5 percent
Landform: Plateaus
Ecological site: None assigned

Yellowhills and similar soils

Composition: 0 to 5 percent
Landform: Inset fans
Typical vegetation: Thurber needlegrass, Idaho fescue, basin big sagebrush
Ecological site: 023XY071NV--Ashy Loam 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

158--Blackhawk-Trocken association**Map Unit Setting**

MLRA: 27
 Landscape: Fan piedmont
 Elevation: 4,100 to 4,500 feet
 Precipitation: 4 to 8 inches
 Air temperature: 45 to 54 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Blackhawk very gravelly fine sandy loam, 2 to 8 percent slopes--45 percent
 Trocken very gravelly very fine sandy loam, 0 to 2 percent slopes--45 percent
 Bluewing extremely channery loamy sand, 0 to 2 percent slopes--5 percent
 Xerollic Camborthids very gravelly fine sandy loam, 0 to 2 percent slopes--3 percent
 Typic Torriorthents extremely gravelly silt loam, 4 to 8 percent slopes--2 percent

Component Description**Blackhawk and similar soils**

Landform: Fan remnants
 Parent material: Loess over alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

Typical profile:

Layer 1--0 to 3 inches; very gravelly fine sandy loam
 Layer 2--3 to 18 inches; gravelly very fine sandy loam
 Layer 3--18 to 34 inches; cemented
 Layer 4--34 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 14 to 20 inches
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Component Description**Trocken and similar soils**

Landform: Fan skirts
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

Typical profile:

Layer 1--0 to 4 inches; very gravelly very fine sandy loam
 Layer 2--4 to 60 inches; stratified extremely gravelly loamy coarse sand to very cobbly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Sodicity: Sodic within 40 inches
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Bluewing and similar soils**

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Indian ricegrass, shadscale, Bailey greasewood
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Xerollic Camborthids

Composition: 0 to 3 percent
 Landform: Inset fans
 Typical vegetation: Indian ricegrass, spiny hopsage, needleandthread, Wyoming big sagebrush
 Ecological site: 027XY008NV--Droughty Loam 8-10 P.Z.

Typic Torriorthents

Composition: 0 to 2 percent
 Landform: Fan remnants

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

160--Bluewing gravelly sandy loam, 2 to 8 percent slopes

Map Unit Setting

MLRA: 27
Landscape: Intermontane basin
Elevation: 4,000 to 4,400 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Bluewing gravelly sandy loam, 2 to 8 percent slopes--90 percent
Mazuma very fine sandy loam, 2 to 8 percent slopes--5 percent
Sondoa silt loam, 0 to 2 percent slopes--4 percent
Bluewing very gravelly loamy sand, 0 to 2 percent slopes--1 percent

Component Description

Bluewing and similar soils

Landform: Inset fans
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood

Typical profile:

Layer 1--0 to 6 inches; gravelly sandy loam
Layer 2--6 to 60 inches; stratified very gravelly sand to extremely gravelly loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: Low
Permeability class (root zone): Moderately rapid
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Mazuma and similar soils

Composition: 0 to 5 percent
Landform: Basin-floor remnants
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site: 027XY013NV--Loamy 4-8 P.Z.

Sondoa and similar soils

Composition: 0 to 4 percent
Landform: Basin-floor remnants
Typical vegetation: Inland saltgrass, black greasewood
Ecological site: 027XY025NV--Sodic Flat

Bluewing and similar soils

Composition: 0 to 1 percent
Landform: Drainageways
Typical vegetation: Rubber rabbitbrush, littleleaf horsebrush, spiny hopsage
Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

161--Bluewing-Trocken association

Map Unit Setting

MLRA: 27
Landscape: Intermontane basin
Elevation: 4,000 to 4,400 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Bluewing very gravelly loamy sand, 2 to 4 percent slopes--50 percent
Trocken gravelly sandy loam, 0 to 2 percent slopes--45 percent

Juva loam, 2 to 4 percent slopes--5 percent

Component Description

Bluewing and similar soils

Landform: Inset fans

Parent material: Alluvium derived from mixed rocks

Typical vegetation: Littleleaf horsebrush, rubber rabbitbrush, spiny hopsage

Typical profile:

Layer 1--0 to 6 inches; very gravelly loamy sand

Layer 2--6 to 60 inches; stratified very gravelly sand to extremely gravelly loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 4 percent

Runoff: Negligible

Permeability class (root zone): Rapid

Available water capacity: About 3 inches

Present flooding: Frequent

Natural drainage class: Excessively drained

Interpretive Groups

Nonirrigated land capability: 7w

Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Component Description

Trocken and similar soils

Landform: Fan skirts

Parent material: Alluvium derived from mixed rocks

Typical vegetation: Bailey greasewood, shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 4 inches; gravelly sandy loam

Layer 2--4 to 60 inches; stratified extremely gravelly loamy coarse sand to very cobbly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Sodicity: Sodic within 40 inches

Available water capacity: About 4 inches

Present flooding: Rare

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Juva and similar soils

Composition: 0 to 5 percent

Landform: Fan skirts

Typical vegetation: Bailey greasewood, shadscale, Indian ricegrass

Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

163--Dune land

Map Unit Setting

MLRA: 27

Landscape: Intermontane basin

Elevation: 3,900 to 4,200 feet

Precipitation: 6 to 10 inches

Air temperature: 45 to 53 degrees Fahrenheit

Frost-free period: 100 to 130 days

Composition

Dune land silty clay, 0 to 30 percent slopes--100 percent

Component Description

Dune land

Landform: Basin floors

Component Properties and Qualities

Slope: 0 to 30 percent

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Interpretive Groups

Nonirrigated land capability: 8s

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Engineering" and "Soil Properties" sections

164--Soughe-Bucklake complex

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 5,000 to 6,000 feet

Precipitation: 8 to 12 inches

Air temperature: 45 to 50 degrees Fahrenheit

Frost-free period: 80 to 100 days

Composition

Soughe very cobbly loam, 30 to 50 percent slopes--50 percent

Bucklake very cobbly loam, 30 to 50 percent slopes--35 percent

Hoot very cobbly loam, 15 to 30 percent slopes--6 percent

Rock outcrop, 15 to 50 percent slopes--5 percent

Xeric Torriorthents very gravelly sandy loam, 0 to 2 percent slopes--4 percent

Component Description

Soughe and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very cobbly loam

Layer 2--4 to 14 inches; very gravelly clay loam

Layer 3--14 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.5 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description

Bucklake and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam

Layer 2--6 to 10 inches; gravelly clay loam

Layer 3--10 to 21 inches; gravelly clay

Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Hoot and similar soils

Composition: 0 to 6 percent

Landform: Footslopes of mountains

Typical vegetation: Bottlebrush squirreltail, bud sagebrush, shadscale

Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Rock outcrop

Composition: 0 to 5 percent

Landform: Mountains

Ecological site: None assigned

Xeric Torriorthents

Composition: 0 to 4 percent

Landform: Drainageways

Typical vegetation: Basin wildrye, basin big sagebrush, spiny hopsage

Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

168--Boton-Playas association**Map Unit Setting**

MLRA: 27

Landscape: Bolson

Elevation: 4,000 to 4,100 feet

Precipitation: 6 to 8 inches

Air temperature: 51 to 55 degrees Fahrenheit

Frost-free period: 125 to 140 days

Composition

Boton silt loam, 0 to 2 percent slopes--55 percent

Playas silty clay, 0 to 1 percent slopes--35 percent

Mazuma very fine sandy loam, 0 to 2 percent slopes--5 percent

Sondoa silt loam, 0 to 2 percent slopes--5 percent

Component Description**Boton and similar soils**

Landform: Basin-floor remnants

Parent material: Volcanic ash and loess over lacustrine deposits

Typical vegetation: Indian ricegrass, black greasewood, shadscale

Typical profile:

Layer 1--0 to 10 inches; silt loam

Layer 2--10 to 28 inches; silt loam

Layer 3--28 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Medium

Permeability class (root zone): Moderately slow

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 12 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4s

Nonirrigated land capability: 7s

Ecological site: 027XY024NV--Sodic Terrace

Component Description**Playas**

Landform: Basin floors

Component Properties and Qualities

Slope: 0 to 1 percent

Runoff: Low

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Present ponding: Frequent

Water table: Present

Interpretive Groups

Nonirrigated land capability: 8w

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Mazuma and similar soils**

Composition: 0 to 5 percent

Landform: Basin-floor remnants

Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

Ecological site: 027XY013NV--Loamy 4-8 P.Z.

Sondoa and similar soils

Composition: 0 to 5 percent

Landform: Basin-floor remnants

Typical vegetation: Inland saltgrass, black greasewood

Ecological site: 027XY025NV--Sodic Flat

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

173--Deppy very cobbly loam, 2 to 8 percent slopes***Map Unit Setting***

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 4,800 feet
 Precipitation: 7 to 9 inches
 Air temperature: 45 to 46 degrees Fahrenheit
 Frost-free period: 80 to 100 days

Composition

Deppy very cobbly loam, 2 to 8 percent slopes--95 percent
 Orovada fine sandy loam, 0 to 4 percent slopes--5 percent

Component Description**Orovada and similar soils**

Landform: Fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

Typical profile:

Layer 1--0 to 3 inches; very cobbly loam
 Layer 2--3 to 9 inches; clay loam
 Layer 3--9 to 21 inches; cemented
 Layer 4--21 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 1.5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Orovada and similar soils**

Composition: 0 to 5 percent
 Landform: Fan skirts
 Typical vegetation: Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

175--Wendane silt loam, 0 to 2 percent slopes, rarely flooded***Map Unit Setting***

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 4,200 feet
 Precipitation: 6 to 8 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Wendane silt loam, 0 to 2 percent slopes--85 percent
 Boton silt loam, 0 to 2 percent slopes--5 percent
 Isolde fine sand, 4 to 15 percent slopes--5 percent
 Playas, 0 to 1 percent slopes--5 percent

Component Description**Wendane and similar soils**

Landform: Alluvial flats
 Parent material: Alluvium derived from mixed rocks, volcanic ash and loess
 Typical vegetation: Basin wildrye, black greasewood

Typical profile:

Layer 1--0 to 10 inches; silt loam
 Layer 2--10 to 60 inches; stratified silt loam to clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium

Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 12 inches
 Present flooding: Rare
 Water table: Present
 Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 6w
 Nonirrigated land capability: 7w
 Ecological site: 024XY011NV--Sodic Flat 6-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Boton and similar soils

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Black greasewood, shadscale
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Isolde and similar soils

Composition: 0 to 5 percent
 Landform: Basin floors
 Typical vegetation: Indian ricegrass, black greasewood
 Ecological site: 027XY016NV--Sodic Dunes

Playas

Composition: 0 to 5 percent
 Landform: Playas
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

176--Bullump-Westbutte-Harcany association

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 6,600 to 7,500 feet
 Precipitation: 12 to 18 inches
 Air temperature: 36 to 45 degrees Fahrenheit
 Frost-free period: 50 to 90 days

Composition

Bullump very gravelly loam, 30 to 50 percent slopes--40 percent
 Westbutte stony loam, 50 to 75 percent slopes--25 percent
 Harcany gravelly loam, 30 to 50 percent slopes--20 percent
 Sumine cobbly loam, 30 to 50 percent slopes--6 percent
 Badgercamp bouldery loam, 15 to 30 percent slopes--3 percent
 Hackwood silt loam, 15 to 50 percent slopes--3 percent
 Rock outcrop, 15 to 75 percent slopes--3 percent

Component Description

Bullump and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 Typical vegetation: Other perennial forbs, mountain big sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 15 inches; very gravelly loam
 Layer 2--15 to 57 inches; very gravelly clay loam
 Layer 3--57 to 67 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY054NV--Steep North Slope 14+ P.Z.

Component Description

Westbutte and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 Typical vegetation: Idaho fescue, threetip sagebrush

Typical profile:

Layer 1--0 to 6 inches; stony loam
 Layer 2--6 to 15 inches; very cobbly loam
 Layer 3--15 to 28 inches; very cobbly clay loam

Layer 4--28 to 38 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, northwest to northeast aspects

Runoff: High

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Moderate

Available water capacity: About 3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s

Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Component Description

Harcany and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from mixed rocks, loess, and volcanic ash

Typical vegetation: Idaho fescue, other perennial forbs, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; gravelly loam

Layer 2--3 to 14 inches; very gravelly silt loam

Layer 3--14 to 60 inches; extremely gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects

Runoff: High

Permeability class (root zone): Moderate

Available water capacity: About 7 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY054NV--Steep North Slope 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Sumine and similar soils

Composition: 0 to 6 percent

Landform: Backslopes of mountains

Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass

Ecological site: 023XY016NV--South Slope 12-16 P.Z.

Badgercamp and similar soils

Composition: 0 to 3 percent

Landform: Shoulders of mountains

Typical vegetation: Other perennial forbs, curl-leaf mountain mahogany, Idaho fescue

Ecological site: 023XY026NV--Mahogany Savanna

Hackwood and similar soils

Composition: 0 to 3 percent

Landform: Backslopes of mountains

Typical vegetation: Melic, meadowrue, other perennial forbs, other shrubs, mountain brome, groundsel, bluebunch wheatgrass, snowberry, quaking aspen, other perennial grasses, Nevada bluegrass

Ecological site: 023XY028NV--Potrt Wsg: 1r7

Rock outcrop

Composition: 0 to 3 percent

Landform: Mountains

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

177--Bullump-Sumine-Cleavage association

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 6,400 to 7,700 feet

Precipitation: 10 to 18 inches

Air temperature: 40 to 45 degrees Fahrenheit

Frost-free period: 60 to 90 days

Composition

Bullump gravelly loam, 15 to 50 percent slopes--40 percent

Sumine cobbly loam, 15 to 50 percent slopes--30 percent

Cleavage extremely gravelly loam, 8 to 30 percent slopes--15 percent

Rock outcrop, 8 to 50 percent slopes--7 percent

Westbutte stony loam, 30 to 50 percent slopes--7 percent

Welch loam, 0 to 4 percent slopes--1 percent

Component Description

Bullump and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks

Typical vegetation: Other perennial forbs, mountain big sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 15 inches; gravelly loam

Layer 2--15 to 57 inches; very gravelly clay loam

Layer 3--57 to 67 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 6 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY054NV--Steep North Slope 14+ P.Z.

Component Description

Sumine and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; cobbly loam

Layer 2--5 to 30 inches; very gravelly clay loam

Layer 3--30 to 40 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects

Runoff: High

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Moderate

Available water capacity: About 4 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY016NV--South Slope 12-16 P.Z.

Component Description

Cleavage and similar soils

Landform: Shoulders of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Sandberg bluegrass, Idaho fescue, low sagebrush

Typical profile:

Layer 1--0 to 7 inches; extremely gravelly loam

Layer 2--7 to 15 inches; very cobbly clay loam

Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 7 percent

Landform: Mountains

Ecological site: None assigned

Westbutte and similar soils

Composition: 0 to 7 percent
 Landform: Backslopes of mountains
 Typical vegetation: Idaho fescue, threetip sagebrush
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Welch and similar soils

Composition: 0 to 1 percent
 Landform: Drainageways
 Typical vegetation: Bluegrass, tufted hairgrass, other perennial forbs
 Ecological site: 023XY025NV--Wet Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

180--Devada-Bucklake complex**Map Unit Setting**

MLRA: 23
 Landscape: Fan piedmont, mountains
 Elevation: 5,000 to 6,000 feet
 Precipitation: 10 to 14 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 80 to 110 days

Composition

Devada very stony loam, 4 to 50 percent slopes--55 percent
 Bucklake very cobbly loam, 30 to 50 percent slopes--30 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--6 percent
 Fulstone gravelly loam, 2 to 8 percent slopes--3 percent
 Rock outcrop, 4 to 50 percent slopes--3 percent
 Woofus loam, 0 to 2 percent slopes--3 percent

Component Description**Devada and similar soils**

Landform: Summits of mountains; backslopes of mountains; shoulders of mountains
 Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks
 Typical vegetation: Low sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; very stony loam

Layer 2--5 to 19 inches; clay
 Layer 3--19 to 29 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description**Bucklake and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, Thurber needlegrass

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam
 Layer 2--6 to 10 inches; gravelly clay loam
 Layer 3--10 to 21 inches; gravelly clay
 Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Softscrabble and similar soils

Composition: 0 to 6 percent
Landform: Backslopes of mountains
Typical vegetation: Idaho fescue, mountain big sagebrush, bluebunch wheatgrass
Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Fulstone and similar soils

Composition: 0 to 3 percent
Landform: Fan remnants
Typical vegetation: Thurber needlegrass, Lahontan sagebrush
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Rock outcrop

Composition: 0 to 3 percent
Landform: Mountains
Ecological site: None assigned

Woofus and similar soils

Composition: 0 to 3 percent
Landform: Flood plains
Typical vegetation: Basin wildrye
Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

181--Westbutte stony loam, 15 to 50 percent slopes

Map Unit Setting

MLRA: 23
Landscape: Mountains
Elevation: 5,600 to 6,500 feet
Precipitation: 12 to 14 inches
Air temperature: 41 to 45 degrees Fahrenheit
Frost-free period: 70 to 90 days

Composition

Westbutte stony loam, 15 to 50 percent slopes--85 percent
Cleavage extremely gravelly loam, 15 to 50 percent slopes--5 percent

Longcreek very cobbly loam, 30 to 50 percent slopes--5 percent
Softscrabble very stony loam, 30 to 50 percent slopes--5 percent

Component Description

Westbutte and similar soils

Landform: Backslopes of mountains; footslopes of mountains
Parent material: Colluvium derived from volcanic rocks
Typical vegetation: Threetip sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 6 inches; stony loam
Layer 2--6 to 15 inches; very cobbly loam
Layer 3--15 to 28 inches; very cobbly clay loam
Layer 4--28 to 38 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Permeability class (root zone): Moderate
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s
Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Cleavage and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Idaho fescue, Sandberg bluegrass, low sagebrush
Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Longcreek and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Ecological site: 023XY018NV--Stony South Slope 12-16 P.Z.

Softscrabble and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

182--Devada-Ninemile-Tuffo association

Map Unit Setting

MLRA: 23
Landscape: Fan piedmont, plateau
Elevation: 5,500 to 6,500 feet
Precipitation: 8 to 16 inches
Air temperature: 43 to 49 degrees Fahrenheit
Frost-free period: 80 to 110 days

Composition

Devada very stony loam, 2 to 8 percent slopes--35 percent
Ninemile very gravelly loam, 2 to 15 percent slopes--35 percent
Tuffo fine sandy loam, 4 to 15 percent slopes--15 percent
Frentera loam, 15 to 50 percent slopes--5 percent
Fulstone gravelly loam, 2 to 8 percent slopes--5 percent
Wylo very stony loam, 4 to 15 percent slopes--5 percent

Component Description

Devada and similar soils

Landform: Summits of plateaus
Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks
Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, low sagebrush

Typical profile:

Layer 1--0 to 5 inches; very stony loam
Layer 2--5 to 19 inches; clay
Layer 3--19 to 29 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
Permeability class (root zone): Slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description

Ninemile and similar soils

Landform: Summits of plateaus; shoulders of plateaus
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Bluebunch wheatgrass, low sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 14 inches; clay
Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 15 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
Permeability class (root zone): Very slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Component Description

Tuffo and similar soils

Landform: Pediments

Parent material: Residuum weathered from tuff
 Typical vegetation: Bluebunch wheatgrass, Thurber
 needlegrass, big sagebrush

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam
 Layer 2--5 to 8 inches; very fine sandy loam
 Layer 3--8 to 18 inches; weathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 4 to 14
 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Frentera and similar soils

Composition: 0 to 5 percent
 Landform: Footslopes of plateaus; backslopes of
 plateaus
 Typical vegetation: Idaho fescue, Thurber needlegrass,
 Wyoming big sagebrush
 Ecological site: 023XY072NV--Ashy Slope 10-12 P.Z.

Fulstone and similar soils

Composition: 0 to 5 percent
 Landform: Fan remnants
 Typical vegetation: Lahontan sagebrush, Thurber
 needlegrass
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Wylo and similar soils

Composition: 0 to 5 percent
 Landform: Shoulders of plateaus
 Typical vegetation: Lahontan sagebrush, bluebunch
 wheatgrass
 Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

185--Puett-Soughe complex

Map Unit Setting

MLRA: 23
 Landscape: Hills
 Elevation: 5,000 to 6,000 feet
 Precipitation: 8 to 12 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 90 to 120 days

Composition

Puett very gravelly loam, 15 to 30 percent slopes--55
 percent
 Soughe very cobbly loam, 15 to 30 percent slopes--35
 percent
 Rock outcrop, 15 to 30 percent slopes--5 percent
 Hoot very cobbly loam, 15 to 30 percent slopes--3
 percent
 Xeric Torrifluvents very gravelly sandy loam, 2 to 4
 percent slopes--2 percent

Component Description

Puett and similar soils

Landform: Hills
 Parent material: Colluvium derived from tuff over
 residuum weathered from tuff
 Typical vegetation: Desert needlegrass, bluebunch
 wheatgrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
 Layer 2--3 to 15 inches; coarse sandy loam
 Layer 3--15 to 25 inches; weathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 10 to 20
 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 2 inches

Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Component Description

Soughe and similar soils

Landform: Hills
Parent material: Colluvium derived from volcanic rocks
over residuum weathered from volcanic rocks
Typical vegetation: Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very cobbly loam
Layer 2--4 to 14 inches; very gravelly clay loam
Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
"Physical Properties of Soils" table for more
information.

Component Properties and Qualities

Slope: 15 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20
inches
Permeability class (root zone): Moderately slow
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Typical soil descriptions including ranges in
characteristics are in the "Classification of the Soils"
section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 5 percent
Landform: Hills
Ecological site: None assigned

Hoot and similar soils

Composition: 0 to 3 percent
Landform: Hills
Typical vegetation: Shadscale, bottlebrush squirreltail,
bud sagebrush
Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Xeric Torrifluvents

Composition: 0 to 2 percent
Landform: Drainageways
Typical vegetation: Basin big sagebrush, spiny hopsage,
basin wildrye
Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the
following sections and associated tables in Part II of
this publication:
"Range" section
"Engineering" and "Soil Properties" sections

188--Cleavage-Softscrabble-Hackwood association

Map Unit Setting

MLRA: 23
Landscape: Mountains
Elevation: 6,000 to 8,000 feet
Precipitation: 12 to 20 inches
Air temperature: 38 to 45 degrees Fahrenheit
Frost-free period: 50 to 90 days

Composition

Cleavage extremely gravelly loam, 15 to 50 percent
slopes--35 percent
Softscrabble very stony loam, 30 to 50 percent slopes--
35 percent
Hackwood silt loam, 15 to 30 percent slopes--15 percent
Westbutte cobbly loam, 30 to 50 percent slopes--6
percent
Rock outcrop, 15 to 50 percent slopes--5 percent
Badgercamp bouldery loam, 4 to 30 percent slopes--2
percent
Welch loam, 0 to 4 percent slopes--2 percent

Component Description

Cleavage and similar soils

Landform: Shoulders of mountains; summits of
mountains; backslopes of mountains
Parent material: Colluvium derived from volcanic rocks
over residuum weathered from volcanic rocks
Typical vegetation: Low sagebrush, Sandberg bluegrass,
Idaho fescue

Typical profile:

Layer 1--0 to 7 inches; extremely gravelly loam
Layer 2--7 to 15 inches; very cobbly clay loam
Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description

Softscrabble and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam
 Layer 2--12 to 36 inches; very cobbly clay loam
 Layer 3--36 to 61 inches; gravelly clay loam
 Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Permeability class (root zone): Slow
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Component Description

Hackwood and similar soils

Landform: Backslopes of mountains; footslopes of mountains
 Parent material: Alluvium and colluvium derived from mixed-igneous & sedimentary rocks

Typical vegetation: Nevada bluegrass, groundsel, snowberry, bluebunch wheatgrass, melic, mountain brome, quaking aspen, meadowrue, other perennial grasses, other perennial forbs, other shrubs

Typical profile:

Layer 1--0 to 18 inches; silt loam
 Layer 2--18 to 30 inches; gravelly loam
 Layer 3--30 to 60 inches; very gravelly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent, northwest to northeast aspects
 Runoff: High
 Permeability class (root zone): Moderate
 Available water capacity: About 8 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6e
 Ecological site: 023XY028NV--Potr Wsg: 1r7

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Westbutte and similar soils

Composition: 0 to 6 percent
 Landform: Backslopes of mountains
 Typical vegetation: Idaho fescue, threetip sagebrush
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Rock outcrop

Composition: 0 to 5 percent
 Landform: Mountains
 Ecological site: None assigned

Badgercamp and similar soils

Composition: 0 to 2 percent
 Landform: Summits of mountains; shoulders of mountains
 Typical vegetation: Other perennial forbs, curl-leaf mountain mahogany, Idaho fescue
 Ecological site: 023XY026NV--Mahogany Savanna

Welch and similar soils

Composition: 0 to 2 percent
 Landform: Drainageways

Typical vegetation: Other perennial forbs, tufted hairgrass, bluegrass
 Ecological site: 023XY025NV--Wet Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

189--Cleavage-Softscrabble-Sumine complex

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 6,000 to 8,000 feet
 Precipitation: 10 to 20 inches
 Air temperature: 40 to 45 degrees Fahrenheit
 Frost-free period: 50 to 90 days

Composition

Cleavage extremely gravelly loam, 8 to 30 percent slopes--30 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--30 percent
 Sumine cobbly loam, 30 to 50 percent slopes--25 percent
 Rock outcrop, 15 to 50 percent slopes--5 percent
 Fluventic Haploxerolls loam, 4 to 15 percent slopes--4 percent
 Badgercamp bouldery loam, 15 to 30 percent slopes--3 percent
 Westbutte cobbly loam, 30 to 50 percent slopes--3 percent

Component Description

Cleavage and similar soils

Landform: Summits of mountains; backslopes of mountains; shoulders of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Sandberg bluegrass, Idaho fescue, low sagebrush

Typical profile:

Layer 1--0 to 7 inches; extremely gravelly loam
 Layer 2--7 to 15 inches; very cobbly clay loam
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description

Softscrabble and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam
 Layer 2--12 to 36 inches; very cobbly clay loam
 Layer 3--36 to 61 inches; gravelly clay loam
 Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Permeability class (root zone): Slow
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Component Description

Sumine and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 5 inches; cobbly loam
 Layer 2--5 to 30 inches; very gravelly clay loam
 Layer 3--30 to 40 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY016NV--South Slope 12-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 5 percent
 Landform: Mountains
 Ecological site: None assigned

Fluventic Haploxerolls

Composition: 0 to 4 percent
 Landform: Mountain valleys
 Typical vegetation: Basin wildrye, mountain big sagebrush
 Ecological site: 023XY056NV--Loamy 12-16 P.Z.

Badgercamp and similar soils

Composition: 0 to 3 percent
 Landform: Summits of mountains; shoulders of mountains
 Typical vegetation: Other perennial forbs, Idaho fescue, curl-leaf mountain mahogany
 Ecological site: 023XY026NV--Mahogany Savanna

Westbutte and similar soils

Composition: 0 to 3 percent

Landform: Backslopes of mountains
 Typical vegetation: Idaho fescue, threetip sagebrush
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

190--Cleavage-Westbutte-Softscrabble complex

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 6,000 to 7,000 feet
 Precipitation: 12 to 20 inches
 Air temperature: 41 to 45 degrees Fahrenheit
 Frost-free period: 50 to 90 days

Composition

Cleavage extremely gravelly loam, 15 to 50 percent slopes--35 percent
 Westbutte very stony loam, 30 to 50 percent slopes--30 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--20 percent
 Rock outcrop, 15 to 50 percent slopes--5 percent
 Sumine very cobbly loam, 15 to 50 percent slopes--5 percent
 Welch loam, 0 to 4 percent slopes--5 percent

Component Description

Cleavage and similar soils

Landform: Shoulders of mountains; backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Sandberg bluegrass, Idaho fescue, low sagebrush

Typical profile:

Layer 1--0 to 7 inches; extremely gravelly loam
 Layer 2--7 to 15 inches; very cobbly clay loam
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description**Westbutte and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 Typical vegetation: Threetip sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 6 inches; very stony loam
 Layer 2--6 to 15 inches; very cobbly loam
 Layer 3--15 to 28 inches; very cobbly clay loam
 Layer 4--28 to 38 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Component Description**Softscrabble and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 12 inches; very stony loam
 Layer 2--12 to 36 inches; very cobbly clay loam
 Layer 3--36 to 61 inches; gravelly clay loam
 Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Permeability class (root zone): Slow
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Rock outcrop**

Composition: 0 to 5 percent
 Landform: Mountains
 Ecological site: None assigned

Sumine and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains; footslopes of mountains
 Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass
 Ecological site: 023XY016NV--South Slope 12-16 P.Z.

Welch and similar soils

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Other perennial forbs, bluegrass, tufted hairgrass
 Ecological site: 023XY025NV--Wet Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

202--Cresal silt loam, 0 to 2 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 4,200 feet
 Precipitation: 4 to 8 inches
 Air temperature: 48 to 55 degrees Fahrenheit
 Frost-free period: 110 to 140 days

Composition

Cresal silt loam, 0 to 2 percent slopes--90 percent
 Mazuma silt loam, 0 to 2 percent slopes--5 percent
 Wholan silt loam, 0 to 2 percent slopes--5 percent

Component Description**Cresal and similar soils**

Landform: Basin-floor remnants
 Parent material: Volcanic ash and loess over lacustrine deposits
 Typical vegetation: Shadscale

Typical profile:

Layer 1--0 to 5 inches; silt loam
 Layer 2--5 to 23 inches; stratified very fine sandy loam to silt loam
 Layer 3--23 to 60 inches; stratified loamy very fine sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 11 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3s
 Nonirrigated land capability: 7s
 Ecological site: 024XY067NV--Shallow Silty 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Mazuma and similar soils**

Composition: 0 to 5 percent
 Landform: Alluvial flats
 Typical vegetation: Shadscale, black greasewood, Indian ricegrass
 Ecological site: 027XY024NV--Sodic Terrace

Wholan and similar soils

Composition: 0 to 5 percent
 Landform: Alluvial flats
 Typical vegetation: Winterfat, Indian ricegrass
 Ecological site: 024XY004NV--Silty 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

218--Davey loamy fine sand, 2 to 8 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 5,000 feet
 Precipitation: 8 to 10 inches
 Air temperature: 45 to 49 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Davey loamy fine sand, 2 to 8 percent slopes--90 percent
 Goldrun fine sand, 4 to 15 percent slopes--8 percent
 Xeric Torrifluvents very gravelly sandy loam, 0 to 2 percent slopes--2 percent

Component Description**Davey and similar soils**

Landform: Basin floors
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Other perennial forbs, Indian ricegrass, big sagebrush, needleandthread

Typical profile:

Layer 1--0 to 4 inches; loamy fine sand
 Layer 2--4 to 16 inches; fine sandy loam
 Layer 3--16 to 60 inches; loamy fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: Low
Permeability class (root zone): Moderately rapid
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 3e
Nonirrigated land capability: 7s
Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Goldrun and similar soils

Composition: 0 to 8 percent
Landform: Basin floors
Typical vegetation: Basin big sagebrush, Indian ricegrass
Ecological site: 024XY001NV--Dunes 6-10 P.Z.

Xeric Torrfluvents

Composition: 0 to 2 percent
Landform: Basin floors
Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

231--Devada-Ninemile-Softscrabble complex

Map Unit Setting

MLRA: 23
Landscape: Plateau
Elevation: 5,500 to 6,500 feet
Precipitation: 10 to 20 inches
Air temperature: 43 to 49 degrees Fahrenheit

Frost-free period: 60 to 100 days

Composition

Devada very stony loam, 2 to 30 percent slopes--55 percent
Ninemile very stony loam, 15 to 50 percent slopes--15 percent
Softscrabble stony loam, 15 to 30 percent slopes--15 percent
Rock outcrop, 15 to 50 percent slopes--5 percent
Bucklake very cobbly loam, 15 to 30 percent slopes--4 percent
Jaybee very gravelly sandy loam, 15 to 30 percent slopes--3 percent
Puett very gravelly loam, 15 to 30 percent slopes--3 percent

Component Description

Devada and similar soils

Landform: Shoulders of plateaus; summits of plateaus; backslopes of plateaus
Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks
Typical vegetation: Low sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; very stony loam
Layer 2--5 to 19 inches; clay
Layer 3--19 to 29 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 30 percent, southeast to southwest aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
Permeability class (root zone): Slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description

Ninemile and similar soils

Landform: Backslopes of plateaus; shoulders of plateaus
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Low sagebrush, bluebunch wheatgrass, Idaho fescue

Typical profile:

Layer 1--0 to 3 inches; very stony loam
 Layer 2--3 to 14 inches; clay
 Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
 Permeability class (root zone): Very slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Component Description

Softscrabble and similar soils

Landform: Backslopes of plateaus; footslopes of plateaus
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, basin wildrye, other perennial forbs, mountain big sagebrush

Typical profile:

Layer 1--0 to 20 inches; stony loam
 Layer 2--20 to 32 inches; very cobbly clay loam
 Layer 3--32 to 61 inches; gravelly clay loam
 Layer 4--61 to 65 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: High
 Permeability class (root zone): Slow
 Available water capacity: About 8 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s
 Ecological site: 023XY041NV--Loamy 12-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 5 percent
 Landform: Plateaus
 Ecological site: None assigned

Bucklake and similar soils

Composition: 0 to 4 percent
 Landform: Footslopes of plateaus
 Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, Thurber needlegrass
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Jaybee and similar soils

Composition: 0 to 3 percent
 Landform: Backslopes of plateaus; shoulders of plateaus
 Typical vegetation: Lahontan sagebrush, Thurber needlegrass
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Puett and similar soils

Composition: 0 to 3 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Wyoming big sagebrush, bluebunch wheatgrass, desert needlegrass
 Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

232--Devada extremely cobbly loam, 4 to 15 percent slopes

Map Unit Setting

MLRA: 23
 Landscape: Plateau
 Elevation: 5,500 to 6,500 feet
 Precipitation: 10 to 14 inches
 Air temperature: 45 to 49 degrees Fahrenheit
 Frost-free period: 85 to 110 days

Composition

Devada extremely cobbly loam, 4 to 15 percent slopes--85 percent
 Rock outcrop, 4 to 30 percent slopes--7 percent
 Bucklake extremely stony loam, 15 to 30 percent slopes--5 percent
 Woofus loam, 0 to 2 percent slopes--3 percent

Component Description**Devada and similar soils**

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, low sagebrush

Typical profile:

Layer 1--0 to 5 inches; extremely cobbly loam
 Layer 2--5 to 19 inches; clay
 Layer 3--19 to 29 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Rock outcrop**

Composition: 0 to 7 percent
 Landform: Plateaus
 Ecological site: None assigned

Bucklake and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, Thurber needlegrass

Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Woofus and similar soils

Composition: 0 to 3 percent
 Landform: Flood plains
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

240--Deppy-Tumtum complex**Map Unit Setting**

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 4,800 feet
 Precipitation: 7 to 9 inches
 Air temperature: 45 to 46 degrees Fahrenheit
 Frost-free period: 80 to 100 days

Composition

Deppy very cobbly loam, 2 to 8 percent slopes--45 percent
 Tumtum very cobbly loam, 4 to 15 percent slopes--40 percent
 Outerkirk sandy loam, 2 to 4 percent slopes--5 percent
 Puett very gravelly loam, 15 to 30 percent slopes--5 percent
 Xeric Torrifluvents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Deppy and similar soils**

Landform: Summits of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

Typical profile:

Layer 1--0 to 3 inches; very cobbly loam
 Layer 2--3 to 9 inches; clay loam
 Layer 3--9 to 21 inches; cemented
 Layer 4--21 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 1.5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description**Tumtum and similar soils**

Landform: Summits of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 2 inches; very cobbly loam
 Layer 2--2 to 10 inches; clay
 Layer 3--10 to 18 inches; indurated
 Layer 4--18 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 9 to 16 inches
 Permeability class (root zone): Slow
 Available water capacity: About 1.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY005NV--Loamy 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Outerkirk and similar soils**

Composition: 0 to 5 percent
 Landform: Inset fans

Typical vegetation: Basin wildrye, big sagebrush, black greasewood
 Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Puett and similar soils

Composition: 0 to 5 percent
 Landform: Pediments
 Typical vegetation: Wyoming big sagebrush, Indian ricegrass
 Ecological site: 024XY045NV--Eroded Slope 6-10 P.Z.

Xeric Torrfluvents

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Spiny hopsage, basin wildrye, basin big sagebrush
 Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

252--Dun Glen very fine sandy loam, 0 to 2 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Intermontane basin
 Elevation: 4,000 to 4,500 feet
 Precipitation: 6 to 8 inches
 Air temperature: 48 to 52 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Dun Glen very fine sandy loam, 0 to 2 percent slopes--85 percent
 Boton silt loam, 0 to 2 percent slopes--5 percent
 Wholan silt loam, 0 to 2 percent slopes--5 percent
 Xeric Torrfluvents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Dun Glen and similar soils**

Landform: Basin-floor remnants
 Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
 Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; very fine sandy loam
 Layer 2--5 to 11 inches; very fine sandy loam
 Layer 3--11 to 60 inches; loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Sodicity: Sodic within 40 inches
 Available water capacity: About 9 inches
 Present flooding: Rare
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2c
 Nonirrigated land capability: 7c
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions**Boton and similar soils**

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Shadscale, black greasewood
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Wholan and similar soils

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Indian ricegrass, winterfat
 Ecological site: 024XY004NV--Silty 4-8 P.Z.

Xeric Torrfluvents

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Spiny hopsage, basin wildrye, basin
 big sagebrush
 Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

276--Orovada fine sandy loam, 2 to 4 percent slopes***Map Unit Setting***

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 4,500 feet
 Precipitation: 8 to 10 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Orovada fine sandy loam, 2 to 4 percent slopes--90
 percent
 Durixerollic Camborthids loam, 0 to 2 percent slopes--6
 percent
 Dun Glen very fine sandy loam, 2 to 4 percent slopes--4
 percent

Component Description**Orovada and similar soils**

Landform: Fan skirts
 Parent material: Volcanic ash and loess over alluvium
 derived from mixed rocks
 Typical vegetation: Wyoming big sagebrush, Indian
 ricegrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 6 inches; fine sandy loam
 Layer 2--6 to 17 inches; fine sandy loam
 Layer 3--17 to 60 inches; stratified fine sandy loam to silt
 loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 2 to 4 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Available water capacity: About 9 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2e
 Nonirrigated land capability: 6c
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Durixerollic Camborthids

Composition: 0 to 6 percent

Landform: Inset fans

Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Dun Glen and similar soils

Composition: 0 to 4 percent

Landform: Fan skirts

Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

296--Longcreek-Cleavage association

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 5,600 to 6,300 feet

Precipitation: 10 to 16 inches

Air temperature: 43 to 50 degrees Fahrenheit

Frost-free period: 60 to 100 days

Composition

Longcreek very cobbly loam, 15 to 30 percent slopes--45 percent

Cleavage extremely gravelly loam, 15 to 30 percent slopes--40 percent

Puett very gravelly loam, 15 to 30 percent slopes--5 percent

Rock outcrop, 15 to 50 percent slopes--5 percent

Westbutte very stony loam, 30 to 50 percent slopes--5 percent

Component Description

Longcreek and similar soils

Landform: Footslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 2 inches; very cobbly loam

Layer 2--2 to 9 inches; very cobbly clay loam

Layer 3--9 to 14 inches; very cobbly clay

Layer 4--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Slow

Available water capacity: About 1.2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Component Description

Cleavage and similar soils

Landform: Shoulders of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Idaho fescue, Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 7 inches; extremely gravelly loam

Layer 2--7 to 15 inches; very cobbly clay loam

Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Puett and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Desert needlegrass, Wyoming big sagebrush, bluebunch wheatgrass
Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Rock outcrop

Composition: 0 to 5 percent
Landform: Mountains
Ecological site: None assigned

Westbutte and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Idaho fescue, other perennial forbs, mountain big sagebrush
Ecological site: 023XY054NV--Steep North Slope 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

335--Ola-Poisoncreek complex

Map Unit Setting

MLRA: 23
Landscape: Mountains
Elevation: 5,500 to 7,500 feet
Precipitation: 13 to 18 inches
Air temperature: 40 to 45 degrees Fahrenheit
Frost-free period: 70 to 100 days

Composition

Ola very bouldery sandy loam, 30 to 50 percent slopes--45 percent
Poisoncreek very gravelly coarse sandy loam, 30 to 50 percent slopes--40 percent
Westbutte cobbly loam, 30 to 50 percent slopes--6 percent
Alta extremely bouldery coarse sandy loam, 30 to 50 percent slopes--5 percent
Rock outcrop, 30 to 50 percent slopes--2 percent
Welch loam, 0 to 4 percent slopes--2 percent

Component Description

Ola and similar soils

Landform: Backslopes of mountains
Parent material: Colluvium derived from granite over residuum weathered from granite
Typical vegetation: Idaho fescue, mountain big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam
Layer 2--3 to 19 inches; coarse sandy loam
Layer 3--19 to 38 inches; gravelly coarse sandy loam
Layer 4--38 to 39 inches; weathered bedrock
Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
Permeability class (root zone): Moderate
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Component Description

Poisoncreek and similar soils

Landform: Backslopes of mountains
Parent material: Residuum weathered from volcanic rocks
Typical vegetation: Idaho fescue, Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 5 inches; very gravelly coarse sandy loam
Layer 2--5 to 12 inches; very gravelly sandy clay loam
Layer 3--12 to 15 inches; weathered bedrock
Layer 4--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
Runoff: Very high

Depth to restrictive feature: Bedrock (paralithic): 10 to 14 inches
 Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Westbutte and similar soils

Composition: 0 to 6 percent
 Landform: Backslopes of mountains
 Typical vegetation: Idaho fescue, threetip sagebrush
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Alta and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Curl-leaf mountain mahogany
 Ecological site: 023XY073NV--Granitic Mahogany Thicket

Rock outcrop

Composition: 0 to 2 percent
 Landform: Mountains
 Ecological site: None assigned

Welch and similar soils

Composition: 0 to 2 percent
 Landform: Drainageways
 Typical vegetation: Tufted hairgrass, other perennial forbs, bluegrass
 Ecological site: 023XY025NV--Wet Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

338--Ola-Poisoncreek-Tosp association

Map Unit Setting

MLRA: 23

Landscape: Mountains
 Elevation: 6,000 to 7,500 feet
 Precipitation: 13 to 20 inches
 Air temperature: 40 to 45 degrees Fahrenheit
 Frost-free period: 50 to 90 days

Composition

Ola very bouldery sandy loam, 30 to 50 percent slopes--55 percent
 Poisoncreek very gravelly coarse sandy loam, 4 to 15 percent slopes--15 percent
 Tosp bouldery loam, 30 to 50 percent slopes--15 percent
 Rock outcrop, 4 to 50 percent slopes--8 percent
 Aycab very bouldery loamy coarse sand, 30 to 50 percent slopes--4 percent
 Welch loam, 2 to 4 percent slopes--3 percent

Component Description

Ola and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam
 Layer 2--3 to 19 inches; coarse sandy loam
 Layer 3--19 to 38 inches; gravelly coarse sandy loam
 Layer 4--38 to 39 inches; weathered bedrock
 Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Component Description

Poisoncreek and similar soils

Landform: Summits of mountains; shoulders of mountains

Parent material: Residuum weathered from volcanic rocks

Typical vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Typical profile:

Layer 1--0 to 5 inches; very gravelly coarse sandy loam

Layer 2--5 to 13 inches; very gravelly sandy clay loam

Layer 3--13 to 15 inches; weathered bedrock

Layer 4--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (paralithic): 10 to 14 inches

Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderate

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description

Tosp and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Bluebunch wheatgrass, Nevada bluegrass, melic, meadowrue, mountain brome, groundsel, other shrubs, snowberry, quaking aspen, other perennial grasses, other perennial forbs

Typical profile:

Layer 1--0 to 4 inches; bouldery loam

Layer 2--4 to 37 inches; sandy loam

Layer 3--37 to 50 inches; very gravelly coarse sandy loam

Layer 4--50 to 54 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects

Runoff: Medium

Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches

Permeability class (root zone): Moderately rapid

Available water capacity: About 6 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY028NV--Potr Wsg: 1r7

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 8 percent

Landform: Mountains

Ecological site: None assigned

Aycab and similar soils

Composition: 0 to 4 percent

Landform: Backslopes of mountains

Typical vegetation: Mountain big sagebrush, other perennial forbs, mountain brome

Ecological site: 023XY048NV--Granitic Slope 16+ P.Z.

Welch and similar soils

Composition: 0 to 3 percent

Landform: Drainageways

Typical vegetation: Tufted hairgrass, bluegrass, other perennial forbs

Ecological site: 023XY025NV--Wet Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

340--Ola-Aycab-Rock outcrop complex

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 6,000 to 7,500 feet

Precipitation: 14 to 20 inches

Air temperature: 43 to 46 degrees Fahrenheit

Frost-free period: 50 to 90 days

Composition

Ola very bouldery sandy loam, 50 to 75 percent slopes--40 percent

Aycab very bouldery loamy coarse sand, 50 to 75 percent slopes--35 percent

Rock outcrop, 50 to 75 percent slopes--15 percent

Poisoncreek very gravelly coarse sandy loam, 8 to 30 percent slopes--5 percent

Siscab very bouldery loamy coarse sand, 30 to 50 percent slopes--5 percent

Component Description

Ola and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam

Layer 2--3 to 19 inches; coarse sandy loam

Layer 3--19 to 38 inches; gravelly coarse sandy loam

Layer 4--38 to 39 inches; weathered bedrock

Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, southeast to southwest aspects

Runoff: High

Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches

Permeability class (root zone): Moderate

Available water capacity: About 3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Component Description

Aycab and similar soils

Landform: Backslopes of mountains

Parent material: Residuum weathered from granite

Typical vegetation: Other perennial forbs, mountain brome, mountain big sagebrush

Typical profile:

Layer 1--0 to 2 inches; very bouldery loamy coarse sand

Layer 2--2 to 38 inches; gravelly coarse sandy loam

Layer 3--38 to 42 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, northwest to northeast aspects

Runoff: High

Depth to restrictive feature: Bedrock (paralithic): 24 to 40 inches

Permeability class (root zone): Moderately rapid

Available water capacity: About 3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY048NV--Granitic Slope 16+ P.Z.

Component Description

Rock outcrop

Landform: Mountains

Component Properties and Qualities

Slope: 50 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Poisoncreek and similar soils

Composition: 0 to 5 percent

Landform: Shoulders of mountains

Typical vegetation: Sandberg bluegrass, Idaho fescue, low sagebrush

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Siscab and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass

Ecological site: 023XY042NV--Granitic South Slope 12-14 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

345--Genegraf-Toulon association**Map Unit Setting**

MLRA: 27
 Landscape: Bolson
 Elevation: 4,200 to 4,400 feet
 Precipitation: 4 to 8 inches
 Air temperature: 48 to 55 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Genegraf very gravelly very fine sandy loam, 2 to 8 percent slopes--50 percent
 Toulon very gravelly loam, 2 to 8 percent slopes--35 percent
 Bluewing very gravelly loamy sand, 0 to 4 percent slopes--5 percent
 Mazuma silt loam, 0 to 2 percent slopes--5 percent
 Isolde fine sand, 4 to 15 percent slopes--3 percent
 Badland, 30 to 75 percent slopes--2 percent

Component Description**Genegraf and similar soils**

Landform: Fan remnants
 Parent material: Alluvium derived from volcanic rocks
 Typical vegetation: Bailey greasewood, Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 6 inches; very gravelly very fine sandy loam
 Layer 2--6 to 14 inches; gravelly clay loam
 Layer 3--14 to 23 inches; very gravelly sandy loam
 Layer 4--23 to 60 inches; very gravelly loamy sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Component Description**Toulon and similar soils**

Landform: Longshore bar (relict)s
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Bailey greasewood, Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 6 inches; very gravelly loam
 Layer 2--6 to 14 inches; very gravelly sandy loam
 Layer 3--14 to 60 inches; stratified gravelly coarse sand to extremely cobbly coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Bluewing and similar soils**

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Spiny hopsage, littleleaf horsebrush, rubber rabbitbrush
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Mazuma and similar soils

Composition: 0 to 5 percent
 Landform: Fan skirts
 Typical vegetation: Shadscale, black greasewood, Indian ricegrass
 Ecological site: 027XY024NV--Sodic Terrace

Isolde and similar soils

Composition: 0 to 3 percent
 Landform: Dunes

Typical vegetation: Indian ricegrass, black greasewood
Ecological site: 027XY016NV--Sodic Dunes

Badland

Composition: 0 to 2 percent
Landform: Backslopes of basin-floor remnants
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

350--Fulstone gravelly loam, 2 to 8 percent slopes

Map Unit Setting

MLRA: 23
Landscape: Fan piedmont
Elevation: 4,500 to 6,500 feet
Precipitation: 6 to 10 inches
Air temperature: 50 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

Composition

Fulstone gravelly loam, 2 to 8 percent slopes--85 percent
Rodock loam, 0 to 4 percent slopes--5 percent
Woofus loam, 0 to 2 percent slopes--5 percent
Wylo very stony loam, 4 to 15 percent slopes--5 percent

Component Description

Fulstone and similar soils

Landform: Fan remnants
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; gravelly loam
Layer 2--3 to 18 inches; clay
Layer 3--18 to 29 inches; indurated

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches
Permeability class (root zone): Slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rodock and similar soils

Composition: 0 to 5 percent
Landform: Fan aprons
Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Woofus and similar soils

Composition: 0 to 5 percent
Landform: Flood plains
Typical vegetation: Basin wildrye
Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Wylo and similar soils

Composition: 0 to 5 percent
Landform: Pediments
Typical vegetation: Lahontan sagebrush, bluebunch wheatgrass
Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

357--Granshaw-Shawave complex

Map Unit Setting

MLRA: 24
Landscape: Fan piedmont
Elevation: 4,300 to 4,800 feet
Precipitation: 4 to 10 inches
Air temperature: 52 to 55 degrees Fahrenheit
Frost-free period: 110 to 130 days

Composition

Granshaw gravelly coarse sandy loam, 2 to 8 percent slopes--60 percent
 Shawave gravelly sandy loam, 2 to 8 percent slopes--30 percent
 Davey fine sandy loam, 2 to 8 percent slopes--5 percent
 Orovada fine sandy loam, 0 to 4 percent slopes--5 percent

Component Description**Granshaw and similar soils**

Landform: Fan skirts
 Parent material: Alluvium
 Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

Typical profile:

Layer 1--0 to 7 inches; gravelly coarse sandy loam
 Layer 2--7 to 25 inches; sandy loam
 Layer 3--25 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4e
 Nonirrigated land capability: 7c
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description**Shawave and similar soils**

Landform: Fan remnants
 Parent material: Alluvium derived from granite, volcanic ash, and loess
 Typical vegetation: Thurber needlegrass, needleandthread, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 5 inches; gravelly sandy loam
 Layer 2--5 to 16 inches; sandy clay loam
 Layer 3--16 to 46 inches; sandy loam
 Layer 4--46 to 60 inches; loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e
 Nonirrigated land capability: 6c
 Ecological site: 023XY068NV--Granitic Loam 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Davey and similar soils**

Composition: 0 to 5 percent
 Landform: Sand sheets
 Typical vegetation: Other perennial forbs, big sagebrush, Indian ricegrass, needleandthread
 Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Orovada and similar soils

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

360--Grumblen-Pickup association**Map Unit Setting**

MLRA: 27
 Landscape: Mountains
 Elevation: 5,000 to 6,000 feet
 Precipitation: 8 to 12 inches

Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 80 to 110 days

Composition

Grumblen very gravelly loam, 15 to 50 percent slopes--50 percent
Pickup extremely stony loam, 30 to 50 percent slopes--35 percent
Soughe very cobbly loam, 30 to 50 percent slopes--5 percent
Rock outcrop, 15 to 50 percent slopes--4 percent
Puett very gravelly loam, 15 to 30 percent slopes--3 percent
Xeric Torrfluvents very gravelly sandy loam, 0 to 4 percent slopes--3 percent

Component Description

Grumblen and similar soils

Landform: Backslopes of mountains
Parent material: Alluvium derived from mixed rocks and volcanic ash
Typical vegetation: Indian ricegrass, Lahontan sagebrush, Bailey greasewood

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 9 inches; very gravelly clay
Layer 3--9 to 18 inches; very gravelly clay loam
Layer 4--18 to 28 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
Permeability class (root zone): Slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 027XY070NV--Droughty Claypan 8-10 P.Z.

Component Description

Pickup and similar soils

Landform: Backslopes of mountains
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Thurber needlegrass, Lahontan sagebrush, other shrubs

Typical profile:

Layer 1--0 to 5 inches; extremely stony loam
Layer 2--5 to 22 inches; very gravelly clay
Layer 3--22 to 32 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Permeability class (root zone): Slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 027XY079NV--Gravelly Claypan 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Soughe and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Thurber needlegrass
Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Rock outcrop

Composition: 0 to 4 percent
Landform: Mountains
Ecological site: None assigned

Puett and similar soils

Composition: 0 to 3 percent
Landform: Backslopes of mountains
Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, desert needlegrass
Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Xeric Torrfluvents

Composition: 0 to 3 percent
Landform: Drainageways
Typical vegetation: Bottlebrush squirreltail, basin big sagebrush, Indian ricegrass, spiny hopsage

Ecological site: 027XY029NV--Gravelly Fan 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

374--Hoot-Rock outcrop association

Map Unit Setting

MLRA: 24
Landscape: Plateau
Elevation: 4,300 to 5,000 feet
Precipitation: 6 to 8 inches
Air temperature: 48 to 55 degrees Fahrenheit
Frost-free period: 90 to 120 days

Composition

Hoot very cobbly loam, 4 to 15 percent slopes--75 percent
Rock outcrop, 15 to 50 percent slopes--15 percent
Jaybee very gravelly sandy loam, 15 to 50 percent slopes--5 percent
Soughe very cobbly loam, 50 to 75 percent slopes--5 percent

Component Description

Hoot and similar soils

Landform: Summits of plateaus
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Shadscale, bottlebrush squirreltail, bud sagebrush

Typical profile:

Layer 1--0 to 5 inches; very cobbly loam
Layer 2--5 to 15 inches; very gravelly clay loam
Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
Permeability class (root zone): Moderately slow
Available water capacity: About 1.1 inches
Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Component Description

Rock outcrop

Landform: Plateaus

Component Properties and Qualities

Slope: 15 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined
Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Jaybee and similar soils

Composition: 0 to 5 percent
Landform: Shoulders of plateaus; backslopes of plateaus
Typical vegetation: Thurber needlegrass, Lahontan sagebrush
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Soughe and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of plateaus
Typical vegetation: Thurber needlegrass
Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

378--Hawsley fine sand, 2 to 4 percent slopes

Map Unit Setting

MLRA: 27
Landscape: Intermontane basin
Elevation: 4,000 to 4,500 feet
Precipitation: 4 to 7 inches
Air temperature: 46 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

Composition

Hawsley fine sand, 2 to 4 percent slopes--85 percent
 Mazuma fine sandy loam, 2 to 8 percent slopes--7
 percent
 Isolde fine sand, 4 to 15 percent slopes--6 percent
 Ragtown silt loam, 0 to 2 percent slopes--2 percent

Component Description

Hawsley and similar soils

Landform: Sand sheets
 Parent material: Alluvium derived from mixed rocks and
 eolian deposits
 Typical vegetation: Indian ricegrass, fourwing saltbush

Typical profile:

Layer 1--0 to 2 inches; fine sand
 Layer 2--2 to 42 inches; stratified coarse sand to fine
 sand
 Layer 3--42 to 60 inches; sand

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 2 to 4 percent
 Runoff: Negligible
 Permeability class (root zone): Rapid
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY009NV--Sandy 5-8 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Mazuma and similar soils

Composition: 0 to 7 percent
 Landform: Fan skirts
 Typical vegetation: Indian ricegrass, shadscale, Bailey
 greasewood
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Isolde and similar soils

Composition: 0 to 6 percent
 Landform: Dunes
 Typical vegetation: Black greasewood, Indian ricegrass
 Ecological site: 027XY016NV--Sodic Dunes

Ragtown and similar soils

Composition: 0 to 2 percent
 Landform: Basin-floor remnants
 Typical vegetation: Inland saltgrass, black greasewood
 Ecological site: 027XY025NV--Sodic Flat

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

381--Hart Camp-Devada-Rock outcrop complex

Map Unit Setting

MLRA: 23
 Landscape: Plateau
 Elevation: 6,000 to 6,900 feet
 Precipitation: 10 to 16 inches
 Air temperature: 43 to 47 degrees Fahrenheit
 Frost-free period: 80 to 100 days

Composition

Hart Camp very stony loam, 4 to 30 percent slopes--50
 percent
 Devada very stony loam, 4 to 15 percent slopes--20
 percent
 Rock outcrop, 15 to 50 percent slopes--15 percent
 Ninemile very stony loam, 4 to 15 percent slopes--6
 percent
 Softscrabble very stony loam, 15 to 30 percent slopes--6
 percent
 Badgercamp bouldery loam, 4 to 15 percent slopes--3
 percent

Component Description

Hart Camp and similar soils

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Residuum weathered from tuff
 Typical vegetation: Bluebunch wheatgrass, antelope
 bitterbrush

Typical profile:

Layer 1--0 to 7 inches; very stony loam
 Layer 2--7 to 19 inches; gravelly sandy clay loam
 Layer 3--19 to 29 inches; weathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 4 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY015NV--Stony Loam 12-14 P.Z.

Component Description**Devada and similar soils**

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, low sagebrush, Thurber needlegrass

Typical profile:

Layer 1--0 to 5 inches; very stony loam
 Layer 2--5 to 19 inches; clay
 Layer 3--19 to 29 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description**Rock outcrop**

Landform: Plateaus

Component Properties and Qualities

Slope: 15 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Ninemile and similar soils**

Composition: 0 to 6 percent
 Landform: Shoulders of plateaus
 Typical vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass
 Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Softscrabble and similar soils

Composition: 0 to 6 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush, basin wildrye, other perennial forbs
 Ecological site: 023XY041NV--Loamy 12-14 P.Z.

Badgercamp and similar soils

Composition: 0 to 3 percent
 Landform: Summits of plateaus
 Typical vegetation: Other perennial forbs, Idaho fescue, curl-leaf mountain mahogany
 Ecological site: 023XY026NV--Mahogany Savanna

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

382--Hart Camp-Badgercamp association**Map Unit Setting**

MLRA: 23
 Landscape: Plateau
 Elevation: 6,200 to 7,200 feet
 Precipitation: 10 to 20 inches
 Air temperature: 37 to 45 degrees Fahrenheit
 Frost-free period: 40 to 90 days

Composition

Hart Camp stony loam, 4 to 30 percent slopes--60 percent
 Badgercamp bouldery loam, 4 to 30 percent slopes--25 percent
 Bearbutte stony loam, 15 to 50 percent slopes--8 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--5 percent

Rock outcrop, 4 to 50 percent slopes--2 percent

Component Description

Hart Camp and similar soils

Landform: Summits of plateaus; shoulders of plateaus
Parent material: Residuum weathered from tuff
Typical vegetation: Bluebunch wheatgrass, antelope bitterbrush

Typical profile:

Layer 1--0 to 7 inches; stony loam
Layer 2--7 to 19 inches; gravelly sandy clay loam
Layer 3--19 to 23 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches
Permeability class (root zone): Moderately slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY015NV--Stony Loam 12-14 P.Z.

Component Description

Badgercamp and similar soils

Landform: Shoulders of plateaus
Parent material: Residuum weathered from tuff
Typical vegetation: Other perennial forbs, Idaho fescue, curl-leaf mountain mahogany

Typical profile:

Layer 1--0 to 6 inches; bouldery loam
Layer 2--6 to 15 inches; very gravelly loam
Layer 3--15 to 19 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches

Permeability class (root zone): Moderate
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY026NV--Mahogany Savanna

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bearbutte and similar soils

Composition: 0 to 8 percent
Landform: Footslopes of plateaus; backslopes of plateaus
Typical vegetation: Mountain big sagebrush, Idaho fescue, antelope bitterbrush
Ecological site: 023XY066NV--Ashy Loam 12-14 P.Z.

Softscrabble and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of plateaus
Typical vegetation: Idaho fescue, mountain big sagebrush, bluebunch wheatgrass
Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Rock outcrop

Composition: 0 to 2 percent
Landform: Plateaus
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

388--Humboldt silty clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 23
Landscape: Intermontane basin
Elevation: 4,000 to 4,200 feet
Precipitation: 5 to 8 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

Composition

Humboldt silty clay loam, 0 to 2 percent slopes--90 percent
 Sonda silt loam, 0 to 2 percent slopes--5 percent
 Wendane silt loam, 0 to 2 percent slopes--5 percent

Component Description**Humboldt and similar soils**

Landform: Flood plains
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Beardless wildrye, basin wildrye

Typical profile:

Layer 1--0 to 13 inches; silty clay loam
 Layer 2--13 to 60 inches; stratified silty clay loam to clay

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Available water capacity: About 11 inches
 Present flooding: Frequent
 Water table: Present
 Natural drainage class: Poorly drained

Interpretive Groups

Irrigated land capability: 5w
 Nonirrigated land capability: 5w
 Ecological site: 025XY001NV--Moist Floodplain

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Sonda and similar soils**

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Inland saltgrass, black greasewood
 Ecological site: 027XY025NV--Sodic Flat

Wendane and similar soils

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Black greasewood, basin wildrye, alkali sacaton
 Ecological site: 024XY007NV--Saline Bottom

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

402--Tumtum very cobbly loam, 4 to 15 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 4,800 feet
 Precipitation: 7 to 9 inches
 Air temperature: 45 to 46 degrees Fahrenheit
 Frost-free period: 80 to 100 days

Composition

Tumtum very cobbly loam, 4 to 15 percent slopes--85 percent
 Deppy very cobbly loam, 2 to 8 percent slopes--5 percent
 Puett very gravelly loam, 15 to 30 percent slopes--5 percent
 Xeric Torriorthents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Tumtum and similar soils**

Landform: Shoulders of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass

Typical profile:

Layer 1--0 to 2 inches; very cobbly loam
 Layer 2--2 to 10 inches; clay
 Layer 3--10 to 18 inches; indurated
 Layer 4--18 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 9 to 16 inches
 Permeability class (root zone): Slow
 Available water capacity: About 1.6 inches

Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Deppy and similar soils

Composition: 0 to 5 percent
Landform: Summits of fan remnants
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Puett and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of pediments
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site: 024XY045NV--Eroded Slope 6-10 P.Z.

Xeric Torriorthents

Composition: 0 to 5 percent
Landform: Drainageways
Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

410--Shawave-Deadyon association

Map Unit Setting

MLRA: 23
Landscape: Fan piedmont
Elevation: 4,500 to 5,200 feet
Precipitation: 8 to 10 inches
Air temperature: 49 to 53 degrees Fahrenheit
Frost-free period: 110 to 130 days

Composition

Shawave gravelly sandy loam, 2 to 8 percent slopes--55 percent

Deadyon sandy loam, 0 to 2 percent slopes--20 percent
Shawave gravelly sandy loam, 15 to 30 percent slopes--15 percent
Durixerollic Haplargids very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Xeric Torrifluvents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description

Shawave and similar soils

Landform: Fan remnants
Parent material: Alluvium derived from granite, volcanic ash, and loess
Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 5 inches; gravelly sandy loam
Layer 2--5 to 16 inches; sandy clay loam
Layer 3--16 to 46 inches; sandy loam
Layer 4--46 to 60 inches; loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: High
Permeability class (root zone): Moderately slow
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e
Nonirrigated land capability: 6c
Ecological site: 023XY057NV--Granitic Loam 10-12 P.Z.

Component Description

Deadyon and similar soils

Landform: Inset fans
Parent material: Alluvium derived from granite
Typical vegetation: Thurber needlegrass, basin wildrye, Wyoming big sagebrush, basin big sagebrush

Typical profile:

Layer 1--0 to 5 inches; sandy loam
Layer 2--5 to 15 inches; sandy loam
Layer 3--15 to 33 inches; sandy loam
Layer 4--33 to 60 inches; stratified very gravelly coarse sand to sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Low
Permeability class (root zone): Moderate
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2c
Nonirrigated land capability: 7c
Ecological site: 023XY040NV--Granitic Fan 8-10 P.Z.

Component Description

Shawave and similar soils

Landform: Shoulders of fan remnants; backslopes of fan remnants
Parent material: Alluvium derived from granite, volcanic ash, and loess
Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; gravelly sandy loam
Layer 2--5 to 16 inches; sandy clay loam
Layer 3--16 to 46 inches; sandy loam
Layer 4--46 to 60 inches; loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
Runoff: Very high
Permeability class (root zone): Moderately slow
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6c
Ecological site: 023XY057NV--Granitic Loam 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Durixerollic Haplargids

Composition: 0 to 5 percent
Landform: Fan remnants
Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, bluebunch wheatgrass
Ecological site: 023XY057NV--Granitic Loam 10-12 P.Z.

Xeric Torrifuvents

Composition: 0 to 5 percent
Landform: Drainageways
Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

411--Shawave-Orovada complex

Map Unit Setting

MLRA: 23
Landscape: Fan piedmont
Elevation: 4,200 to 5,000 feet
Precipitation: 8 to 10 inches
Air temperature: 49 to 53 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Shawave gravelly sandy loam, 2 to 8 percent slopes--70 percent
Orovada fine sandy loam, 0 to 4 percent slopes--25 percent
Goldrun fine sand, 4 to 15 percent slopes--5 percent

Component Description

Shawave and similar soils

Landform: Fan remnants
Parent material: Alluvium derived from granite, volcanic ash, and loess
Typical vegetation: Thurber needlegrass, needleandthread, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 5 inches; gravelly sandy loam
Layer 2--5 to 16 inches; sandy clay loam

Layer 3--16 to 46 inches; sandy loam
 Layer 4--46 to 60 inches; loamy coarse sand

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e
 Nonirrigated land capability: 6c
 Ecological site: 023XY068NV--Granitic Loam 8-10 P.Z.

Component Description

Orovada and similar soils

Landform: Fan skirts
 Parent material: Volcanic ash and loess over alluvium
 derived from mixed rocks
 Typical vegetation: Indian ricegrass, Thurber
 needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 6 inches; fine sandy loam
 Layer 2--6 to 17 inches; fine sandy loam
 Layer 3--17 to 60 inches; stratified fine sandy loam to silt
 loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 0 to 4 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Available water capacity: About 9 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2e
 Nonirrigated land capability: 6c
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Goldrun and similar soils

Composition: 0 to 5 percent
 Landform: Dunes
 Typical vegetation: Indian ricegrass, basin big sagebrush
 Ecological site: 024XY001NV--Dunes 6-10 P.Z.

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

413--Isolde-Typic Torriorthents-Dune land complex

Map Unit Setting

MLRA: 27
 Landscape: Bolson
 Elevation: 3,900 to 4,200 feet
 Precipitation: 4 to 8 inches
 Air temperature: 50 to 55 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Isolde fine sand, 4 to 15 percent slopes--55 percent
 Typic Torriorthents extremely gravelly sandy loam, 2 to 4
 percent slopes--20 percent
 Dune land silty clay, 15 to 30 percent slopes--15 percent
 Bluewing extremely channery loamy sand, 2 to 8 percent
 slopes--4 percent
 Playas, 0 to 1 percent slopes--4 percent
 Bluewing very gravelly loamy sand, 0 to 2 percent
 slopes--2 percent

Component Description

Isolde and similar soils

Landform: Basin floors
 Parent material: Eolian sands
 Typical vegetation: Indian ricegrass, black greasewood

Typical profile:

Layer 1--0 to 3 inches; fine sand
 Layer 2--3 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: Very low
Permeability class (root zone): Very rapid
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site: 027XY016NV--Sodic Dunes

Component Description

Typic Torriorthents

Landform: Basin-floor remnants
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Inland saltgrass

Component Properties and Qualities

Slope: 2 to 4 percent
Runoff: Negligible
Permeability class (root zone): Moderately slow
Sodicity: Sodic within 40 inches
Available water capacity: About 0.3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 8s
Ecological site: 026XY002NV--Wet Sodic Bottom

Component Description

Dune land

Landform: Basin floors

Component Properties and Qualities

Slope: 15 to 30 percent
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches

Interpretive Groups

Nonirrigated land capability: 8s
Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 4 percent
Landform: Barrier beaches
Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood
Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Playas

Composition: 0 to 4 percent
Landform: Basin floors
Ecological site: None assigned

Bluewing and similar soils

Composition: 0 to 2 percent
Landform: Basin floors
Typical vegetation: Littleleaf horsebrush, rubber rabbitbrush, spiny hopsage
Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

414--Isolde-Mazuma-Jerval association

Map Unit Setting

MLRA: 27
Landscape: Fan piedmont
Elevation: 4,300 to 5,000 feet
Precipitation: 4 to 8 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Isolde fine sand, 4 to 15 percent slopes--30 percent
Mazuma very fine sandy loam, 2 to 4 percent slopes--30 percent
Jerval gravelly very fine sandy loam, 2 to 8 percent slopes--30 percent
Bluewing very gravelly loamy sand, 0 to 2 percent slopes--5 percent
Hawsley fine sand, 2 to 4 percent slopes--5 percent

Component Description

Isolde and similar soils

Landform: Dunes

Parent material: Eolian sands
 Typical vegetation: Indian ricegrass, black greasewood

Typical profile:

Layer 1--0 to 3 inches; fine sand
 Layer 2--3 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very low
 Permeability class (root zone): Very rapid
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY016NV--Sodic Dunes

Component Description

Mazuma and similar soils

Landform: Fan skirts
 Parent material: Alluvium derived from mixed rocks and
 lacustrine deposits
 Typical vegetation: Indian ricegrass, Bailey greasewood,
 shadscale

Typical profile:

Layer 1--0 to 5 inches; very fine sandy loam
 Layer 2--5 to 60 inches; stratified gravelly coarse sand to
 silt loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 2 to 4 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2e

Nonirrigated land capability: 7c
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Component Description

Jerval and similar soils

Landform: Fan remnants
 Parent material: Alluvium derived from mixed rocks,
 volcanic ash and loess
 Typical vegetation: Shadscale, Indian ricegrass, bud
 sagebrush

Typical profile:

Layer 1--0 to 4 inches; gravelly very fine sandy loam
 Layer 2--4 to 12 inches; gravelly clay loam
 Layer 3--12 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e
 Nonirrigated land capability: 7s
 Ecological site: 027XY013NV--Loamy 4-8 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Spiny hopsage, rubber rabbitbrush,
 littleleaf horsebrush
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Hawsley and similar soils

Composition: 0 to 5 percent
 Landform: Sand sheets
 Typical vegetation: Fourwing saltbush, Indian ricegrass
 Ecological site: 027XY009NV--Sandy 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Crops and Pasture" section
- "Engineering" and "Soil Properties" sections

420--Jesse Camp very fine sandy loam, 0 to 2 percent slopes**Map Unit Setting**

MLRA: 23
 Landscape: Intermontane basin
 Elevation: 5,500 to 6,000 feet
 Precipitation: 8 to 10 inches
 Air temperature: 43 to 45 degrees Fahrenheit
 Frost-free period: 90 to 105 days

Composition

Jesse Camp very fine sandy loam, 0 to 2 percent slopes--85 percent
 Woofus loam, 0 to 2 percent slopes--10 percent
 Rodock gravelly loam, 0 to 2 percent slopes--5 percent

Component Description**Jesse Camp and similar soils**

Landform: Basin-floor remnants
 Parent material: Alluvium derived from volcanic rocks, volcanic ash and lacustrine deposits
 Typical vegetation: Beardless wildrye, Nevada bluegrass, other perennial grasses, silver sagebrush

Typical profile:

Layer 1--0 to 4 inches; very fine sandy loam
 Layer 2--4 to 12 inches; very fine sandy loam
 Layer 3--12 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Available water capacity: About 11 inches
 Present flooding: Rare
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2c
 Nonirrigated land capability: 6c

Ecological site: 023XY003NV--Clay Basin

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Woofus and similar soils**

Composition: 0 to 10 percent
 Landform: Flood plains
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Rodock and similar soils

Composition: 0 to 5 percent
 Landform: Fan aprons
 Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Crops and Pasture" section
- "Engineering" and "Soil Properties" sections

430--Woofus loam, 0 to 2 percent slopes**Map Unit Setting**

MLRA: 23
 Landscape: Intermontane basin
 Elevation: 5,000 to 5,900 feet
 Precipitation: 8 to 10 inches
 Air temperature: 45 to 48 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Woofus loam, 0 to 2 percent slopes--85 percent
 Woofus loam, 0 to 2 percent slopes--10 percent
 Holbrook gravelly loam, 0 to 2 percent slopes--5 percent

Component Description**Woofus and similar soils**

Landform: Flood plains
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Basin wildrye

Typical profile:

Layer 1--0 to 6 inches; loam
 Layer 2--6 to 20 inches; stratified loam to silty clay loam

Layer 3--20 to 38 inches; stratified gravelly coarse sand to loamy fine sand
 Layer 4--38 to 60 inches; stratified very gravelly coarse sand to very gravelly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Available water capacity: About 7 inches
 Present flooding: Frequent
 Water table: Present
 Natural drainage class: Very poorly drained

Interpretive Groups

Nonirrigated land capability: 6w
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Woofus and similar soils

Composition: 0 to 10 percent
 Landform: Flood plains
 Typical vegetation: Other perennial grasses, Nevada bluegrass, other perennial forbs, sedge
 Ecological site: 023XY013NV--Dry Meadow

Holbrook and similar soils

Composition: 0 to 5 percent
 Landform: Alluvial fans
 Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

431--Woofus-Welch complex

Map Unit Setting

MLRA: 23
 Landscape: Intermontane basin

Elevation: 5,000 to 5,900 feet
 Precipitation: 8 to 16 inches
 Air temperature: 40 to 48 degrees Fahrenheit
 Frost-free period: 90 to 110 days

Composition

Woofus loam, 0 to 2 percent slopes--45 percent
 Welch loam, 0 to 2 percent slopes--45 percent
 Woofus loam, 0 to 2 percent slopes--10 percent

Component Description

Woofus and similar soils

Landform: Flood plains
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Sedge, Nevada bluegrass, other perennial grasses, other perennial forbs

Typical profile:

Layer 1--0 to 6 inches; loam
 Layer 2--6 to 20 inches; stratified loam to silty clay loam
 Layer 3--20 to 40 inches; stratified gravelly coarse sand to loamy fine sand
 Layer 4--40 to 60 inches; stratified very gravelly coarse sand to very gravelly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Available water capacity: About 7 inches
 Present flooding: Frequent
 Water table: Present
 Natural drainage class: Very poorly drained

Interpretive Groups

Irrigated land capability: 5w
 Nonirrigated land capability: 5w
 Ecological site: 023XY013NV--Dry Meadow

Component Description

Welch and similar soils

Landform: Flood plains
 Parent material: Alluvium derived from volcanic rocks and volcanic ash
 Typical vegetation: Bluegrass, tufted hairgrass, other perennial forbs

Typical profile:

Layer 1--0 to 9 inches; loam

Layer 2--9 to 60 inches; stratified sandy loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Medium
Permeability class (root zone): Moderately slow
Available water capacity: About 11 inches
Present flooding: Occasional
Water table: Present
Natural drainage class: Very poorly drained

Interpretive Groups

Nonirrigated land capability: 5w
Ecological site: 023XY025NV--Wet Meadow

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Woofus drained and similar soils

Composition: 0 to 10 percent
Landform: Flood plains
Typical vegetation: Basin wildrye
Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

432--Isolde-Ragtown association

Map Unit Setting

MLRA: 27
Landscape: Bolson
Elevation: 3,900 to 4,200 feet
Precipitation: 4 to 8 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Isolde fine sand, 4 to 15 percent slopes--70 percent
Ragtown silt loam, 0 to 2 percent slopes--20 percent

Mazuma fine sandy loam, 0 to 2 percent slopes--5 percent
Playas, 0 to 1 percent slopes--5 percent

Component Description

Isolde and similar soils

Landform: Basin floors
Parent material: Eolian sands
Typical vegetation: Indian ricegrass, black greasewood

Typical profile:

Layer 1--0 to 3 inches; fine sand
Layer 2--3 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: Very low
Permeability class (root zone): Very rapid
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site: 027XY016NV--Sodic Dunes

Component Description

Ragtown and similar soils

Landform: Basin-floor remnants
Parent material: Clayey lacustrine deposits
Typical vegetation: Inland saltgrass, black greasewood

Typical profile:

Layer 1--0 to 7 inches; silt loam
Layer 2--7 to 17 inches; stratified sandy clay loam to silty clay loam
Layer 3--17 to 60 inches; stratified silty clay loam to clay

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: High
Permeability class (root zone): Slow
Salinity: Saline within 40 inches
Available water capacity: About 10 inches
Present flooding: Frequent

Natural drainage class: Moderately well drained

Interpretive Groups

Nonirrigated land capability: 7w

Ecological site: 027XY025NV--Sodic Flat

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Mazuma and similar soils

Composition: 0 to 5 percent

Landform: Basin-floor remnants

Typical vegetation: Shadscale, Indian ricegrass, black greasewood

Ecological site: 027XY024NV--Sodic Terrace

Playas

Composition: 0 to 5 percent

Landform: Basin floors

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

433--Wetvit association

Map Unit Setting

MLRA: 23

Landscape: Plateau

Elevation: 5,800 to 6,200 feet

Precipitation: 9 to 16 inches

Air temperature: 45 to 46 degrees Fahrenheit

Frost-free period: 80 to 100 days

Composition

Wetvit loam, 0 to 2 percent slopes--50 percent

Wetvit loam, 0 to 2 percent slopes--40 percent

Vitrorrandic Haploxerolls loam, 0 to 2 percent slopes--5 percent

Weezweed loam, 0 to 2 percent slopes--4 percent

Rodock gravelly sandy loam, 2 to 8 percent slopes--1 percent

Component Description

Wetvit and similar soils

Landform: Flood plains

Parent material: Alluvium derived from volcanic rocks and volcanic ash

Typical vegetation: Beardless wildrye, Nevada bluegrass, sedge, other perennial forbs

Typical profile:

Layer 1--0 to 16 inches; loam

Layer 2--16 to 41 inches; stratified sandy loam to clay loam

Layer 3--41 to 60 inches; stratified gravelly loamy sand to clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Medium

Permeability class (root zone): Moderately slow

Available water capacity: About 12 inches

Present flooding: Frequent

Water table: Present

Natural drainage class: Very poorly drained

Interpretive Groups

Nonirrigated land capability: 5w

Ecological site: 023XY089NV--Wet Meadow 10-14 P.Z.

Component Description

Wetvit and similar soils

Landform: Flood plains

Parent material: Alluvium derived from volcanic rocks and volcanic ash

Typical vegetation: Other perennial grasses, other perennial forbs, Nevada bluegrass, sedge

Typical profile:

Layer 1--0 to 16 inches; loam

Layer 2--16 to 41 inches; stratified sandy loam to clay loam

Layer 3--41 to 60 inches; stratified gravelly loamy sand to clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Medium

Permeability class (root zone): Moderately slow

Available water capacity: About 12 inches

Present flooding: Occasional

Water table: Present

Natural drainage class: Very poorly drained

Interpretive Groups

Nonirrigated land capability: 5w

Ecological site: 023XY013NV--Dry Meadow

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Vitrorrandic Haploxerolls

Composition: 0 to 5 percent

Landform: Stream terraces

Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Weezweed and similar soils

Composition: 0 to 4 percent

Landform: Stream terraces

Typical vegetation: Basin wildrye, basin big sagebrush

Ecological site: 023XY005NV--Dry Floodplain 8-10 P.Z.

Rodock and similar soils

Composition: 0 to 1 percent

Landform: Stream terraces

Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, big sagebrush

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

442--Rodock-Fax-Holbrook complex

Map Unit Setting

MLRA: 23

Landscape: Fan piedmont

Elevation: 4,500 to 6,000 feet

Precipitation: 8 to 14 inches

Air temperature: 45 to 51 degrees Fahrenheit

Frost-free period: 80 to 110 days

Composition

Rodock gravelly sandy loam, 0 to 4 percent slopes--30 percent

Fax gravelly loam, 2 to 8 percent slopes--30 percent

Holbrook gravelly loam, 0 to 2 percent slopes--25 percent

Woofus loam, 0 to 2 percent slopes--6 percent

Jesse Camp very fine sandy loam, 0 to 2 percent slopes--4 percent

Fulstone gravelly loam, 2 to 8 percent slopes--3 percent

Tuffo fine sandy loam, 4 to 15 percent slopes--2 percent

Component Description

Rodock and similar soils

Landform: Inset fans

Parent material: Alluvium derived from mixed rocks, volcanic ash and loess

Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 2 inches; gravelly sandy loam

Layer 2--2 to 20 inches; gravelly loam

Layer 3--20 to 29 inches; gravelly sandy loam

Layer 4--29 to 60 inches; stratified extremely gravelly coarse sand to very gravelly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 4 percent

Runoff: Low

Permeability class (root zone): Moderately slow

Available water capacity: About 5 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e

Nonirrigated land capability: 7s

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Component Description

Fax and similar soils

Landform: Fan remnants

Parent material: Alluvium derived from andesite

Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, big sagebrush

Typical profile:

Layer 1--0 to 4 inches; gravelly loam

Layer 2--4 to 12 inches; very gravelly sandy clay loam

Layer 3--12 to 22 inches; very gravelly sandy clay loam

Layer 4--22 to 48 inches; cemented

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 36 inches
Permeability class (root zone): Moderately slow
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Component Description

Holbrook and similar soils

Landform: Alluvial fans
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, big sagebrush

Typical profile:

Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 61 inches; stratified stony sand to extremely gravelly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Low
Permeability class (root zone): Moderate
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s
Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Woofus and similar soils

Composition: 0 to 6 percent
Landform: Flood plains
Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Jesse Camp and similar soils

Composition: 0 to 4 percent
Landform: Stream terraces
Typical vegetation: Basin wildrye, basin big sagebrush
Ecological site: 023XY005NV--Dry Floodplain 8-10 P.Z.

Fulstone and similar soils

Composition: 0 to 3 percent
Landform: Fan remnants
Typical vegetation: Thurber needlegrass, Lahontan sagebrush
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Tuffo and similar soils

Composition: 0 to 2 percent
Landform: Pediments
Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, big sagebrush
Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

452--Rocconda-Coppereid-Soughe complex

Map Unit Setting

MLRA: 23
Landscape: Mountains
Elevation: 4,800 to 6,300 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 90 to 120 days

Composition

Rocconda very channery loam, 15 to 50 percent slopes--40 percent
Coppereid gravelly loam, 15 to 50 percent slopes--25 percent
Soughe very cobbly loam, 15 to 50 percent slopes--20 percent
Grumblen very gravelly loam, 15 to 30 percent slopes--6 percent
Xeric Torriorthents gravelly loam, 15 to 30 percent slopes--6 percent
Xeric Torrifluvents very gravelly sandy loam, 0 to 2 percent slopes--3 percent

Component Description**Rocconda and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from phyllite over residuum weathered from phyllite
 Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; very channery loam
 Layer 2--3 to 8 inches; very channery clay
 Layer 3--8 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
 Permeability class (root zone): Slow
 Available water capacity: About 0.7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Component Description**Coppereid and similar soils**

Landform: Backslopes of mountains
 Parent material: Residuum weathered from shale
 Typical vegetation: Other shrubs, Sandberg bluegrass, other perennial grasses, Utah juniper, other perennial forbs, Lahontan sagebrush, Thurber needlegrass, desert needlegrass

Typical profile:

Layer 1--0 to 2 inches; gravelly loam
 Layer 2--2 to 9 inches; gravelly loam
 Layer 3--9 to 13 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 5 to 10 inches

Permeability class (root zone): Moderate
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY045NV--Juos Wsg: 0r9

Component Description**Soughe and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very cobbly loam
 Layer 2--4 to 14 inches; very gravelly clay loam
 Layer 3--14 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 1.5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Grumblen and similar soils**

Composition: 0 to 6 percent
 Landform: Backslopes of mountains
 Typical vegetation: Indian ricegrass, Bailey greasewood, Lahontan sagebrush
 Ecological site: 027XY070NV--Droughty Claypan 8-10 P.Z.

Xeric Torriorthents

Composition: 0 to 6 percent

Landform: Backslopes of mountains
 Typical vegetation: Thurber needlegrass, Utah juniper, desert needlegrass, Lahontan sagebrush, other shrubs, other perennial grasses, other perennial forbs, Sandberg bluegrass
 Ecological site: 023XY045NV--Juos Wsg: 0r9

Xeric Torrfluvents

Composition: 0 to 3 percent
 Landform: Drainageways
 Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
 Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

463--Jerval-Dorper association

Map Unit Setting

MLRA: 27
 Landscape: Fan piedmont
 Elevation: 4,200 to 5,000 feet
 Precipitation: 4 to 8 inches
 Air temperature: 52 to 55 degrees Fahrenheit
 Frost-free period: 110 to 130 days

Composition

Jerval gravelly very fine sandy loam, 2 to 8 percent slopes--50 percent
 Dorper stony very fine sandy loam, 2 to 8 percent slopes--40 percent
 Durixerollic Natrargids stony very fine sandy loam, 4 to 15 percent slopes--5 percent
 Wholan silt loam, 0 to 2 percent slopes--5 percent

Component Description

Jerval and similar soils

Landform: Fan remnants
 Parent material: Alluvium derived from mixed rocks, volcanic ash and loess
 Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

Typical profile:

Layer 1--0 to 4 inches; gravelly very fine sandy loam
 Layer 2--4 to 20 inches; gravelly clay loam
 Layer 3--20 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e
 Nonirrigated land capability: 7s
 Ecological site: 027XY013NV--Loamy 4-8 P.Z.

Component Description

Dorper and similar soils

Landform: Fan remnants
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

Typical profile:

Layer 1--0 to 2 inches; stony very fine sandy loam
 Layer 2--2 to 7 inches; silt loam
 Layer 3--7 to 17 inches; clay
 Layer 4--17 to 60 inches; extremely gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Permeability class (root zone): Very slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY013NV--Loamy 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Durixerollic Natrargids**

Composition: 0 to 5 percent

Landform: Fan remnants

Typical vegetation: Needleandthread, Wyoming big sagebrush, spiny hopsage, Indian ricegrass

Ecological site: 027XY008NV--Droughty Loam 8-10 P.Z.

Wholan and similar soils

Composition: 0 to 5 percent

Landform: Inset fans

Typical vegetation: Winterfat, Indian ricegrass

Ecological site: 024XY004NV--Silty 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

464--Jerval-Dorper association, stony***Map Unit Setting***

MLRA: 27

Landscape: Fan piedmont

Elevation: 4,200 to 5,000 feet

Precipitation: 4 to 8 inches

Air temperature: 52 to 55 degrees Fahrenheit

Frost-free period: 110 to 130 days

Composition

Jerval stony loam, 2 to 8 percent slopes--50 percent

Dorper very stony very fine sandy loam, 2 to 8 percent slopes--40 percent

Bluewing very gravelly loamy sand, 2 to 4 percent slopes--5 percent

Fulstone gravelly loam, 2 to 8 percent slopes--5 percent

Component Description**Jerval and similar soils**

Landform: Fan remnants

Parent material: Alluvium derived from mixed rocks, volcanic ash and loess

Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood

Typical profile:

Layer 1--0 to 4 inches; stony loam

Layer 2--4 to 20 inches; gravelly clay loam

Layer 3--20 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent

Runoff: High

Permeability class (root zone): Moderately slow

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 6 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e

Nonirrigated land capability: 7s

Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Component Description**Dorper and similar soils**

Landform: Fan remnants

Parent material: Alluvium derived from mixed rocks and volcanic ash

Typical vegetation: Indian ricegrass, shadscale, Bailey greasewood

Typical profile:

Layer 1--0 to 2 inches; very stony very fine sandy loam

Layer 2--2 to 7 inches; silt loam

Layer 3--7 to 17 inches; clay

Layer 4--17 to 60 inches; extremely gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent

Runoff: Very high

Permeability class (root zone): Very slow

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 5 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4s

Nonirrigated land capability: 7s

Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 5 percent

Landform: Inset fans

Typical vegetation: Littleleaf horsebrush, spiny hopsage, rubber rabbitbrush

Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Fulstone and similar soils

Composition: 0 to 5 percent

Landform: Fan remnants

Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

467--Ninemile-Sumine-Softscrabble association

Map Unit Setting

MLRA: 23

Landscape: Plateau

Elevation: 6,000 to 7,000 feet

Precipitation: 10 to 20 inches

Air temperature: 40 to 45 degrees Fahrenheit

Frost-free period: 70 to 90 days

Composition

Ninemile very stony loam, 4 to 30 percent slopes--45 percent

Sumine cobbly loam, 15 to 50 percent slopes--20 percent

Softscrabble very stony loam, 15 to 50 percent slopes--20 percent

Badgercamp bouldery loam, 15 to 30 percent slopes--4 percent

Hackwood silt loam, 15 to 50 percent slopes--4 percent

Welch loam, 2 to 8 percent slopes--4 percent

Rock outcrop, 4 to 50 percent slopes--3 percent

Component Description

Ninemile and similar soils

Landform: Summits of plateaus; shoulders of plateaus

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Idaho fescue, bluebunch wheatgrass, low sagebrush

Typical profile:

Layer 1--0 to 3 inches; very stony loam

Layer 2--3 to 14 inches; clay

Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches

Permeability class (root zone): Very slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Component Description

Sumine and similar soils

Landform: Backslopes of plateaus

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; cobbly loam

Layer 2--5 to 30 inches; very gravelly clay loam

Layer 3--30 to 40 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects

Runoff: High

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Moderate

Available water capacity: About 4 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY016NV--South Slope 12-16 P.Z.

Component Description**Softscrabble and similar soils**

Landform: Backslopes of plateaus
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam
 Layer 2--12 to 36 inches; very cobbly clay loam
 Layer 3--36 to 61 inches; gravelly clay loam
 Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Permeability class (root zone): Slow
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Badgercamp and similar soils**

Composition: 0 to 4 percent
 Landform: Shoulders of plateaus
 Typical vegetation: Curl-leaf mountain mahogany, Idaho fescue, other perennial forbs
 Ecological site: 023XY026NV--Mahogany Savanna

Hackwood and similar soils

Composition: 0 to 4 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Mountain brome, melic, Nevada bluegrass, bluebunch wheatgrass, meadowrue, other perennial grasses, groundsel, snowberry, other perennial forbs, quaking aspen, other shrubs
 Ecological site: 023XY028NV--Potr Wsg: 1r7

Welch and similar soils

Composition: 0 to 4 percent

Landform: Drainageways
 Typical vegetation: Tufted hairgrass, other perennial forbs, bluegrass
 Ecological site: 023XY025NV--Wet Meadow

Rock outcrop

Composition: 0 to 3 percent
 Landform: Plateaus
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

468--Bucklake-Ninemile-Freintera association**Map Unit Setting**

MLRA: 23
 Landscape: Plateau
 Elevation: 5,900 to 6,500 feet
 Precipitation: 10 to 16 inches
 Air temperature: 43 to 50 degrees Fahrenheit
 Frost-free period: 70 to 90 days

Composition

Bucklake very cobbly loam, 15 to 50 percent slopes--30 percent
 Ninemile very gravelly loam, 2 to 8 percent slopes--30 percent
 Freintera loam, 15 to 50 percent slopes--25 percent
 Wylo very stony loam, 4 to 30 percent slopes--10 percent
 Rock outcrop, 4 to 50 percent slopes--5 percent

Component Description**Bucklake and similar soils**

Landform: Backslopes of plateaus
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam
 Layer 2--6 to 10 inches; gravelly clay loam
 Layer 3--10 to 21 inches; gravelly clay
 Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Component Description

Ninemile and similar soils

Landform: Summits of plateaus

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bluebunch wheatgrass, Idaho fescue, low sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam

Layer 2--3 to 14 inches; clay

Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches

Permeability class (root zone): Very slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Component Description

Frentera and similar soils

Landform: Backslopes of plateaus

Parent material: Colluvium derived from tuff, volcanic ash and loess

Typical vegetation: Thurber needlegrass, Idaho fescue, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 14 inches; loam

Layer 2--14 to 35 inches; gravelly sandy loam

Layer 3--35 to 61 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects

Runoff: High

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Moderate

Available water capacity: About 5 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY072NV--Ashy Slope 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Wylo and similar soils

Composition: 0 to 10 percent

Landform: Shoulders of plateaus; backslopes of plateaus

Typical vegetation: Bluebunch wheatgrass, Lahontan sagebrush

Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Rock outcrop

Composition: 0 to 5 percent

Landform: Plateaus

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

470--Frentera-Wylo-Tuffo association

Map Unit Setting

MLRA: 23

Landscape: Hills

Elevation: 4,595 to 6,500 feet

Precipitation: 8 to 14 inches
 Air temperature: 43 to 54 degrees Fahrenheit
 Frost-free period: 70 to 110 days

Composition

Frentera bouldery loam, 15 to 50 percent slopes--40 percent
 Wylo very stony loam, 4 to 30 percent slopes--30 percent
 Tuffo fine sandy loam, 15 to 30 percent slopes--15 percent
 Typic Haploxerolls extremely bouldery loam, 15 to 50 percent slopes--10 percent
 Woofus loam, 0 to 2 percent slopes--3 percent
 Rodock gravelly sandy loam, 2 to 8 percent slopes--2 percent

Component Description

Frentera and similar soils

Landform: Backslopes of hills
 Parent material: Colluvium derived from tuff, volcanic ash and loess
 Typical vegetation: Idaho fescue, Wyoming big sagebrush, Thurber needlegrass

Typical profile:

Layer 1--0 to 3 inches; bouldery loam
 Layer 2--3 to 33 inches; gravelly sandy loam
 Layer 3--33 to 43 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY072NV--Ashy Slope 10-12 P.Z.

Component Description

Wylo and similar soils

Landform: Shoulders of hills; backslopes of hills
 Parent material: Colluvium derived from basalt over residuum weathered from basalt

Typical vegetation: Lahontan sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 4 inches; very stony loam
 Layer 2--4 to 15 inches; gravelly clay
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Component Description

Tuffo and similar soils

Landform: Backslopes of hills
 Parent material: Residuum weathered from tuff
 Typical vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam
 Layer 2--5 to 8 inches; very fine sandy loam
 Layer 3--8 to 18 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 4 to 14 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Typic Haploxerolls

Composition: 0 to 10 percent

Landform: Backslopes of landslides

Typical vegetation: Basin big sagebrush, Idaho fescue, Thurber needlegrass

Ecological site: 023XY071NV--Ashy Loam 10-12 P.Z.

Woofus and similar soils

Composition: 0 to 3 percent

Landform: Flood plains

Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Rodock and similar soils

Composition: 0 to 2 percent

Landform: Inset fans

Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

475--Juva loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 27

Landscape: Fan piedmont

Elevation: 4,000 to 4,500 feet

Precipitation: 5 to 8 inches

Air temperature: 50 to 55 degrees Fahrenheit

Frost-free period: 100 to 130 days

Composition

Juva loam, 0 to 2 percent slopes--95 percent

Bluewing very gravelly loamy sand, 2 to 4 percent slopes--5 percent

Component Description

Juva and similar soils

Landform: Fan skirts

Parent material: Alluvium derived from mixed rocks

Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

Typical profile:

Layer 1--0 to 6 inches; loam

Layer 2--6 to 60 inches; stratified gravelly sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Sodicity: Sodic within 40 inches

Available water capacity: About 6 inches

Present flooding: Occasional

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2w

Nonirrigated land capability: 7w

Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 5 percent

Landform: Inset fans

Typical vegetation: Spiny hopsage, littleleaf horsebrush, rubber rabbitbrush

Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

480--Tuffo-Wylo-Fretera association

Map Unit Setting

MLRA: 23

Landscape: Hills

Elevation: 4,595 to 6,500 feet

Precipitation: 8 to 14 inches
 Air temperature: 43 to 54 degrees Fahrenheit
 Frost-free period: 80 to 110 days

Composition

Tuffo fine sandy loam, 15 to 30 percent slopes--40 percent
 Wylo very stony loam, 4 to 15 percent slopes--30 percent
 Frentera loam, 15 to 50 percent slopes--15 percent
 Fulstone gravelly loam, 2 to 8 percent slopes--5 percent
 Rock outcrop, 4 to 50 percent slopes--5 percent
 Rodock loam, 0 to 8 percent slopes--5 percent

Component Description

Tuffo and similar soils

Landform: Backslopes of hills
 Parent material: Residuum weathered from tuff
 Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam
 Layer 2--5 to 8 inches; very fine sandy loam
 Layer 3--8 to 18 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 4 to 14 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Component Description

Wylo and similar soils

Landform: Shoulders of hills
 Parent material: Colluvium derived from basalt over residuum weathered from basalt
 Typical vegetation: Bluebunch wheatgrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 4 inches; very stony loam

Layer 2--4 to 15 inches; gravelly clay
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Component Description

Frentera and similar soils

Landform: Backslopes of hills
 Parent material: Colluvium derived from tuff, volcanic ash and loess
 Typical vegetation: Idaho fescue, Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 14 inches; loam
 Layer 2--14 to 35 inches; gravelly sandy loam
 Layer 3--35 to 61 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY072NV--Ashy Slope 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Fulstone and similar soils**

Composition: 0 to 5 percent

Landform: Fan remnants

Typical vegetation: Lahontan sagebrush, Thurber needlegrass

Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Rock outcrop

Composition: 0 to 5 percent

Landform: Ledges

Ecological site: None assigned

Rodock and similar soils

Composition: 0 to 5 percent

Landform: Inset fans

Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, big sagebrush

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

531--Longcreek-Rock outcrop complex**Map Unit Setting**

MLRA: 23

Landscape: Mountains

Elevation: 5,600 to 6,300 feet

Precipitation: 10 to 14 inches

Air temperature: 47 to 50 degrees Fahrenheit

Frost-free period: 80 to 100 days

Composition

Longcreek very cobbly loam, 50 to 75 percent slopes--70 percent

Rock outcrop, 15 to 75 percent slopes--15 percent

Cleavage extremely gravelly loam, 8 to 30 percent slopes--5 percent

Harcany gravelly loam, 15 to 30 percent slopes--5 percent

Westbutte stony loam, 30 to 50 percent slopes--5 percent

Component Description**Longcreek and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, big sagebrush, Thurber needlegrass

Typical profile:

Layer 1--0 to 2 inches; very cobbly loam

Layer 2--2 to 9 inches; very cobbly clay loam

Layer 3--9 to 14 inches; very cobbly clay

Layer 4--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Slow

Available water capacity: About 1.2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY018NV--Stony South Slope 12-16 P.Z.

Component Description**Rock outcrop**

Landform: Mountains

Component Properties and Qualities

Slope: 15 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Cleavage and similar soils**

Composition: 0 to 5 percent

Landform: Shoulders of mountains; backslopes of mountains

Typical vegetation: Sandberg bluegrass, low sagebrush, Idaho fescue

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Harcany and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Idaho fescue, other perennial forbs,
mountain big sagebrushEcological site: 023XY054NV--Steep North Slope 14+
P.Z.**Westbutte and similar soils**

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Idaho fescue, threetip sagebrush

Ecological site: 023XY053NV--Gravelly North Slope 14+
P.Z.**Management**For information about managing this map unit, see the
following sections and associated tables in Part II of
this publication:

"Range" section

"Engineering" and "Soil Properties" sections

**535--Locane very cobbly loam, 4 to 30
percent slopes****Map Unit Setting**

MLRA: 23

Landscape: Hills

Elevation: 6,000 to 6,200 feet

Precipitation: 10 to 14 inches

Air temperature: 43 to 45 degrees Fahrenheit

Frost-free period: 60 to 80 days

CompositionLocane very cobbly loam, 4 to 30 percent slopes--90
percentSoughe very cobbly loam, 4 to 15 percent slopes--8
percent

Rock outcrop, 4 to 30 percent slopes--2 percent

Component Description**Locane and similar soils**Landform: Shoulders of hills; summits of hills;
backslopes of hillsParent material: Colluvium derived from volcanic rocks
over residuum weathered from volcanic rocksTypical vegetation: Big sagebrush, Thurber needlegrass,
bluebunch wheatgrass**Typical profile:**

Layer 1--0 to 3 inches; very cobbly loam

Layer 2--3 to 14 inches; very gravelly clay

Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
"Physical Properties of Soils" table for more
information.**Component Properties and Qualities**

Slope: 4 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20
inches

Permeability class (root zone): Slow

Available water capacity: About 1.5 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in
characteristics are in the "Classification of the Soils"
section.**Contrasting Inclusions****Soughe and similar soils**

Composition: 0 to 8 percent

Landform: Foothills of hills

Typical vegetation: Thurber needlegrass, Indian
ricegrass, Wyoming big sagebrush

Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Rock outcrop

Composition: 0 to 2 percent

Landform: Ledges

Ecological site: None assigned

ManagementFor information about managing this map unit, see the
following sections and associated tables in Part II of
this publication:

"Range" section

"Engineering" and "Soil Properties" sections

550--Welch loam, 0 to 4 percent slopes**Map Unit Setting**

MLRA: 23

Landscape: Mountains

Elevation: 5,800 to 7,000 feet

Precipitation: 9 to 16 inches

Air temperature: 40 to 45 degrees Fahrenheit

Frost-free period: 70 to 100 days

Composition

Welch loam, 0 to 4 percent slopes--90 percent

Welch loam, 0 to 4 percent slopes--5 percent

Woofus loam, 0 to 2 percent slopes--5 percent

Component Description

Welch and similar soils

Landform: Flood plains

Parent material: Alluvium derived from volcanic rocks and volcanic ash

Typical vegetation: Tufted hairgrass, other perennial forbs, bluegrass

Typical profile:

Layer 1--0 to 9 inches; loam

Layer 2--9 to 60 inches; stratified sandy loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 4 percent

Runoff: Medium

Permeability class (root zone): Moderately slow

Available water capacity: About 11 inches

Present flooding: Occasional

Water table: Present

Natural drainage class: Very poorly drained

Interpretive Groups

Nonirrigated land capability: 5w

Ecological site: 023XY025NV--Wet Meadow

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Welch and similar soils

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Other perennial forbs, sedge, Nevada bluegrass, other perennial grasses

Ecological site: 023XY013NV--Dry Meadow

Woofus and similar soils

Composition: 0 to 5 percent

Landform: Flood plains

Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

563--Sondoa-Isolde association

Map Unit Setting

MLRA: 27

Landscape: Bolson

Elevation: 3,800 to 4,200 feet

Precipitation: 4 to 8 inches

Air temperature: 48 to 54 degrees Fahrenheit

Frost-free period: 100 to 140 days

Composition

Sondoa silt loam, 0 to 2 percent slopes--65 percent

Isolde fine sand, 4 to 15 percent slopes--20 percent

Dune land, 0 to 30 percent slopes--5 percent

Mazuma fine sandy loam, 0 to 2 percent slopes--5 percent

Playas, 0 to 1 percent slopes--5 percent

Component Description

Sondoa and similar soils

Landform: Basin-floor remnants

Parent material: Alluvium derived from mixed rocks and lacustrine deposits

Typical vegetation: Black greasewood, inland saltgrass

Typical profile:

Layer 1--0 to 5 inches; silt loam

Layer 2--5 to 60 inches; stratified silt loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Medium

Permeability class (root zone): Moderately slow

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 12 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3s

Nonirrigated land capability: 7s
Ecological site: 027XY025NV--Sodic Flat

Component Description

Isolde and similar soils

Landform: Basin floors
Parent material: Eolian sands
Typical vegetation: Indian ricegrass, black greasewood

Typical profile:

Layer 1--0 to 3 inches; fine sand
Layer 2--3 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
Runoff: Very low
Permeability class (root zone): Very rapid
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site: 027XY016NV--Sodic Dunes

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Dune land

Composition: 0 to 5 percent
Landform: Basin floors
Ecological site: None assigned

Mazuma and similar soils

Composition: 0 to 5 percent
Landform: Basin-floor remnants
Typical vegetation: Black greasewood, shadscale, Indian ricegrass
Ecological site: 027XY024NV--Sodic Terrace

Playas

Composition: 0 to 5 percent
Landform: Basin floors
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

574--Mazuma fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 27
Landscape: Bolson
Elevation: 4,000 to 4,200 feet
Precipitation: 4 to 7 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Mazuma fine sandy loam, 0 to 2 percent slopes--90 percent
Sondoa silt loam, 0 to 2 percent slopes--5 percent
Typic Torrifluvents silt loam, 0 to 2 percent slopes--5 percent

Component Description

Mazuma and similar soils

Landform: Fan skirts
Parent material: Alluvium derived from mixed rocks and lacustrine deposits
Typical vegetation: Shadscale, black greasewood, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam
Layer 2--5 to 27 inches; sandy loam
Layer 3--27 to 60 inches; stratified gravelly coarse sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Very low
Permeability class (root zone): Moderately rapid
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: Rare

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY024NV--Sodic Terrace

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Sondoa and similar soils

Composition: 0 to 5 percent

Landform: Basin-floor remnants

Typical vegetation: Inland saltgrass, black greasewood

Ecological site: 027XY025NV--Sodic Flat

Typic Torrifluvents

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Rubber rabbitbrush, spiny hopsage, littleleaf horsebrush

Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

575--Mazuma association

Map Unit Setting

MLRA: 27

Landscape: Bolson

Elevation: 4,000 to 4,200 feet

Precipitation: 4 to 8 inches

Air temperature: 45 to 52 degrees Fahrenheit

Frost-free period: 100 to 130 days

Composition

Mazuma loamy fine sand, 0 to 2 percent slopes--50 percent

Mazuma fine sandy loam, 0 to 2 percent slopes--35 percent

Bluweling very gravelly loamy sand, 0 to 2 percent slopes--5 percent

Playsley fine sand, 2 to 4 percent slopes--5 percent

Playas, 0 to 1 percent slopes--5 percent

Component Description

Mazuma and similar soils

Landform: Fan skirts

Parent material: Alluvium derived from mixed rocks and lacustrine deposits

Typical vegetation: Bailey greasewood, shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; loamy fine sand

Layer 2--5 to 60 inches; stratified gravelly coarse sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Very low

Permeability class (root zone): Moderately rapid

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 7 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2s

Nonirrigated land capability: 7s

Ecological site: 027XY050NV--Coarse Gravelly Loam 5-8 P.Z.

Component Description

Mazuma and similar soils

Landform: Basin-floor remnants

Parent material: Alluvium derived from mixed rocks and lacustrine deposits

Typical vegetation: Shadscale, Indian ricegrass, black greasewood

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam

Layer 2--5 to 27 inches; sandy loam

Layer 3--27 to 60 inches; stratified gravelly coarse sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Very low
 Permeability class (root zone): Moderately rapid
 Salinity: Saline within 40 inches
 Sodicty: Sodic within 40 inches
 Available water capacity: About 5 inches
 Present flooding: Rare
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY024NV--Sodic Terrace

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Spiny hopsage, rubber rabbitbrush, littleleaf horsebrush
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Hawsley and similar soils

Composition: 0 to 5 percent
 Landform: Sand sheets
 Typical vegetation: Fourwing saltbush, Indian ricegrass
 Ecological site: 027XY009NV--Sandy 5-8 P.Z.

Playas

Composition: 0 to 5 percent
 Landform: Basin floors
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

576--Mazuma very fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

MLRA: 27
 Landscape: Bolson
 Elevation: 4,000 to 4,200 feet
 Precipitation: 4 to 8 inches
 Air temperature: 45 to 52 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Mazuma very fine sandy loam, 2 to 8 percent slopes--95 percent
 Bluewing very gravelly loamy sand, 0 to 2 percent slopes--5 percent

Component Description

Mazuma and similar soils

Landform: Lake plains
 Parent material: Alluvium derived from mixed rocks and lacustrine deposits
 Typical vegetation: Shadscale, Bailey greasewood, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; very fine sandy loam
 Layer 2--5 to 60 inches; stratified gravelly coarse sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Medium
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicty: Sodic within 40 inches
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3e
 Nonirrigated land capability: 7c
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Spiny hopsage, rubber rabbitbrush, littleleaf horsebrush
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section

"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

577--Mazuma-Isolde-Typic Torriorthents association

Map Unit Setting

MLRA: 27
Landscape: Bolson
Elevation: 4,000 to 4,200 feet
Precipitation: 4 to 8 inches
Air temperature: 45 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

Composition

Mazuma silt loam, 0 to 2 percent slopes--45 percent
Isolde fine sand, 15 to 30 percent slopes--30 percent
Typic Torriorthents silt loam, 2 to 75 percent slopes--15 percent
Toulon very gravelly loam, 2 to 8 percent slopes--5 percent
Wendane silt loam, 0 to 2 percent slopes--5 percent

Component Description

Mazuma and similar soils

Landform: Alluvial flats
Parent material: Alluvium derived from mixed rocks and lacustrine deposits
Typical vegetation: Indian ricegrass, black greasewood, shadscale

Typical profile:

Layer 1--0 to 5 inches; silt loam
Layer 2--5 to 27 inches; sandy loam
Layer 3--27 to 60 inches; stratified gravelly coarse sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Low
Permeability class (root zone): Moderate
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY024NV--Sodic Terrace

Component Description

Isolde and similar soils

Landform: Dunes
Parent material: Eolian sands
Typical vegetation: Black greasewood, Indian ricegrass

Typical profile:

Layer 1--0 to 3 inches; fine sand
Layer 2--3 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
Runoff: Low
Permeability class (root zone): Very rapid
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 027XY016NV--Sodic Dunes

Component Description

Typic Torriorthents

Landform: Summits of basin-floor remnants; backslopes of basin-floor remnants; shoulders of basin-floor remnants
Parent material: Alluvium derived from mixed rocks
Typical vegetation: None listed

Component Properties and Qualities

Slope: 2 to 75 percent
Runoff: High
Permeability class (root zone): Moderately slow
Sodicity: Sodic within 40 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Toulon and similar soils

Composition: 0 to 5 percent

Landform: Beach terraces
 Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Wendane and similar soils

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Black greasewood, basin wildrye, alkali sacaton
 Ecological site: 024XY007NV--Saline Bottom

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

578--Mazuma-Toulon-Isolde association

Map Unit Setting

MLRA: 27
 Landscape: Bolson
 Elevation: 4,000 to 4,300 feet
 Precipitation: 4 to 8 inches
 Air temperature: 45 to 55 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Mazuma silt loam, 0 to 2 percent slopes--40 percent
 Toulon very gravelly loam, 2 to 8 percent slopes--30 percent
 Isolde fine sand, 4 to 15 percent slopes--15 percent
 Bluewing very gravelly loamy sand, 0 to 2 percent slopes--10 percent
 Playas, 0 to 1 percent slopes--5 percent

Component Description

Mazuma and similar soils

Landform: Lagoons
 Parent material: Alluvium derived from mixed rocks and lacustrine deposits
 Typical vegetation: Black greasewood, shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; silt loam
 Layer 2--5 to 27 inches; fine sandy loam
 Layer 3--27 to 60 inches; stratified gravelly coarse sand to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 9 inches
 Present flooding: Rare
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY024NV--Sodic Terrace

Component Description

Toulon and similar soils

Landform: Barrier beaches
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Bailey greasewood, Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 6 inches; very gravelly loam
 Layer 2--6 to 14 inches; very gravelly sandy loam
 Layer 3--14 to 60 inches; stratified gravelly coarse sand to extremely cobbly coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Component Description

Isolde and similar soils

Landform: Dunes
 Parent material: Eolian sands
 Typical vegetation: Black greasewood, Indian ricegrass

Typical profile:

Layer 1--0 to 3 inches; fine sand
 Layer 2--3 to 60 inches; fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very low
 Permeability class (root zone): Very rapid
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 027XY016NV--Sodic Dunes

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Bluewing and similar soils**

Composition: 0 to 10 percent
 Landform: Drainageways
 Typical vegetation: Littleleaf horsebrush, rubber rabbitbrush, spiny hopsage
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Playas

Composition: 0 to 5 percent
 Landform: Basin floors
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

580--McConnel very stony sandy loam, 2 to 8 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,205 to 5,000 feet
 Precipitation: 8 to 10 inches

Air temperature: 48 to 52 degrees Fahrenheit
 Frost-free period: 110 to 130 days

Composition

McConnel, 2 to 8 percent slopes--85 percent
 Dun Glen, 0 to 2 percent slopes--5 percent
 Holbrook, 2 to 8 percent slopes--5 percent
 Typic Torrfluvents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**McConnel and similar soils**

Landform: Fan aprons
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Spiny hopsage, Indian ricegrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 5 inches; very stony sandy loam
 Layer 2--5 to 15 inches; very gravelly sandy loam
 Layer 3--15 to 60 inches; Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Low
 Permeability class (root zone): Moderately rapid
 Salinity: Saline within 40 inches
 Available water capacity: About 3 inches
 Present flooding: Rare
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Dun Glen and similar soils**

Composition: 0 to 5 percent
 Landform: Fan skirts
 Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Holbrook and similar soils

Composition: 0 to 5 percent
 Landform: Alluvial fans
 Typical vegetation: Bluebunch wheatgrass, big sagebrush, Thurber needlegrass
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typic Torrifuvents

Composition: 0 to 5 percent
 Landform: Drainageways
 Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

581--McConnel very gravelly fine sandy loam, 0 to 2 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 5,000 feet
 Precipitation: 8 to 10 inches
 Air temperature: 47 to 50 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

McConnel very gravelly fine sandy loam, 0 to 2 percent slopes--95 percent
 Durixerollic Camborthids gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**McConnel and similar soils**

Landform: Beach terraces
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Big sagebrush, Thurber needlegrass, Indian ricegrass, bottlebrush squirreltail

Typical profile:

Layer 1--0 to 5 inches; very gravelly fine sandy loam
 Layer 2--5 to 15 inches; gravelly sandy loam
 Layer 3--15 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Very low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Durixerollic Camborthids**

Composition: 0 to 5 percent
 Landform: Beach terraces
 Typical vegetation: Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

620--Croesus-Rock outcrop complex**Map Unit Setting**

MLRA: 23
 Landscape: Mountains
 Elevation: 7,000 to 7,500 feet
 Precipitation: 16 to 20 inches
 Air temperature: 40 to 45 degrees Fahrenheit
 Frost-free period: 50 to 70 days

Composition

Croesus extremely stony loam, 30 to 50 percent slopes--70 percent

Rock outcrop, 30 to 50 percent slopes--15 percent
 Bullump gravelly loam, 30 to 50 percent slopes--7
 percent
 Cleavage gravelly loam, 15 to 50 percent slopes--5
 percent
 Hackwood bouldery silt loam, 15 to 30 percent slopes--3
 percent

Component Description

Croesus and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 over residuum weathered from volcanic rocks
 Typical vegetation: Columbia needlegrass, Idaho fescue,
 mountain big sagebrush

Typical profile:

Layer 1--0 to 10 inches; extremely stony loam
 Layer 2--10 to 22 inches; very gravelly loam
 Layer 3--22 to 29 inches; very gravelly loam
 Layer 4--29 to 39 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40
 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 1.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY061NV--Mountain Shoulders 14-
 18 P.Z.

Component Description

Rock outcrop

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Bullump and similar soils

Composition: 0 to 7 percent
 Landform: Backslopes of mountains
 Typical vegetation: Mountain big sagebrush, other
 perennial forbs, Idaho fescue
 Ecological site: 023XY054NV--Steep North Slope 14+
 P.Z.

Cleavage and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains; shoulders of
 mountains
 Typical vegetation: Idaho fescue, Sandberg bluegrass,
 low sagebrush
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Hackwood and similar soils

Composition: 0 to 3 percent
 Landform: Backslopes of mountains; shoulders of
 mountains
 Typical vegetation: Snowberry, Nevada bluegrass, melic,
 groundsel, meadowrue, other perennial grasses,
 mountain brome, quaking aspen, bluebunch
 wheatgrass, other perennial forbs, other shrubs
 Ecological site: 023XY028NV--Potr Wsg: 1r7

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:
 "Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

630--Ninemile very stony loam, 4 to 15 percent slopes

Map Unit Setting

MLRA: 23
 Landscape: Plateau
 Elevation: 6,500 to 7,000 feet
 Precipitation: 12 to 16 inches
 Air temperature: 43 to 45 degrees Fahrenheit
 Frost-free period: 75 to 100 days

Composition

Ninemile very stony loam, 4 to 15 percent slopes--85
 percent
 Anawalt stony loam, 4 to 15 percent slopes--7 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--6
 percent
 Rock outcrop, 4 to 50 percent slopes--2 percent

Component Description

Ninemile and similar soils

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 3 inches; very stony loam
 Layer 2--3 to 14 inches; clay
 Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
 Permeability class (root zone): Very slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Anawalt and similar soils

Composition: 0 to 7 percent
 Landform: Summits of plateaus; shoulders of plateaus
 Typical vegetation: Sandberg bluegrass, low sagebrush
 Ecological site: 023XY021NV--Scabland 10-14 P.Z.

Softscrabble and similar soils

Composition: 0 to 6 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Idaho fescue, mountain big sagebrush, bluebunch wheatgrass
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Rock outcrop

Composition: 0 to 2 percent
 Landform: Plateaus
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

647--Wendane-Humboldt complex

Map Unit Setting

MLRA: 24
 Landscape: Semi-bolson
 Elevation: 4,000 to 4,200 feet
 Precipitation: 5 to 8 inches
 Air temperature: 45 to 52 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Wendane silt loam, 0 to 2 percent slopes--60 percent
 Humboldt silty clay loam, 0 to 2 percent slopes--30 percent
 Outerkirk sandy loam, 1 to 2 percent slopes--5 percent
 Wendane silt loam, 0 to 2 percent slopes--5 percent

Component Description

Wendane and similar soils

Landform: Stream terraces
 Parent material: Alluvium derived from mixed rocks, volcanic ash and loess
 Typical vegetation: Alkali sacaton, basin wildrye, black greasewood

Typical profile:

Layer 1--0 to 10 inches; silt loam
 Layer 2--10 to 60 inches; stratified silt loam to clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 12 inches
 Present flooding: Frequent
 Water table: Present
 Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 6w

Nonirrigated land capability: 7w
Ecological site: 024XY007NV--Saline Bottom

Component Description

Humboldt and similar soils

Landform: Flood plains
Parent material: Alluvium derived from mixed rocks and volcanic ash
Typical vegetation: Beardless wildrye, basin wildrye

Typical profile:

Layer 1--0 to 13 inches; silty clay loam
Layer 2--13 to 60 inches; stratified silty clay loam to clay

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Medium
Permeability class (root zone): Moderately slow
Available water capacity: About 11 inches
Present flooding: Frequent
Water table: Present
Natural drainage class: Poorly drained

Interpretive Groups

Irrigated land capability: 5w
Nonirrigated land capability: 5w
Ecological site: 025XY001NV--Moist Floodplain

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Outerkirk and similar soils

Composition: 0 to 5 percent
Landform: Stream terraces
Typical vegetation: Basin wildrye, big sagebrush, black greasewood
Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Wendane and similar soils

Composition: 0 to 5 percent
Landform: Alluvial flats
Typical vegetation: Black greasewood, basin wildrye
Ecological site: 024XY011NV--Sodic Flat 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section

"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

648--Wendane silt loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24
Landscape: Bolson
Elevation: 4,000 to 4,200 feet
Precipitation: 6 to 8 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 100 to 120 days

Composition

Wendane silt loam, 0 to 2 percent slopes--90 percent
Goldrun fine sand, 2 to 8 percent slopes--5 percent
Wendane silt loam, 0 to 2 percent slopes--5 percent

Component Description

Wendane and similar soils

Landform: Flood plains
Parent material: Alluvium derived from mixed rocks, volcanic ash and loess
Typical vegetation: Black greasewood, basin wildrye, alkali sacaton

Typical profile:

Layer 1--0 to 10 inches; silt loam
Layer 2--10 to 60 inches; stratified silt loam to clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Medium
Permeability class (root zone): Moderately slow
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: Frequent
Water table: Present
Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 6w
Nonirrigated land capability: 7w
Ecological site: 024XY007NV--Saline Bottom

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Goldrun and similar soils**

Composition: 0 to 5 percent

Landform: Basin floors

Typical vegetation: Indian ricegrass, basin big sagebrush

Ecological site: 024XY001NV--Dunes 6-10 P.Z.

Wendane and similar soils

Composition: 0 to 5 percent

Landform: Alluvial flats

Typical vegetation: Basin wildrye, black greasewood

Ecological site: 024XY011NV--Sodic Flat 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

660--Soughe-Hoot association***Map Unit Setting***

MLRA: 24

Landscape: Mountains

Elevation: 4,800 to 5,400 feet

Precipitation: 6 to 12 inches

Air temperature: 45 to 52 degrees Fahrenheit

Frost-free period: 90 to 120 days

Composition

Soughe extremely gravelly fine sandy loam, 15 to 50 percent slopes--50 percent

Hoot very cobbly loam, 15 to 30 percent slopes--40 percent

Puett very gravelly loam, 15 to 30 percent slopes--5 percent

Rock outcrop, 15 to 50 percent slopes--5 percent

Component Description**Soughe and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Indian ricegrass, Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 4 inches; extremely gravelly fine sandy loam

Layer 2--4 to 14 inches; very gravelly clay loam

Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Component Description**Hoot and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush

Typical profile:

Layer 1--0 to 5 inches; very cobbly loam

Layer 2--5 to 15 inches; very gravelly clay loam

Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Puett and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Indian ricegrass, Wyoming big sagebrush

Ecological site: 024XY045NV--Eroded Slope 6-10 P.Z.

Rock outcrop

Composition: 0 to 5 percent

Landform: Mountains

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

662--Jaybee-Soughe-Hoot complex

Map Unit Setting

MLRA: 23

Landscape: Hills

Elevation: 4,800 to 5,400 feet

Precipitation: 6 to 12 inches

Air temperature: 45 to 52 degrees Fahrenheit

Frost-free period: 90 to 120 days

Composition

Jaybee very gravelly sandy loam, 4 to 30 percent slopes--40 percent

Soughe very cobbly loam, 4 to 30 percent slopes--25 percent

Hoot very cobbly loam, 15 to 30 percent slopes--25 percent

Puett very gravelly loam, 30 to 50 percent slopes--5 percent

Rock outcrop, 4 to 50 percent slopes--5 percent

Component Description

Jaybee and similar soils

Landform: Shoulders of hills; backslopes of hills

Parent material: Colluvium derived from basalt over residuum weathered from basalt

Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 7 inches; very gravelly sandy loam

Layer 2--7 to 14 inches; gravelly clay

Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches

Permeability class (root zone): Slow

Available water capacity: About 1.2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Component Description

Soughe and similar soils

Landform: Shoulders of hills; backslopes of hills

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very cobbly loam

Layer 2--4 to 14 inches; very gravelly clay loam

Layer 3--14 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.5 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description

Hoot and similar soils

Landform: Backslopes of hills

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bud sagebrush, shadscale, bottlebrush squirreltail

Typical profile:

Layer 1--0 to 5 inches; very cobbly loam
 Layer 2--5 to 15 inches; very gravelly clay loam
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Puett and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of hills
 Typical vegetation: Desert needlegrass, bluebunch wheatgrass, Wyoming big sagebrush
 Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Rock outcrop

Composition: 0 to 5 percent
 Landform: Hills
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

663--Soughe-Rock outcrop complex***Map Unit Setting***

MLRA: 23
 Landscape: Hills
 Elevation: 5,000 to 6,000 feet

Precipitation: 8 to 12 inches
 Air temperature: 45 to 48 degrees Fahrenheit
 Frost-free period: 90 to 120 days

Composition

Soughe very cobbly loam, 4 to 30 percent slopes--75 percent
 Rock outcrop, 15 to 30 percent slopes--15 percent
 Bucklake very cobbly loam, 15 to 30 percent slopes--7 percent
 Hoot very cobbly loam, 15 to 30 percent slopes--3 percent

Component Description**Soughe and similar soils**

Landform: Backslopes of hills; shoulders of hills; summits of hills
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very cobbly loam
 Layer 2--4 to 14 inches; very gravelly clay loam
 Layer 3--14 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 1.5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description**Rock outcrop**

Landform: Hills

Component Properties and Qualities

Slope: 15 to 30 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bucklake and similar soils

Composition: 0 to 7 percent
Landform: Backslopes of hills
Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush
Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Hoot and similar soils

Composition: 0 to 3 percent
Landform: Backslopes of hills
Typical vegetation: Bud sagebrush, bottlebrush squirreltail, shadscale
Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

664--Soughe very cobbly loam, 15 to 50 percent slopes

Map Unit Setting

MLRA: 23
Landscape: Hills
Elevation: 4,600 to 5,600 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 48 degrees Fahrenheit
Frost-free period: 90 to 120 days

Composition

Soughe very cobbly loam, 15 to 50 percent slopes--90 percent
Hoot very cobbly loam, 15 to 50 percent slopes--5 percent
Rocconda very channery loam, 15 to 50 percent slopes--4 percent
Rock outcrop, 15 to 50 percent slopes--1 percent

Component Description

Soughe and similar soils

Landform: Backslopes of hills
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very cobbly loam
Layer 2--4 to 14 inches; very gravelly clay loam
Layer 3--14 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
Permeability class (root zone): Moderately slow
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Hoot and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of hills
Typical vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush
Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Rocconda and similar soils

Composition: 0 to 4 percent
Landform: Backslopes of hills
Typical vegetation: Thurber needlegrass, Lahontan sagebrush
Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Rock outcrop

Composition: 0 to 1 percent
Landform: Hills
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

670--Denio gravelly sandy loam, 0 to 4 percent slopes**Map Unit Setting**

MLRA: 23
 Landscape: Bolson
 Elevation: 4,200 to 4,400 feet
 Precipitation: 8 to 10 inches
 Air temperature: 48 to 50 degrees Fahrenheit
 Frost-free period: 100 to 110 days

Composition

Denio gravelly sandy loam, 0 to 4 percent slopes--90 percent
 Xeric Torrfluvents very gravelly sandy loam, 0 to 2 percent slopes--5 percent
 Dun Glen very fine sandy loam, 0 to 2 percent slopes--3 percent
 Wholan silt loam, 0 to 2 percent slopes--2 percent

Component Description**Denio and similar soils**

Landform: Barrier beaches
 Parent material: Alluvium derived from granite
 Typical vegetation: Needleandthread, Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 3 inches; gravelly sandy loam
 Layer 2--3 to 16 inches; gravelly sandy loam
 Layer 3--16 to 60 inches; stratified extremely gravelly coarse sand to very gravelly loamy coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 4 percent
 Runoff: Very low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 4s
 Nonirrigated land capability: 7s
 Ecological site: 023XY068NV--Granitic Loam 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Xeric Torrfluvents**

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
 Ecological site: 024XY041NV--Gravelly Fan

Dun Glen and similar soils

Composition: 0 to 3 percent
 Landform: Basin-floor remnants
 Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Wholan and similar soils

Composition: 0 to 2 percent
 Landform: Beach plains
 Typical vegetation: Winterfat, Indian ricegrass
 Ecological site: 024XY004NV--Silty 4-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

679--Outerkirk sandy loam, 1 to 2 percent slopes**Map Unit Setting**

MLRA: 24
 Landscape: Bolson
 Elevation: 4,100 to 4,400 feet
 Precipitation: 7 to 9 inches
 Air temperature: 45 to 48 degrees Fahrenheit
 Frost-free period: 80 to 100 days

Composition

Outerkirk sandy loam, 1 to 2 percent slopes--85 percent
 Davey loamy fine sand, 2 to 8 percent slopes--5 percent
 Goldrun fine sand, 4 to 15 percent slopes--5 percent
 Raglan silt loam, 0 to 2 percent slopes--5 percent

Component Description**Outerkirk and similar soils**

Landform: Alluvial flats
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Basin wildrye, black greasewood, big sagebrush

Typical profile:

Layer 1--0 to 4 inches; sandy loam
 Layer 2--4 to 34 inches; sandy loam
 Layer 3--34 to 50 inches; loamy sand
 Layer 4--50 to 60 inches; loamy sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 1 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderately slow
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2s
 Nonirrigated land capability: 7c
 Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Davey and similar soils**

Composition: 0 to 5 percent
 Landform: Basin floors
 Typical vegetation: Indian ricegrass, big sagebrush, needleandthread, other perennial forbs
 Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Goldrun and similar soils

Composition: 0 to 5 percent
 Landform: Basin floors
 Typical vegetation: Indian ricegrass, basin big sagebrush
 Ecological site: 024XY001NV--Dunes 6-10 P.Z.

Raglan and similar soils

Composition: 0 to 5 percent
 Landform: Alluvial flats
 Typical vegetation: Shadscale, black greasewood
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

683--Oxcorel very stony loam, 2 to 8 percent slopes***Map Unit Setting***

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 5,100 feet
 Precipitation: 5 to 8 inches
 Air temperature: 46 to 50 degrees Fahrenheit
 Frost-free period: 90 to 110 days

Composition

Oxcorel very stony loam, 2 to 8 percent slopes--90 percent
 Weso very fine sandy loam, 0 to 2 percent slopes--5 percent
 Xeric Torrifluvents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Oxcorel and similar soils**

Landform: Fan remnants
 Parent material: Alluvium derived from mixed rocks and loess
 Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical profile:

Layer 1--0 to 5 inches; very stony loam
 Layer 2--5 to 18 inches; clay
 Layer 3--18 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Permeability class (root zone): Very slow
 Sodicity: Sodic within 40 inches
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Weso and similar soils**

Composition: 0 to 5 percent

Landform: Fan skirts

Typical vegetation: Black greasewood, shadscale

Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Xeric Torrifluvents

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Basin big sagebrush, spiny hopsage,
basin wildrye

Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

703--Pickup-Grumblen-Rock outcrop association**Map Unit Setting**

MLRA: 24

Landscape: Mountains

Elevation: 5,000 to 6,000 feet

Precipitation: 8 to 12 inches

Air temperature: 47 to 52 degrees Fahrenheit

Frost-free period: 90 to 120 days

Composition

Pickup very gravelly loam, 50 to 75 percent slopes--50 percent

Grumblen very gravelly loam, 50 to 75 percent slopes--25 percent

Rock outcrop, 30 to 75 percent slopes--15 percent

Aridic Argixerolls very gravelly loam, 30 to 50 percent slopes--5 percent

Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--5 percent

Component Description**Pickup and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Thurber needlegrass, other shrubs, Lahontan sagebrush

Typical profile:

Layer 1--0 to 5 inches; very gravelly loam

Layer 2--5 to 22 inches; very gravelly clay

Layer 3--22 to 32 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, northwest to northeast aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY079NV--Gravelly Claypan 8-10 P.Z.

Component Description**Grumblen and similar soils**

Landform: Backslopes of mountains

Parent material: Alluvium derived from mixed rocks and volcanic ash

Typical vegetation: Indian ricegrass, Bailey greasewood, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam

Layer 2--3 to 9 inches; very gravelly clay

Layer 3--9 to 18 inches; very gravelly clay loam

Layer 4--18 to 28 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, southeast to southwest aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY070NV--Droughty Claypan 8-10 P.Z.

Component Description

Rock outcrop

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Aridic Argixerolls

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Low sagebrush, Idaho fescue

Ecological site: 027XY046NV--Cobbly Claypan 12-14 P.Z.

Xeric Torriorthents

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Spiny hopsage, Indian ricegrass, bottlebrush squirreltail, basin big sagebrush

Ecological site: 027XY029NV--Gravelly Fan 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

715--Wholan silt loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24

Landscape: Bolson

Elevation: 4,200 to 4,300 feet

Precipitation: 6 to 9 inches

Air temperature: 46 to 52 degrees Fahrenheit

Frost-free period: 100 to 120 days

Composition

Wholan silt loam, 0 to 2 percent slopes--90 percent

Typic Torrfluents silt loam, 0 to 2 percent slopes--5 percent

Dun Glen very fine sandy loam, 0 to 2 percent slopes--3 percent

Denio gravelly sandy loam, 0 to 2 percent slopes--2 percent

Component Description

Wholan and similar soils

Landform: Inset fans

Parent material: Alluvium derived from mixed rocks, loess, and volcanic ash

Typical vegetation: Indian ricegrass, winterfat

Typical profile:

Layer 1--0 to 3 inches; silt loam

Layer 2--3 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Salinity: Saline within 40 inches

Available water capacity: About 11 inches

Present flooding: Occasional

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2w

Nonirrigated land capability: 7w

Ecological site: 024XY004NV--Silty 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Typic Torrfluents

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Basin big sagebrush, spiny hopsage, basin wildrye

Ecological site: 024XY041NV--Gravelly Fan

Dun Glen and similar soils

Composition: 0 to 3 percent

Landform: Basin-floor remnants

Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Denio and similar soils

Composition: 0 to 2 percent

Landform: Spits

Typical vegetation: Needleandthread, Thurber
needlegrass, Wyoming big sagebrush

Ecological site: 023XY068NV--Granitic Loam 8-10 P.Z.

ManagementFor information about managing this map unit, see the
following sections and associated tables in Part II of
this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**716--Wholan silt loam, rarely flooded, 0 to 2
percent slopes****Map Unit Setting**

MLRA: 24

Landscape: Fan piedmont

Elevation: 4,300 to 4,400 feet

Precipitation: 6 to 9 inches

Air temperature: 48 to 50 degrees Fahrenheit

Frost-free period: 100 to 120 days

Composition

Wholan silt loam, 0 to 2 percent slopes--95 percent

Dun Glen very fine sandy loam, 0 to 2 percent slopes--5
percent**Component Description****Wholan and similar soils**

Landform: Fan skirts

Parent material: Alluvium derived from mixed rocks,
loess, and volcanic ashTypical vegetation: Bud sagebrush, winterfat, Indian
ricegrass**Typical profile:**

Layer 1--0 to 3 inches; silt loam

Layer 2--3 to 60 inches; silt loam

See "Chemical Properties of Soils" table and the
"Physical Properties of Soils" table for more
information.**Component Properties and Qualities**

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Salinity: Saline within 40 inches

Available water capacity: About 11 inches

Present flooding: Rare

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2c

Nonirrigated land capability: 7c

Ecological site: 024XY014NV--Coarse Silty 4-8 P.Z.

Typical soil descriptions including ranges in
characteristics are in the "Classification of the Soils"
section.**Contrasting Inclusions****Dun Glen and similar soils**

Composition: 0 to 5 percent

Landform: Fan skirts

Typical vegetation: Shadscale, Indian ricegrass, bud
sagebrush

Ecological site: 024XY002NV--Loamy 5-8 P.Z.

ManagementFor information about managing this map unit, see the
following sections and associated tables in Part II of
this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

720--Pickup-Bucklake-Puett complex**Map Unit Setting**

MLRA: 23

Landscape: Mountains

Elevation: 5,000 to 6,000 feet

Precipitation: 8 to 12 inches

Air temperature: 45 to 50 degrees Fahrenheit

Frost-free period: 80 to 110 days

CompositionPickup very stony loam, 30 to 50 percent slopes--60
percentBucklake very cobbly loam, 30 to 50 percent slopes--15
percentPuett very gravelly loam, 30 to 50 percent slopes--15
percentSoughe very cobbly loam, 30 to 50 percent slopes--5
percentNinemile very stony loam, 30 to 50 percent slopes--4
percentEntic Chromoxererts very cobbly clay, 0 to 4 percent
slopes--1 percent

Component Description**Pickup and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 over residuum weathered from volcanic rocks
 Typical vegetation: Lahontan sagebrush, bluebunch
 wheatgrass

Typical profile:

Layer 1--0 to 5 inches; very stony loam
 Layer 2--5 to 22 inches; very gravelly clay
 Layer 3--22 to 32 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 20 to 40
 inches
 Permeability class (root zone): Slow
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Component Description**Bucklake and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 over residuum weathered from volcanic rocks
 Typical vegetation: Wyoming big sagebrush, bluebunch
 wheatgrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam
 Layer 2--6 to 10 inches; gravelly clay loam
 Layer 3--10 to 21 inches; gravelly clay
 Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 20 to 40
 inches

Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Component Description**Puett and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from tuff over
 residuum weathered from tuff
 Typical vegetation: Desert needlegrass, Wyoming big
 sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
 Layer 2--3 to 15 inches; coarse sandy loam
 Layer 3--15 to 25 inches; weathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 10 to 20
 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY030NV--South Slope 8-12 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions**Soughe and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Thurber needlegrass
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Ninemile and similar soils

Composition: 0 to 4 percent
 Landform: Backslopes of mountains

Typical vegetation: Idaho fescue, bluebunch wheatgrass,
low sagebrush
Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Entic Chromoxererts

Composition: 0 to 1 percent
Landform: Toeslopes of mountains
Ecological site: 023XY033NV--Clayey 10-14 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

758--Longcreek-Softscrabble-Anawalt association

Map Unit Setting

MLRA: 23
Landscape: Mountains
Elevation: 5,600 to 6,300 feet
Precipitation: 8 to 20 inches
Air temperature: 43 to 50 degrees Fahrenheit
Frost-free period: 70 to 100 days

Composition

Longcreek very cobbly loam, 30 to 50 percent slopes--50 percent
Softscrabble very stony loam, 30 to 50 percent slopes--20 percent
Anawalt very gravelly loam, 8 to 30 percent slopes--15 percent
Bucklake very cobbly loam, 15 to 30 percent slopes--6 percent
Westbutte stony loam, 15 to 30 percent slopes--6 percent
Fluvaquentic Haploxerolls gravelly loam, 2 to 8 percent slopes--2 percent
Rock outcrop, 8 to 50 percent slopes--1 percent

Component Description

Longcreek and similar soils

Landform: Backslopes of mountains
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 2 inches; very cobbly loam

Layer 2--2 to 9 inches; very cobbly clay loam
Layer 3--9 to 14 inches; very cobbly clay
Layer 4--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
Permeability class (root zone): Slow
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY018NV--Stony South Slope 12-16 P.Z.

Component Description

Softscrabble and similar soils

Landform: Backslopes of mountains
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam
Layer 2--12 to 36 inches; very cobbly clay loam
Layer 3--36 to 61 inches; gravelly clay loam
Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
Runoff: Very high
Permeability class (root zone): Slow
Available water capacity: About 7 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Component Description

Anawalt and similar soils

Landform: Shoulders of mountains; backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 6 inches; very gravelly loam
 Layer 2--6 to 15 inches; gravelly clay
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY021NV--Scabland 10-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bucklake and similar soils

Composition: 0 to 6 percent
 Landform: Footslopes of mountains
 Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, Wyoming big sagebrush
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Westbutte and similar soils

Composition: 0 to 6 percent
 Landform: Backslopes of mountains
 Typical vegetation: Threetip sagebrush, Idaho fescue
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Fluvaquentic Haploxerolls

Composition: 0 to 2 percent
 Landform: Inset fans
 Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Rock outcrop

Composition: 0 to 1 percent
 Landform: Mountains
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

775--Rednik-Jungo-Aboten association

Map Unit Setting

MLRA: 27
 Landscape: Fan piedmont
 Elevation: 4,500 to 5,000 feet
 Precipitation: 4 to 9 inches
 Air temperature: 46 to 55 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Rednik very gravelly sandy loam, 50 to 75 percent slopes--45 percent
 Jungo very gravelly loam, 15 to 50 percent slopes--20 percent
 Aboten gravelly silt loam, 4 to 15 percent slopes--20 percent
 Haplic Durargids very gravelly loam, 15 to 50 percent slopes--8 percent
 Xeric Torriorthents extremely gravelly loamy sand, 0 to 4 percent slopes--7 percent

Component Description

Rednik and similar soils

Landform: Backslopes of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 6 inches; very gravelly sandy loam
 Layer 2--6 to 18 inches; very gravelly sandy clay loam
 Layer 3--18 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, southeast to southwest aspects

Runoff: Very high
 Permeability class (root zone): Moderately slow
 Sodicity: Sodic within 40 inches
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY027NV--Barren Gravelly Slope 4-8 P.Z.

Component Description

Jungo and similar soils

Landform: Backslopes of fan remnants; footslopes of fan remnants
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Indian ricegrass, Lahontan sagebrush, Bailey greasewood

Typical profile:

Layer 1--0 to 5 inches; very gravelly loam
 Layer 2--5 to 22 inches; very gravelly clay loam
 Layer 3--22 to 60 inches; extremely gravelly sandy clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Permeability class (root zone): Moderately slow
 Available water capacity: About 5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY070NV--Droughty Claypan 8-10 P.Z.

Component Description

Aboten and similar soils

Landform: Summits of fan remnants
 Parent material: Volcanic ash and alluvium derived from mixed-igneous & sedimentary rocks
 Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

Typical profile:

Layer 1--0 to 7 inches; gravelly silt loam
 Layer 2--7 to 14 inches; clay loam
 Layer 3--14 to 30 inches; cemented
 Layer 4--30 to 60 inches; extremely gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 14 to 20 inches
 Permeability class (root zone): Slow
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY013NV--Loamy 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Haplic Durargids

Composition: 0 to 8 percent
 Landform: Shoulders of fan remnants; backslopes of fan remnants
 Typical vegetation: Desert needlegrass, other perennial forbs, shadscale
 Ecological site: 027XY017NV--South Slope 4-8 P.Z.

Xeric Torriorthents

Composition: 0 to 7 percent
 Landform: Drainageways
 Typical vegetation: Bottlebrush squirreltail, basin big sagebrush, Indian ricegrass, spiny hopsage
 Ecological site: 027XY029NV--Gravelly Fan 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

781--Pickup-Bucklake complex

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 4,100 to 6,100 feet

Precipitation: 10 to 12 inches

Air temperature: 45 to 50 degrees Fahrenheit

Frost-free period: 70 to 100 days

Composition

Pickup very stony loam, 50 to 75 percent slopes--60 percent

Bucklake very cobbly loam, 30 to 50 percent slopes--30 percent

Rock outcrop, 30 to 75 percent slopes--5 percent

Westbutte stony loam, 30 to 50 percent slopes--5 percent

Component Description

Pickup and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bluebunch wheatgrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 5 inches; very stony loam

Layer 2--5 to 22 inches; very gravelly clay

Layer 3--22 to 32 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Slow

Available water capacity: About 3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Component Description

Bucklake and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, Thurber needlegrass

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam

Layer 2--6 to 10 inches; gravelly clay loam

Layer 3--10 to 21 inches; gravelly clay

Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 5 percent

Landform: Mountains

Ecological site: None assigned

Westbutte and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Idaho fescue, threetip sagebrush

Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

782--Skedaddle-Rock outcrop association***Map Unit Setting***

MLRA: 23
 Landscape: Mountains
 Elevation: 4,400 to 5,600 feet
 Precipitation: 8 to 12 inches
 Air temperature: 46 to 50 degrees Fahrenheit
 Frost-free period: 80 to 110 days

Composition

Skedaddle very stony loam, 50 to 75 percent slopes--75 percent
 Rock outcrop, 30 to 75 percent slopes--15 percent
 Devada very stony loam, 4 to 15 percent slopes--5 percent
 Soughe very cobbly loam, 30 to 50 percent slopes--5 percent

Component Description**Skedaddle and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from basalt over residuum weathered from basalt
 Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam
 Layer 2--12 to 20 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 12 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 0.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Component Description**Rock outcrop**

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Devada and similar soils**

Composition: 0 to 5 percent
 Landform: Summits of mountains
 Typical vegetation: Thurber needlegrass, low sagebrush, bluebunch wheatgrass
 Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Soughe and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Thurber needlegrass
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

783--Rocconda association***Map Unit Setting***

MLRA: 23
 Landscape: Hills
 Elevation: 4,800 to 5,300 feet
 Precipitation: 8 to 10 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Rocconda very gravelly silt loam, 15 to 50 percent slopes--65 percent
 Rocconda very gravelly silt loam, 15 to 50 percent slopes--20 percent
 Hoot very cobbly loam, 15 to 50 percent slopes--5 percent
 Rock outcrop, 15 to 50 percent slopes--5 percent
 Soughe very cobbly loam, 15 to 30 percent slopes--5 percent

Component Description**Rocconda and similar soils**

Landform: Backslopes of hills
 Parent material: Colluvium derived from phyllite over residuum weathered from phyllite
 Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly silt loam
 Layer 2--3 to 8 inches; very channery clay
 Layer 3--8 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
 Permeability class (root zone): Slow
 Available water capacity: About 0.7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Component Description**Rocconda and similar soils**

Landform: Backslopes of hills
 Parent material: Colluvium derived from phyllite over residuum weathered from phyllite
 Typical vegetation: Bluebunch wheatgrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly silt loam
 Layer 2--3 to 8 inches; very channery clay
 Layer 3--8 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
 Permeability class (root zone): Slow

Available water capacity: About 0.7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Hoot and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of hills
 Typical vegetation: Shadscale, bud sagebrush, bottlebrush squirreltail
 Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Rock outcrop

Composition: 0 to 5 percent
 Landform: Hills
 Ecological site: None assigned

Soughe and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of hills; footslopes of hills
 Typical vegetation: Thurber needlegrass
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

785--Rodell-Rubble land complex**Map Unit Setting**

MLRA: 23
 Landscape: Mountains
 Elevation: 7,000 to 9,400 feet
 Precipitation: 16 to 20 inches
 Air temperature: 36 to 39 degrees Fahrenheit
 Frost-free period: 50 to 70 days

Composition

Rodell extremely bouldery coarse sandy loam, 50 to 75 percent slopes--45 percent
 Rubble land fragmental material, 75 to 90 percent slopes--45 percent

Alta extremely bouldery coarse sandy loam, 50 to 75 percent slopes--5 percent
 Tosp bouldery loam, 30 to 50 percent slopes--3 percent
 Typic Cryoborolls extremely bouldery loamy coarse sand, 30 to 50 percent slopes--2 percent

Component Description

Rodell and similar soils

Landform: Backslopes of mountains
 Parent material: Residuum weathered from granite
 Typical vegetation: Columbia needlegrass, other perennial grasses, other perennial forbs, mountain brome, other shrubs, mountain big sagebrush, other trees, big squirreltail, prairie junegrass

Typical profile:

Layer 1--0 to 5 inches; extremely bouldery coarse sandy loam
 Layer 2--5 to 17 inches; very gravelly loamy coarse sand
 Layer 3--17 to 21 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent
 Runoff: Low
 Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
 Permeability class (root zone): Rapid
 Available water capacity: About 0.9 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY070NV--PIAL Woodland
 Wsg:OR1

Component Description

Rubble Land

Landform: Mountains

Component Properties and Qualities

Slope: 75 to 90 percent
 Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches

Interpretive Groups

Nonirrigated land capability: 8s
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Alta and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Curl-leaf mountain mahogany
 Ecological site: 023XY073NV--Granitic Mahogany Thicket

Tosp and similar soils

Composition: 0 to 3 percent
 Landform: Foothslopes of mountains; backslopes of mountains
 Typical vegetation: Other perennial grasses, other perennial forbs, other shrubs, meadowrue, bluebunch wheatgrass, mountain brome, groundsel, Nevada bluegrass, snowberry, melic, quaking aspen
 Ecological site: 023XY028NV--Potrt Wsg: 1r7

Typic Cryoborolls

Composition: 0 to 2 percent
 Landform: Backslopes of mountains; foothslopes of mountains
 Typical vegetation: Other perennial grasses, snowbrush ceanothus, other perennial forbs
 Ecological site: 025XY052NV--Ceanothus Thicket

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

790--Valmy very fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24
 Landscape: Intermontane basin
 Elevation: 4,000 to 5,000 feet
 Precipitation: 6 to 8 inches
 Air temperature: 45 to 52 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Valmy very fine sandy loam, 0 to 2 percent slopes--95 percent

Weso very fine sandy loam, 0 to 2 percent slopes--3 percent
Wendane silt loam, 0 to 2 percent slopes--2 percent

Component Description

Valmy and similar soils

Landform: Inset fans
Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, basin big sagebrush

Typical profile:

Layer 1--0 to 2 inches; very fine sandy loam
Layer 2--2 to 60 inches; stratified gravelly coarse sandy loam to very fine sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Very low
Permeability class (root zone): Moderately rapid
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 7 inches
Present flooding: Occasional
Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2w
Nonirrigated land capability: 6w
Ecological site: 024XY006NV--Dry Floodplain

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Weso and similar soils

Composition: 0 to 3 percent
Landform: Inset fans
Typical vegetation: Shadscale, black greasewood
Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Wendane and similar soils

Composition: 0 to 2 percent
Landform: Alluvial flats
Typical vegetation: Basin wildrye, black greasewood
Ecological site: 024XY011NV--Sodic Flat 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

803--Ninemile-Rock outcrop complex

Map Unit Setting

MLRA: 23
Landscape: Plateau
Elevation: 5,500 to 6,500 feet
Precipitation: 10 to 16 inches
Air temperature: 43 to 45 degrees Fahrenheit
Frost-free period: 70 to 100 days

Composition

Ninemile very gravelly loam, 30 to 50 percent slopes--75 percent
Rock outcrop, 30 to 50 percent slopes--15 percent
Longcreek extremely stony loam, 30 to 50 percent slopes--5 percent
Westbutte cobbly loam, 30 to 50 percent slopes--5 percent

Component Description

Ninemile and similar soils

Landform: Backslopes of plateaus
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 14 inches; clay
Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
Permeability class (root zone): Very slow
Available water capacity: About 2 inches

Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description

Rock outcrop

Landform: Plateaus

Component Properties and Qualities

Slope: 30 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined
Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Longcreek and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of plateaus
Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, big sagebrush
Ecological site: 023XY018NV--Stony South Slope 12-16 P.Z.

Westbutte and similar soils

Composition: 0 to 5 percent
Landform: Backslopes of plateaus
Typical vegetation: Idaho fescue, threetip sagebrush
Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Engineering" and "Soil Properties" sections

804--Singatse-Rock outcrop complex

Map Unit Setting

MLRA: 27
Landscape: Hills
Elevation: 4,500 to 5,500 feet
Precipitation: 4 to 6 inches
Air temperature: 46 to 52 degrees Fahrenheit

Frost-free period: 100 to 130 days

Composition

Singatse very gravelly sandy loam, 15 to 50 percent slopes--70 percent
Rock outcrop, 15 to 50 percent slopes--15 percent
Coppereid gravelly loam, 15 to 50 percent slopes--5 percent
Puett very gravelly loam, 4 to 15 percent slopes--5 percent
Xeric Torrifluvents very gravelly loamy sand, 0 to 4 percent slopes--5 percent

Component Description

Singatse and similar soils

Landform: Shoulders of hills; backslopes of hills
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 8 inches; very gravelly loam
Layer 3--8 to 14 inches; weathered bedrock
Layer 4--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 10 inches
Permeability class (root zone): Moderate
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 027XY027NV--Barren Gravelly Slope 4-8 P.Z.

Component Description

Rock outcrop

Landform: Hills

Component Properties and Qualities

Slope: 15 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Coppereid and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of hills

Typical vegetation: Sandberg bluegrass, Utah juniper, other shrubs, Lahontan sagebrush, other perennial grasses, Thurber needlegrass, desert needlegrass, other perennial forbs

Ecological site: 023XY045NV--Juos Wsg: 0r9

Puett and similar soils

Composition: 0 to 5 percent

Landform: Footslopes of hills

Typical vegetation: Indian ricegrass, Wyoming big sagebrush

Ecological site: 024XY045NV--Eroded Slope 6-10 P.Z.

Xeric Torrifluvents

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Bottlebrush squirreltail, basin big sagebrush, Indian ricegrass, spiny hopsage

Ecological site: 027XY029NV--Gravelly Fan 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

805--Singatse-Jaybee association

Map Unit Setting

MLRA: 27

Landscape: Mountains

Elevation: 4,500 to 5,500 feet

Precipitation: 4 to 12 inches

Air temperature: 46 to 54 degrees Fahrenheit

Frost-free period: 90 to 110 days

Composition

Singatse very gravelly sandy loam, 30 to 50 percent slopes--60 percent

Jaybee very gravelly sandy loam, 15 to 50 percent slopes--25 percent

Coppereid gravelly loam, 15 to 50 percent slopes--5 percent

Fluvaquentic Haploxerolls stony loam, 2 to 4 percent slopes--5 percent

Rock outcrop, 15 to 50 percent slopes--5 percent

Component Description

Singatse and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 4 inches; very gravelly sandy loam

Layer 2--4 to 8 inches; very gravelly loam

Layer 3--8 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 4 to 10 inches

Permeability class (root zone): Moderate

Available water capacity: About 0.4 inches

Present flooding: None

Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 027XY027NV--Barren Gravelly Slope 4-8 P.Z.

Component Description

Jaybee and similar soils

Landform: Shoulders of mountains; backslopes of mountains

Parent material: Colluvium derived from basalt over residuum weathered from basalt

Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 7 inches; very gravelly sandy loam

Layer 2--7 to 14 inches; gravelly clay

Layer 3--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
 Permeability class (root zone): Slow
 Available water capacity: About 1.2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Coppereid and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Thurber needlegrass, Lahontan sagebrush, Utah juniper, Sandberg bluegrass, other perennial forbs, other perennial grasses, desert needlegrass, other shrubs
 Ecological site: 023XY045NV--Juos Wsg: 0r9

Fluvaquent Haploxerolls

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Basin wildrye, basin big sagebrush
 Ecological site: 023XY005NV--Dry Floodplain 8-10 P.Z.

Rock outcrop

Composition: 0 to 5 percent
 Landform: Mountains
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

806--Singatse-Rocconda-Badland association**Map Unit Setting**

MLRA: 27
 Landscape: Mountains

Elevation: 5,000 to 6,000 feet
 Precipitation: 4 to 10 inches
 Air temperature: 45 to 52 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Singatse very gravelly sandy loam, 15 to 50 percent slopes--50 percent
 Rocconda very gravelly silt loam, 15 to 50 percent slopes--25 percent
 Badland variable, 50 to 75 percent slopes--15 percent
 Bluewing very gravelly loamy sand, 2 to 4 percent slopes--5 percent
 Rock outcrop, 15 to 75 percent slopes--5 percent

Component Description**Singatse and similar soils**

Landform: Shoulders of mountains; backslopes of mountains; footslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 4 inches; very gravelly sandy loam
 Layer 2--4 to 8 inches; very gravelly loam
 Layer 3--8 to 14 inches; weathered bedrock
 Layer 4--14 to 24 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 10 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 0.4 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY027NV--Barren Gravelly Slope 4-8 P.Z.

Component Description**Rocconda and similar soils**

Landform: Backslopes of mountains; shoulders of mountains; footslopes of mountains
 Parent material: Colluvium derived from phyllite over residuum weathered from phyllite

Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly silt loam
 Layer 2--3 to 8 inches; very channery clay
 Layer 3--8 to 18 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
 Permeability class (root zone): Slow
 Available water capacity: About 0.7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Component Description

Badland

Landform: Backslopes of mountains

Component Properties and Qualities

Slope: 50 to 75 percent
 Depth to restrictive feature: Bedrock (paralithic): 1 to 4 inches
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches

Interpretive Groups

Nonirrigated land capability: 8s
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Bluewing and similar soils

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Littleleaf horsebrush, rubber rabbitbrush, spiny hopsage
 Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Rock outcrop

Composition: 0 to 5 percent
 Landform: Mountains
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

818--Siscab-Aycab-Ola association

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 6,200 to 6,900 feet
 Precipitation: 12 to 20 inches
 Air temperature: 43 to 51 degrees Fahrenheit
 Frost-free period: 60 to 110 days

Composition

Siscab very bouldery loamy coarse sand, 15 to 50 percent slopes--45 percent
 Aycab gravelly coarse sandy loam, 30 to 50 percent slopes--20 percent
 Ola very bouldery sandy loam, 30 to 50 percent slopes--20 percent
 Alta extremely bouldery coarse sandy loam, 30 to 50 percent slopes--5 percent
 Tosp bouldery loam, 15 to 50 percent slopes--5 percent
 Rock outcrop, 15 to 50 percent slopes--3 percent
 Poisoncreek very gravelly coarse sandy loam, 8 to 30 percent slopes--2 percent

Component Description

Siscab and similar soils

Landform: Shoulders of mountains; backslopes of mountains; footslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery loamy coarse sand
 Layer 2--3 to 8 inches; gravelly clay loam
 Layer 3--8 to 12 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 6 to 14 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 0.9 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY042NV--Granitic South Slope 12-14 P.Z.

Component Description**Aycab and similar soils**

Landform: Backslopes of mountains
 Parent material: Residuum weathered from granite
 Typical vegetation: Mountain brome, other perennial forbs, mountain big sagebrush

Typical profile:

Layer 1--0 to 29 inches; gravelly coarse sandy loam
 Layer 2--29 to 38 inches; gravelly coarse sandy loam
 Layer 3--38 to 42 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (paralithic): 24 to 40 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY048NV--Granitic Slope 16+ P.Z.

Component Description**Ola and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Idaho fescue, mountain big sagebrush, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam
 Layer 2--3 to 19 inches; coarse sandy loam
 Layer 3--19 to 38 inches; gravelly coarse sandy loam
 Layer 4--38 to 39 inches; weathered bedrock
 Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Alta and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Curl-leaf mountain mahogany
 Ecological site: 023XY073NV--Granitic Mahogany Thicket

Tosp and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains; footslopes of mountains
 Typical vegetation: Bluebunch wheatgrass, Nevada bluegrass, melic, meadowrue, groundsel, snowberry, quaking aspen, other perennial grasses, mountain brome, other perennial forbs, other shrubs
 Ecological site: 023XY028NV--Potr Wsg: 1r7

Rock outcrop

Composition: 0 to 3 percent
 Landform: Mountains
 Ecological site: None assigned

Poisoncreek and similar soils

Composition: 0 to 2 percent

Landform: Shoulders of mountains; summits of mountains
 Typical vegetation: Idaho fescue, Sandberg bluegrass, low sagebrush
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Forest land" section
- "Engineering" and "Soil Properties" sections

819--Siscab-Ola-Rock outcrop complex

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 5,500 to 7,500 feet
 Precipitation: 12 to 16 inches
 Air temperature: 43 to 51 degrees Fahrenheit
 Frost-free period: 70 to 110 days

Composition

Siscab very bouldery loamy coarse sand, 30 to 50 percent slopes--50 percent
 Ola very bouldery sandy loam, 50 to 75 percent slopes--25 percent
 Rock outcrop, 30 to 75 percent slopes--15 percent
 Coppereid gravelly loam, 15 to 30 percent slopes--5 percent
 Alta extremely bouldery coarse sandy loam, 30 to 50 percent slopes--3 percent
 Woofus loam, 0 to 2 percent slopes--2 percent

Component Description

Siscab and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery loamy coarse sand
 Layer 2--3 to 8 inches; gravelly clay loam
 Layer 3--8 to 13 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 6 to 14 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 0.9 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY042NV--Granitic South Slope 12-14 P.Z.

Component Description

Ola and similar soils

Landform: Backslopes of mountains
 Parent material: Colluvium derived from granite over residuum weathered from granite
 Typical vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam
 Layer 2--3 to 19 inches; coarse sandy loam
 Layer 3--19 to 38 inches; gravelly coarse sandy loam
 Layer 4--38 to 39 inches; weathered bedrock
 Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, northwest to northeast aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Component Description

Rock outcrop

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined
Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Coppereid and similar soils**

Composition: 0 to 5 percent
Landform: Backslopes of mountains
Typical vegetation: Thurber needlegrass, desert needlegrass, Lahontan sagebrush, other shrubs, Utah juniper, Sandberg bluegrass, other perennial forbs, other perennial grasses
Ecological site: 023XY045NV--Juos Wsg: 0r9

Alta and similar soils

Composition: 0 to 3 percent
Landform: Backslopes of mountains
Typical vegetation: Curl-leaf mountain mahogany
Ecological site: 023XY073NV--Granitic Mahogany Thicket

Woofus and similar soils

Composition: 0 to 2 percent
Landform: Flood plains
Typical vegetation: Basin wildrye
Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Forest land" section
"Engineering" and "Soil Properties" sections

820--Siscab-Poisoncreek-Ola complex***Map Unit Setting***

MLRA: 23
Landscape: Mountains
Elevation: 5,500 to 7,500 feet
Precipitation: 12 to 18 inches
Air temperature: 43 to 51 degrees Fahrenheit
Frost-free period: 70 to 110 days

Composition

Siscab very bouldery loamy coarse sand, 50 to 75 percent slopes--40 percent

Poisoncreek very gravelly coarse sandy loam, 50 to 75 percent slopes--30 percent
Ola very bouldery sandy loam, 50 to 75 percent slopes--20 percent
Rock outcrop, 30 to 75 percent slopes--5 percent
Lithic Haploxerolls very bouldery coarse sandy loam, 30 to 50 percent slopes--4 percent
Woofus loam, 0 to 2 percent slopes--1 percent

Component Description**Siscab and similar soils**

Landform: Backslopes of mountains
Parent material: Colluvium derived from granite over residuum weathered from granite
Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery loamy coarse sand
Layer 2--3 to 8 inches; gravelly clay loam
Layer 3--8 to 12 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, southeast to southwest aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 6 to 14 inches
Permeability class (root zone): Moderately slow
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY042NV--Granitic South Slope 12-14 P.Z.

Component Description**Poisoncreek and similar soils**

Landform: Backslopes of mountains
Parent material: Residuum weathered from volcanic rocks
Typical vegetation: Sandberg bluegrass, low sagebrush, Idaho fescue

Typical profile:

Layer 1--0 to 5 inches; very gravelly coarse sandy loam
Layer 2--5 to 13 inches; very gravelly sandy clay loam
Layer 3--13 to 15 inches; weathered bedrock

Layer 4--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (paralithic): 10 to 14 inches

Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderate

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description

Ola and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam

Layer 2--3 to 19 inches; coarse sandy loam

Layer 3--19 to 38 inches; gravelly coarse sandy loam

Layer 4--38 to 39 inches; weathered bedrock

Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, northwest to northeast aspects

Runoff: High

Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches

Permeability class (root zone): Moderate

Available water capacity: About 3 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Rock outcrop

Composition: 0 to 5 percent

Landform: Mountains

Ecological site: None assigned

Lithic Haploxerolls

Composition: 0 to 4 percent

Landform: Backslopes of mountains

Typical vegetation: Curl-leaf mountain mahogany, mountain big sagebrush

Ecological site: 023XY069NV--Granitic Mahogany Savanna

Woofus and similar soils

Composition: 0 to 1 percent

Landform: Flood plains

Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

821--Siscab-Poisoncreek-Alta association

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 6,800 to 7,500 feet

Precipitation: 12 to 20 inches

Air temperature: 38 to 51 degrees Fahrenheit

Frost-free period: 50 to 110 days

Composition

Siscab very bouldery loamy coarse sand, 50 to 75 percent slopes--45 percent

Poisoncreek very gravelly coarse sandy loam, 50 to 75 percent slopes--25 percent

Alta extremely bouldery coarse sandy loam, 50 to 75 percent slopes--15 percent

Ola gravelly coarse sandy loam, 50 to 75 percent slopes--5 percent

Rock outcrop, 30 to 75 percent slopes--5 percent

Pack Cryoborolls very gravelly loam, 30 to 50 percent slopes--3 percent

Woofus loam, 0 to 2 percent slopes--2 percent

Component Description

Siscab and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery loamy coarse sand

Layer 2--3 to 8 inches; gravelly clay loam

Layer 3--8 to 12 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, southeast to southwest aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (paralithic): 6 to 14 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 0.9 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY042NV--Granitic South Slope 12-14 P.Z.

Component Description

Poisoncreek and similar soils

Landform: Backslopes of mountains

Parent material: Residuum weathered from volcanic rocks

Typical vegetation: Sandberg bluegrass, Idaho fescue, low sagebrush

Typical profile:

Layer 1--0 to 5 inches; very gravelly coarse sandy loam

Layer 2--5 to 13 inches; very gravelly sandy clay loam

Layer 3--13 to 15 inches; weathered bedrock

Layer 4--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (paralithic): 10 to 14 inches

Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderate

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description

Alta and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from granite over residuum weathered from granite

Typical vegetation: Curl-leaf mountain mahogany

Typical profile:

Layer 1--0 to 17 inches; extremely bouldery coarse sandy loam

Layer 2--17 to 50 inches; very stony loamy coarse sand

Layer 3--50 to 60 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent, northwest to northeast aspects

Runoff: Medium

Depth to restrictive feature: Bedrock (paralithic): 40 to 60 inches

Permeability class (root zone): Moderately rapid

Available water capacity: About 3 inches

Present flooding: None

Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY073NV--Granitic Mahogany Thicket

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Ola and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Rock outcrop

Composition: 0 to 5 percent
Landform: Mountains
Ecological site: None assigned

Pachic Cryoborolls

Composition: 0 to 3 percent
Landform: Backslopes of mountains
Typical vegetation: Curl-leaf mountain mahogany,
mountain big sagebrush
Ecological site: 023XY069NV--Granitic Mahogany
Savanna

Woofus and similar soils

Composition: 0 to 2 percent
Landform: Flood plains
Typical vegetation: Basin wildrye
Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

823--Softscrabble-Cleavage-Harcany association

Map Unit Setting

MLRA: 23
Landscape: Mountains
Elevation: 6,500 to 7,200 feet
Precipitation: 12 to 20 inches
Air temperature: 36 to 45 degrees Fahrenheit
Frost-free period: 50 to 100 days

Composition

Softscrabble gravelly loam, 8 to 30 percent slopes--40 percent
Cleavage very cobbly loam, 8 to 30 percent slopes--30 percent
Harcany gravelly loam, 15 to 50 percent slopes--15 percent
Hackwood silt loam, 15 to 30 percent slopes--5 percent
Welch loam, 0 to 4 percent slopes--5 percent
Westbutte cobbly loam, 15 to 30 percent slopes--5 percent

Component Description

Softscrabble and similar soils

Landform: Shoulders of mountains; footslopes of mountains; backslopes of mountains
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; gravelly loam
Layer 2--12 to 36 inches; very cobbly clay loam
Layer 3--36 to 61 inches; gravelly clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent, southeast to southwest aspects
Runoff: Very high
Permeability class (root zone): Slow
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6e
Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Component Description

Cleavage and similar soils

Landform: Summits of mountains; shoulders of mountains
Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
Typical vegetation: Low sagebrush, Sandberg bluegrass, Idaho fescue

Typical profile:

Layer 1--0 to 7 inches; very cobbly loam
Layer 2--7 to 15 inches; very cobbly clay loam
Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderately slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Component Description

Harcany and similar soils

Landform: Backslopes of mountains; footslopes of mountains
 Parent material: Colluvium derived from mixed rocks, loess, and volcanic ash
 Typical vegetation: Mountain big sagebrush, other perennial forbs, Idaho fescue

Typical profile:

Layer 1--0 to 3 inches; gravelly loam
 Layer 2--3 to 14 inches; very gravelly silt loam
 Layer 3--14 to 60 inches; extremely gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: High
 Permeability class (root zone): Moderate
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY054NV--Steep North Slope 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Hackwood and similar soils

Composition: 0 to 5 percent
 Landform: Footslopes of mountains
 Typical vegetation: Other shrubs, meadowrue, groundsel, snowberry, mountain brome, quaking aspen, bluebunch wheatgrass, other perennial grasses, Nevada bluegrass, other perennial forbs, melic
 Ecological site: 023XY028NV--Potrt Wsg: 1r7

Welch and similar soils

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Other perennial grasses, other perennial forbs, sedge, Nevada bluegrass
 Ecological site: 023XY013NV--Dry Meadow

Westbutte and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Threetip sagebrush, Idaho fescue
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

824--Simon loam, 4 to 15 percent slopes

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 5,800 to 6,500 feet
 Precipitation: 10 to 12 inches
 Air temperature: 43 to 45 degrees Fahrenheit
 Frost-free period: 95 to 100 days

Composition

Simon loam, 4 to 15 percent slopes--85 percent
 Softscrabble cobbly loam, 30 to 50 percent slopes--5 percent
 Welch loam, 0 to 2 percent slopes--5 percent
 Woofus loam, 0 to 2 percent slopes--5 percent

Component Description

Simon and similar soils

Landform: Fan remnants
 Parent material: Volcanic ash and loess over alluvium derived from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, big sagebrush

Typical profile:

Layer 1--0 to 7 inches; loam
 Layer 2--7 to 31 inches; clay loam
 Layer 3--31 to 46 inches; cobbly clay
 Layer 4--46 to 60 inches; extremely gravelly sandy clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Available water capacity: About 10 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4e
 Nonirrigated land capability: 6c
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Softscrabble and similar soils

Composition: 0 to 5 percent
 Landform: Foothills of mountains
 Typical vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Welch and similar soils

Composition: 0 to 5 percent
 Landform: Mountain valleys
 Typical vegetation: Other perennial forbs, bluegrass, tufted hairgrass
 Ecological site: 023XY025NV--Wet Meadow

Woofus and similar soils

Composition: 0 to 5 percent
 Landform: Flood plains
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Crops and Pasture" section
- "Engineering" and "Soil Properties" sections

825--Sojur extremely channery silt loam, 15 to 50 percent slopes

Map Unit Setting

MLRA: 27
 Landscape: Hills
 Elevation: 4,800 to 5,600 feet
 Precipitation: 5 to 8 inches
 Air temperature: 50 to 54 degrees Fahrenheit
 Frost-free period: 110 to 130 days

Composition

Sojur extremely channery silt loam, 15 to 50 percent slopes--85 percent
 Rock outcrop, 15 to 50 percent slopes--5 percent
 Wesfil very channery loam, 15 to 50 percent slopes--5 percent
 Xeric Torrifluvents extremely gravelly sandy loam, 2 to 4 percent slopes--5 percent

Component Description

Sojur and similar soils

Landform: Shoulders of hills; backslopes of hills
 Parent material: Residuum weathered from phyllite
 Typical vegetation: Indian ricegrass, shadscale

Typical profile:

Layer 1--0 to 6 inches; extremely channery silt loam
 Layer 2--6 to 16 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 4 to 10 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 0.4 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY027NV--Barren Gravelly Slope 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Rock outcrop**

Composition: 0 to 5 percent
 Landform: Hills
 Ecological site: None assigned

Wesfil and similar soils

Composition: 0 to 5 percent
 Landform: Shoulders of hills; backslopes of hills
 Typical vegetation: Indian ricegrass, Bailey greasewood,
 Lahontan sagebrush
 Ecological site: 027XY070NV--Droughty Claypan 8-10
 P.Z.

Xeric Torrifluvents

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Basin big sagebrush, bottlebrush
 squirreltail, Indian ricegrass, spiny hopsage
 Ecological site: 027XY029NV--Gravelly Fan 8-10 P.Z.

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

826--Simon-Fulstone complex**Map Unit Setting**

MLRA: 23
 Landscape: Fan piedmont
 Elevation: 5,800 to 6,500 feet
 Precipitation: 6 to 12 inches
 Air temperature: 43 to 52 degrees Fahrenheit
 Frost-free period: 95 to 120 days

Composition

Simon loam, 4 to 15 percent slopes--50 percent
 Fulstone gravelly loam, 4 to 15 percent slopes--45
 percent
 Woofus loam, 0 to 2 percent slopes--5 percent

Component Description**Simon and similar soils**

Landform: Summits of fan remnants
 Parent material: Volcanic ash and loess over alluvium
 derived from volcanic rocks
 Typical vegetation: Big sagebrush, bluebunch
 wheatgrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 7 inches; loam
 Layer 2--7 to 31 inches; clay loam
 Layer 3--31 to 46 inches; cobbly clay
 Layer 4--46 to 60 inches; extremely gravelly sandy clay
 loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: High
 Permeability class (root zone): Moderately slow
 Available water capacity: About 10 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 4e
 Nonirrigated land capability: 6c
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Component Description**Fulstone and similar soils**

Landform: Summits of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Lahontan sagebrush, Thurber
 needlegrass

Typical profile:

Layer 1--0 to 3 inches; gravelly loam
 Layer 2--3 to 18 inches; clay
 Layer 3--18 to 29 inches; indurated

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Woofus and similar soils

Composition: 0 to 5 percent

Landform: Flood plains

Typical vegetation: Basin wildrye

Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

829--Skedaddle-Softscrabble-Cleavage association

Map Unit Setting

MLRA: 23

Landscape: Mountains

Elevation: 5,500 to 7,500 feet

Precipitation: 8 to 20 inches

Air temperature: 43 to 50 degrees Fahrenheit

Frost-free period: 50 to 110 days

Composition

Skedaddle very stony loam, 30 to 50 percent slopes--40 percent

Softscrabble very stony loam, 30 to 50 percent slopes--30 percent

Cleavage extremely gravelly loam, 15 to 50 percent slopes--20 percent

Rock outcrop, 15 to 50 percent slopes--5 percent

Sumya very cobbly clay loam, 30 to 50 percent slopes--5 percent

Sumya very cobbly clay loam, 30 to 50 percent slopes--5 percent

Component Description

Skedaddle and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from basalt over residuum weathered from basalt

Typical vegetation: Wyoming big sagebrush, Salmon wildrye

Typical profile:

Layer 1--0 to 12 inches; very stony loam

Layer 2--12 to 20 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, southeast to southwest aspects

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 4 to 12 inches

Permeability class (root zone): Moderate

Available water capacity: About 0.6 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY076NV--Loamy Hill 10-14 P.Z.

Component Description

Softscrabble and similar soils

Landform: Footslopes of mountains; backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam

Layer 2--12 to 36 inches; very cobbly clay loam

Layer 3--36 to 61 inches; gravelly clay loam

Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects

Runoff: Very high

Permeability class (root zone): Slow

Available water capacity: About 7 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Component Description**Cleavage and similar soils**

Landform: Shoulders of mountains; summits of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Idaho fescue, Sandberg bluegrass, low sagebrush

Typical profile:

Layer 1--0 to 7 inches; extremely gravelly loam

Layer 2--7 to 15 inches; very cobbly clay loam

Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 1.1 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Rock outcrop**

Composition: 0 to 5 percent

Landform: Mountains

Ecological site: None assigned

Sumya and similar soils

Composition: 0 to 5 percent

Landform: Shoulders of mountains

Typical vegetation: Other perennial grasses, other shrubs, Wyoming big sagebrush, Thurber needlegrass, desert needlegrass, Utah juniper, other perennial forbs

Ecological site: 023XY046NV--Juos Wsg: 0r2

Sumya and similar soils

Composition: 0 to 5 percent

Landform: Shoulders of mountains

Typical vegetation: Utah juniper, bottlebrush squirreltail, Indian ricegrass, Thurber needlegrass, Sandberg bluegrass

Ecological site: 023XY046NV--Juos Wsg: 0r2

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

830--Skedaddle-Rock outcrop-Sumya complex**Map Unit Setting**

MLRA: 23

Landscape: Mountains

Elevation: 5,500 to 7,500 feet

Precipitation: 8 to 12 inches

Air temperature: 43 to 50 degrees Fahrenheit

Frost-free period: 80 to 110 days

Composition

Skedaddle very stony loam, 50 to 75 percent slopes--50 percent

Rock outcrop, 30 to 75 percent slopes--25 percent

Sumya very cobbly clay loam, 50 to 75 percent slopes--15 percent

Lithic Torriorthents extremely stony loam, 50 to 75 percent slopes--5 percent

Lithic Xerollic Haplargids very gravelly loam, 15 to 50 percent slopes--5 percent

Component Description**Skedaddle and similar soils**

Landform: Backslopes of mountains

Parent material: Colluvium derived from basalt over residuum weathered from basalt

Typical vegetation: Salmon wildrye, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam

Layer 2--12 to 16 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 12 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 0.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY076NV--Loamy Hill 10-14 P.Z.

Component Description**Rock outcrop**

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Component Description**Sumya and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Other perennial grasses, Utah juniper, other shrubs, Wyoming big sagebrush, other perennial forbs, desert needlegrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 7 inches; very cobbly clay loam
 Layer 2--7 to 11 inches; very gravelly clay loam
 Layer 3--11 to 21 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 7 to 12 inches
 Permeability class (root zone): Slow
 Available water capacity: About 0.7 inches
 Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY046NV--Juos Wsg: 0r2

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Lithic Torriorthents**

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Ecological site: 023XY077NV--Shallow Loam 10-14 P.Z.

Lithic Xerollic Haplargids

Composition: 0 to 5 percent
 Landform: Footslopes of mountains
 Typical vegetation: Salmon wildrye, Lahontan sagebrush
 Ecological site: 023XY075NV--Shallow Hill 10-14 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Forest land" section
 "Engineering" and "Soil Properties" sections

835--Ola-Aycab-Tosp complex**Map Unit Setting**

MLRA: 23
 Landscape: Mountains
 Elevation: 6,000 to 7,500 feet
 Precipitation: 14 to 20 inches
 Air temperature: 41 to 46 degrees Fahrenheit
 Frost-free period: 50 to 100 days

Composition

Ola very bouldery sandy loam, 30 to 50 percent slopes--45 percent
 Aycab very bouldery loamy coarse sand, 15 to 30 percent slopes--25 percent
 Tosp bouldery loam, 8 to 30 percent slopes--15 percent
 Lithic Haploxerolls gravelly sandy loam, 15 to 50 percent slopes--5 percent
 Welch loam, 2 to 8 percent slopes--5 percent
 Rock outcrop, 8 to 50 percent slopes--3 percent

Poisoncreek very gravelly coarse sandy loam, 8 to 30 percent slopes--2 percent

Component Description

Ola and similar soils

Landform: Backslopes of mountains; footslopes of mountains
Parent material: Colluvium derived from granite over residuum weathered from granite
Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very bouldery sandy loam
Layer 2--3 to 19 inches; coarse sandy loam
Layer 3--19 to 38 inches; gravelly coarse sandy loam
Layer 4--38 to 39 inches; weathered bedrock
Layer 5--39 to 49 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
Permeability class (root zone): Moderate
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY043NV--Granitic Slope 14-16 P.Z.

Component Description

Aycab and similar soils

Landform: Footslopes of mountains
Parent material: Residuum weathered from granite
Typical vegetation: Mountain big sagebrush, other perennial forbs, mountain brome

Typical profile:

Layer 1--0 to 2 inches; very bouldery loamy coarse sand
Layer 2--2 to 38 inches; gravelly coarse sandy loam
Layer 3--38 to 42 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent, northwest to northeast aspects
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 24 to 40 inches
Permeability class (root zone): Moderately rapid
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 023XY048NV--Granitic Slope 16+ P.Z.

Component Description

Tosp and similar soils

Landform: Footslopes of mountains
Parent material: Colluvium derived from granite over residuum weathered from granite
Typical vegetation: Other perennial grasses, other perennial forbs, other shrubs, mountain brome, melic, bluebunch wheatgrass, meadowrue, groundsel, snowberry, quaking aspen, Nevada bluegrass

Typical profile:

Layer 1--0 to 4 inches; bouldery loam
Layer 2--4 to 37 inches; sandy loam
Layer 3--37 to 50 inches; very gravelly coarse sandy loam
Layer 4--50 to 54 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent, northwest to northeast aspects
Runoff: Low
Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches
Permeability class (root zone): Moderately rapid
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6s
Ecological site: 023XY028NV--Potrt Wsg: 1r7

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Lithic Haploxerolls

Composition: 0 to 5 percent

Landform: Summits of mountains; shoulders of mountains

Typical vegetation: Curl-leaf mountain mahogany, mountain big sagebrush

Ecological site: 023XY069NV--Granitic Mahogany Savanna

Welch and similar soils

Composition: 0 to 5 percent

Landform: Drainageways

Typical vegetation: Other perennial forbs, sedge, other perennial grasses, Nevada bluegrass

Ecological site: 023XY013NV--Dry Meadow

Rock outcrop

Composition: 0 to 3 percent

Landform: Mountains

Ecological site: None assigned

Poisoncreek and similar soils

Composition: 0 to 2 percent

Landform: Summits of mountains; shoulders of mountains

Typical vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

840--Saraph-Yellowhills association

Map Unit Setting

MLRA: 23

Landscape: Plateau

Elevation: 5,700 to 6,100 feet

Precipitation: 8 to 12 inches

Air temperature: 42 to 45 degrees Fahrenheit

Frost-free period: 80 to 100 days

Composition

Saraph loamy sand, 4 to 15 percent slopes--65 percent

Yellowhills sandy loam, 0 to 2 percent slopes--20 percent

Davey loamy fine sand, 2 to 8 percent slopes--5 percent

Devada very stony loam, 4 to 15 percent slopes--5 percent

Jesse Camp very fine sandy loam, 0 to 2 percent slopes--3 percent

Rock outcrop, 4 to 15 percent slopes--2 percent

Component Description

Saraph and similar soils

Landform: Summits of plateaus

Parent material: Residuum weathered from tuff

Typical vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 2 inches; loamy sand

Layer 2--2 to 9 inches; sandy loam

Layer 3--9 to 16 inches; clay loam

Layer 4--16 to 26 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Component Description

Yellowhills and similar soils

Landform: Inset fans

Parent material: Alluvium derived from mixed rocks and volcanic ash

Typical vegetation: Thurber needlegrass, Idaho fescue, basin big sagebrush

Typical profile:

Layer 1--0 to 16 inches; sandy loam

Layer 2--16 to 34 inches; sandy loam

Layer 3--34 to 60 inches; fine sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Very low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 14 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6c
 Ecological site: 023XY071NV--Ashy Loam 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Davey and similar soils**

Composition: 0 to 5 percent
 Landform: Sand sheets
 Typical vegetation: Other perennial forbs, Indian ricegrass, big sagebrush, needleandthread
 Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Devada and similar soils

Composition: 0 to 5 percent
 Landform: Summits of plateaus
 Typical vegetation: Low sagebrush, Thurber needlegrass, bluebunch wheatgrass
 Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Jesse Camp and similar soils

Composition: 0 to 3 percent
 Landform: Stream terraces
 Typical vegetation: Basin wildrye, basin big sagebrush
 Ecological site: 023XY005NV--Dry Floodplain 8-10 P.Z.

Rock outcrop

Composition: 0 to 2 percent
 Landform: Plateaus
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

841--Saraph-Tuffo-Yellowhills association**Map Unit Setting**

MLRA: 23
 Landscape: Plateau

Elevation: 5,700 to 6,100 feet
 Precipitation: 8 to 12 inches
 Air temperature: 42 to 48 degrees Fahrenheit
 Frost-free period: 80 to 120 days

Composition

Saraph loamy sand, 2 to 8 percent slopes--50 percent
 Tuffo fine sandy loam, 15 to 30 percent slopes--25 percent
 Yellowhills sandy loam, 0 to 2 percent slopes--15 percent
 Badland, 50 to 75 percent slopes--5 percent
 Devada very stony loam, 4 to 15 percent slopes--5 percent

Component Description**Saraph and similar soils**

Landform: Summits of plateaus
 Parent material: Residuum weathered from tuff
 Typical vegetation: Indian ricegrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 2 inches; loamy sand
 Layer 2--2 to 9 inches; sandy loam
 Layer 3--9 to 16 inches; clay loam
 Layer 4--16 to 26 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description**Tuffo and similar soils**

Landform: Hills
 Parent material: Residuum weathered from tuff
 Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, big sagebrush

Typical profile:

Layer 1--0 to 5 inches; fine sandy loam

Layer 2--5 to 8 inches; very fine sandy loam
 Layer 3--8 to 18 inches; weathered bedrock

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 4 to 14
 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 1.1 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Component Description

Yellowhills and similar soils

Landform: Inset fans
 Parent material: Alluvium derived from mixed rocks and
 volcanic ash
 Typical vegetation: Idaho fescue, basin big sagebrush,
 Thurber needlegrass

Typical profile:

Layer 1--0 to 16 inches; sandy loam
 Layer 2--16 to 34 inches; sandy loam
 Layer 3--34 to 60 inches; fine sandy loam

See "Chemical Properties of Soils" table and the
 "Physical Properties of Soils" table for more
 information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Very low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 14 inches
 Present flooding: Rare
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 6c
 Ecological site: 023XY071NV--Ashy Loam 10-12 P.Z.

Typical soil descriptions including ranges in
 characteristics are in the "Classification of the Soils"
 section.

Contrasting Inclusions

Badland

Composition: 0 to 5 percent
 Landform: Backslopes of hills
 Ecological site: None assigned

Devada and similar soils

Composition: 0 to 5 percent
 Landform: Summits of plateaus
 Typical vegetation: Thurber needlegrass, bluebunch
 wheatgrass, low sagebrush
 Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Management

For information about managing this map unit, see the
 following sections and associated tables in Part II of
 this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

842--Deppy-Tumtum-Puett complex

Map Unit Setting

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 5,000 feet
 Precipitation: 7 to 10 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 80 to 110 days

Composition

Deppy very cobbly loam, 4 to 15 percent slopes--40
 percent
 Tumtum very cobbly loam, 2 to 8 percent slopes--30
 percent
 Puett very gravelly loam, 15 to 30 percent slopes--15
 percent
 Xeric Torrifluents very gravelly sandy loam, 0 to 2
 percent slopes--7 percent
 Hoot very cobbly loam, 15 to 30 percent slopes--6
 percent
 Rock outcrop, 4 to 30 percent slopes--2 percent

Component Description

Deppy and similar soils

Landform: Summits of fan remnants; shoulders of fan
 remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Shadscale, Indian ricegrass, bud
 sagebrush

Typical profile:

Layer 1--0 to 3 inches; very cobbly loam

Layer 2--3 to 9 inches; clay loam
 Layer 3--9 to 21 inches; cemented
 Layer 4--21 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 10 to 20 inches
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicty: Sodic within 40 inches
 Available water capacity: About 1.5 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description

Tumtum and similar soils

Landform: Summits of fan remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Thurber needlegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 2 inches; very cobbly loam
 Layer 2--2 to 10 inches; clay
 Layer 3--10 to 18 inches; indurated
 Layer 4--18 to 60 inches; very gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 9 to 16 inches
 Permeability class (root zone): Slow
 Available water capacity: About 1.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY005NV--Loamy 8-10 P.Z.

Component Description

Puett and similar soils

Landform: Pediments
 Parent material: Colluvium derived from tuff over residuum weathered from tuff
 Typical vegetation: Indian ricegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
 Layer 2--3 to 15 inches; coarse sandy loam
 Layer 3--15 to 25 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY045NV--Eroded Slope 6-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Xeric Torrifluvents

Composition: 0 to 7 percent
 Landform: Drainageways
 Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
 Ecological site: 024XY041NV--Gravelly Fan

Hoot and similar soils

Composition: 0 to 6 percent
 Landform: Hills
 Typical vegetation: Bottlebrush squirreltail, shadscale, bud sagebrush
 Ecological site: 024XY025NV--Loamy Slope 5-8 P.Z.

Rock outcrop

Composition: 0 to 2 percent

Landform: Hills
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Engineering" and "Soil Properties" sections

Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 024XY002NV--Loamy 5-8 P.Z.

843--Deppy-Puett-Orovada association

Map Unit Setting

MLRA: 24
Landscape: Fan piedmont
Elevation: 4,500 to 4,800 feet
Precipitation: 6 to 10 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 80 to 110 days

Composition

Deppy very cobbly loam, 2 to 8 percent slopes--50 percent
Puett very gravelly loam, 15 to 30 percent slopes--25 percent
Orovada loamy fine sand, 2 to 4 percent slopes--15 percent
Xeric Torrfluvents very gravelly sandy loam, 0 to 2 percent slopes--7 percent
Rock outcrop, 4 to 30 percent slopes--3 percent

Component Description

Deppy and similar soils

Landform: Fan remnants
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

Typical profile:

Layer 1--0 to 3 inches; very cobbly loam
Layer 2--3 to 9 inches; clay loam
Layer 3--9 to 21 inches; cemented
Layer 4--21 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 20 inches
Permeability class (root zone): Moderately slow

Component Description

Puett and similar soils

Landform: Pediments
Parent material: Colluvium derived from tuff over residuum weathered from tuff
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 15 inches; coarse sandy loam
Layer 3--15 to 25 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches
Permeability class (root zone): Moderately rapid
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: 024XY045NV--Eroded Slope 6-10 P.Z.

Component Description

Orovada and similar soils

Landform: Inset fans
Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, other perennial forbs, big sagebrush

Typical profile:

Layer 1--0 to 6 inches; loamy fine sand
Layer 2--6 to 17 inches; fine sandy loam
Layer 3--17 to 60 inches; stratified fine sandy loam to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 4 percent
Runoff: Low
Permeability class (root zone): Moderate
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: None
Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2s
Nonirrigated land capability: 6s
Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Xeric Torrifluvents

Composition: 0 to 7 percent
Landform: Drainageways
Typical vegetation: Spiny hopsage, basin big sagebrush, basin wildrye
Ecological site: 024XY041NV--Gravelly Fan

Rock outcrop

Composition: 0 to 3 percent
Landform: Pediments
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

847--Toulon-Badland-Typic Torriorthents complex

Map Unit Setting

MLRA: 27
Landscape: Bolson
Elevation: 4,000 to 4,200 feet
Precipitation: 4 to 8 inches
Air temperature: 46 to 55 degrees Fahrenheit

Frost-free period: 120 to 140 days

Composition

Toulon very gravelly loam, 2 to 8 percent slopes--30 percent
Badland variable, 50 to 75 percent slopes--30 percent
Typic Torriorthents extremely gravelly sandy loam, 2 to 4 percent slopes--25 percent
Bluewing very gravelly loamy sand, 0 to 2 percent slopes--7 percent
Isolde fine sand, 4 to 15 percent slopes--5 percent
Mazuma fine sandy loam, 0 to 2 percent slopes--3 percent

Component Description

Toulon and similar soils

Landform: Shoulders of barrier beaches
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

Typical profile:

Layer 1--0 to 6 inches; very gravelly loam
Layer 2--6 to 14 inches; very gravelly sandy loam
Layer 3--14 to 60 inches; stratified gravelly coarse sand to extremely cobbly coarse sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
Runoff: Low
Permeability class (root zone): Moderately rapid
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Excessively drained

Interpretive Groups

Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site: 027XY018NV--Gravelly Loam 4-8 P.Z.

Component Description

Badland

Landform: Backslopes of basin-floor remnants

Component Properties and Qualities

Slope: 50 to 75 percent
Depth to restrictive feature: Bedrock (paralithic): 1 to 4 inches
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches

Interpretive Groups

Nonirrigated land capability: 8s
Ecological site: None assigned

Component Description**Typic Torriorthents**

Landform: Summits of barrier beaches
Parent material: Alluvium derived from mixed rocks
Typical vegetation: None listed

Component Properties and Qualities

Slope: 2 to 4 percent
Runoff: Negligible
Permeability class (root zone): Rapid
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Bluewing and similar soils**

Composition: 0 to 7 percent
Landform: Basin floors
Typical vegetation: Spiny hopsage, rubber rabbitbrush, littleleaf horsebrush
Ecological site: 027XY022NV--Valley Wash 4-8 P.Z.

Isolde and similar soils

Composition: 0 to 5 percent
Landform: Basin floors
Typical vegetation: Indian ricegrass, black greasewood
Ecological site: 027XY016NV--Sodic Dunes

Mazuma and similar soils

Composition: 0 to 3 percent
Landform: Beach plains
Typical vegetation: Shadscale, Indian ricegrass, black greasewood
Ecological site: 027XY024NV--Sodic Terrace

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
"Crops and Pasture" section
"Engineering" and "Soil Properties" sections

850--Playas**Map Unit Setting**

MLRA: 24
Landscape: Bolson
Elevation: 3,900 to 4,800 feet

Composition

Playas silty clay, 0 to 1 percent slopes--100 percent

Component Description**Playas**

Landform: Playas

Component Properties and Qualities

Slope: 0 to 1 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Present ponding: Frequent
Water table: Present

Interpretive Groups

Nonirrigated land capability: 8w
Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
"Engineering" and "Soil Properties" sections

875--Pumper-Dun Glen-Davey association**Map Unit Setting**

MLRA: 24
Landscape: Bolson
Elevation: 3,800 to 6,100 feet
Precipitation: 4 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

Composition

Pumper sandy loam, 2 to 8 percent slopes--35 percent
Dun Glen very fine sandy loam, 0 to 2 percent slopes--35 percent
Davey loamy fine sand, 2 to 4 percent slopes--15 percent
Boton silt loam, 0 to 2 percent slopes--5 percent
Wholan silt loam, 0 to 2 percent slopes--5 percent
Xeric Torrifluents very gravelly sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Pumper and similar soils**

Landform: Longshore bar (relict)s
 Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
 Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 11 inches; sandy loam
 Layer 2--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description**Dun Glen and similar soils**

Landform: Basin-floor remnants
 Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

Typical profile:

Layer 1--0 to 5 inches; very fine sandy loam
 Layer 2--5 to 11 inches; very fine sandy loam
 Layer 3--11 to 60 inches; loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Sodicity: Sodic within 40 inches
 Available water capacity: About 9 inches
 Present flooding: Rare
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2c
 Nonirrigated land capability: 7c
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description**Davey and similar soils**

Landform: Basin floors
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Big sagebrush, other perennial forbs, Indian ricegrass, needleandthread

Typical profile:

Layer 1--0 to 4 inches; loamy fine sand
 Layer 2--4 to 16 inches; fine sandy loam
 Layer 3--16 to 60 inches; loamy fine sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 4 percent
 Runoff: Very low
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Irrigated land capability: 3s
 Nonirrigated land capability: 7s
 Ecological site: 024XY017NV--Sandy 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Boton and similar soils**

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Black greasewood, shadscale
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Wholan and similar soils

Composition: 0 to 5 percent
 Landform: Lagoons
 Typical vegetation: Indian ricegrass, winterfat, bud sagebrush
 Ecological site: 024XY014NV--Coarse Silty 4-8 P.Z.

Xeric Torrifluents

Composition: 0 to 5 percent

Landform: Basin floors
 Typical vegetation: Basin wildrye, basin big sagebrush,
 spiny hopsage
 Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

876--Pumper-Weso association

Map Unit Setting

MLRA: 24
 Landscape: Fan piedmont
 Elevation: 4,200 to 4,400 feet
 Precipitation: 4 to 8 inches
 Air temperature: 45 to 51 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Pumper stony fine sandy loam, 2 to 8 percent slopes--65 percent
 Weso fine sandy loam, 0 to 4 percent slopes--20 percent
 Pumper very stony fine sandy loam, 2 to 4 percent slopes--6 percent
 McConnell very stony fine sandy loam, 2 to 8 percent slopes--5 percent
 Tenabo cobbly very fine sandy loam, 2 to 8 percent slopes--3 percent
 Hawsley fine sand, 0 to 2 percent slopes--1 percent

Component Description

Pumper and similar soils

Landform: Beach terraces
 Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

Typical profile:

Layer 1--0 to 4 inches; stony fine sandy loam
 Layer 2--4 to 11 inches; loam
 Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 8 percent
 Runoff: Medium
 Permeability class (root zone): Moderate
 Available water capacity: About 4 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Component Description

Weso and similar soils

Landform: Fan skirts
 Parent material: Volcanic ash and loess over alluvium derived from mixed rocks
 Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

Typical profile:

Layer 1--0 to 3 inches; fine sandy loam
 Layer 2--3 to 29 inches; fine sandy loam
 Layer 3--29 to 60 inches; stratified very gravelly loamy sand to fine sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 4 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Sodicity: Sodic within 40 inches
 Available water capacity: About 8 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2e
 Nonirrigated land capability: 7c
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Pumper and similar soils

Composition: 0 to 6 percent
 Landform: Beach terraces
 Typical vegetation: Black greasewood, shadscale
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

McConnel and similar soils

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Tenabo and similar soils

Composition: 0 to 3 percent
 Landform: Summits of fan remnants
 Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Hawsley and similar soils

Composition: 0 to 1 percent
 Landform: Sand sheets
 Typical vegetation: Spiny hopsage, Indian ricegrass
 Ecological site: 024XY055NV--Sandy 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Crops and Pasture" section
- "Engineering" and "Soil Properties" sections

878--Croesus-Rock outcrop complex, very steep**Map Unit Setting**

MLRA: 23
 Landscape: Mountains
 Elevation: 6,000 to 7,500 feet
 Precipitation: 16 to 20 inches
 Air temperature: 40 to 45 degrees Fahrenheit
 Frost-free period: 50 to 70 days

Composition

Croesus extremely stony loam, 50 to 75 percent slopes--45 percent
 Rock outcrop, 30 to 75 percent slopes--45 percent
 Longcreek extremely stony loam, 30 to 50 percent slopes--5 percent
 Westbutte cobbly loam, 30 to 50 percent slopes--5 percent

Component Description**Croesus and similar soils**

Landform: Backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks

Typical vegetation: Mountain big sagebrush, Columbia needlegrass, Idaho fescue

Typical profile:

Layer 1--0 to 10 inches; extremely stony loam
 Layer 2--10 to 22 inches; very gravelly loam
 Layer 3--22 to 29 inches; very gravelly loam
 Layer 4--29 to 39 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 50 to 75 percent
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 1.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY061NV--Mountain Shoulders 14-18 P.Z.

Component Description**Rock outcrop**

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 75 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Longcreek and similar soils**

Composition: 0 to 5 percent
 Landform: Backslopes of mountains
 Typical vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass
 Ecological site: 023XY018NV--Stony South Slope 12-16 P.Z.

Westbutte and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains
 Typical vegetation: Idaho fescue, threetip sagebrush
 Ecological site: 023XY053NV--Gravelly North Slope 14+
 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

907--Bucklake very cobbly loam, 8 to 50 percent slopes

Map Unit Setting

MLRA: 23
 Landscape: Mountains
 Elevation: 5,000 to 6,000 feet
 Precipitation: 10 to 12 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 50 to 100 days

Composition

Bucklake very cobbly loam, 8 to 50 percent slopes--85 percent
 Woofus loam, 0 to 2 percent slopes--5 percent
 Anawalt very gravelly loam, 4 to 15 percent slopes--4 percent
 Soughe cobbly loam, 15 to 50 percent slopes--4 percent
 Rock outcrop, 4 to 50 percent slopes--2 percent

Component Description

Bucklake and similar soils

Landform: Shoulders of mountains; footslopes of mountains; backslopes of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam
 Layer 2--6 to 10 inches; gravelly clay loam
 Layer 3--10 to 21 inches; gravelly clay
 Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 50 percent

Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Woofus and similar soils

Composition: 0 to 5 percent
 Landform: Flood plains
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Anawalt and similar soils

Composition: 0 to 4 percent
 Landform: Summits of mountains
 Typical vegetation: Sandberg bluegrass, low sagebrush
 Ecological site: 023XY021NV--Scabland 10-14 P.Z.

Soughe and similar soils

Composition: 0 to 4 percent
 Landform: Backslopes of mountains
 Typical vegetation: Thurber needlegrass
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Rock outcrop

Composition: 0 to 2 percent
 Landform: Mountains
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

909--Bucklake-Softscrabble-Rubble land association

Map Unit Setting

MLRA: 23
 Landscape: Mountains, plateau

Elevation: 5,500 to 6,500 feet
 Precipitation: 10 to 20 inches
 Air temperature: 43 to 50 degrees Fahrenheit
 Frost-free period: 50 to 100 days

Composition

Bucklake very cobbly loam, 4 to 50 percent slopes--55 percent
 Softscrabble very stony loam, 30 to 50 percent slopes--15 percent
 Rubble land fragmental material, 50 to 75 percent slopes--15 percent
 Cleavage cobbly loam, 8 to 30 percent slopes--5 percent
 Westbutte cobbly loam, 50 to 75 percent slopes--5 percent
 Woofus loam, 0 to 2 percent slopes--5 percent

Component Description

Bucklake and similar soils

Landform: Summits of mountains; backslopes of mountains; shoulders of mountains
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Wyoming big sagebrush, Thurber needleglass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 6 inches; very cobbly loam
 Layer 2--6 to 10 inches; gravelly clay loam
 Layer 3--10 to 21 inches; gravelly clay
 Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 50 percent, southeast to southwest aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Component Description

Softscrabble and similar soils

Landform: Backslopes of mountains

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Bluebunch wheatgrass, Idaho fescue, mountain big sagebrush

Typical profile:

Layer 1--0 to 12 inches; very stony loam
 Layer 2--12 to 36 inches; very cobbly clay loam
 Layer 3--36 to 61 inches; gravelly clay loam
 Layer 4--61 to 71 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Permeability class (root zone): Slow
 Available water capacity: About 7 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY007NV--Loamy 14-16 P.Z.

Component Description

Rubble Land

Landform: Mountains

Component Properties and Qualities

Slope: 50 to 75 percent
 Depth to restrictive feature: Bedrock (lithic): 40 to 60 inches

Interpretive Groups

Nonirrigated land capability: 8s
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Cleavage and similar soils

Composition: 0 to 5 percent
 Landform: Summits of mountains; shoulders of mountains
 Typical vegetation: Sandberg bluegrass, Idaho fescue, low sagebrush
 Ecological site: 023XY008NV--Mountain Ridge 14+ P.Z.

Westbutte and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Threetip sagebrush, Idaho fescue
 Ecological site: 023XY053NV--Gravelly North Slope 14+ P.Z.

Woofus and similar soils

Composition: 0 to 5 percent
 Landform: Flood plains
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Engineering" and "Soil Properties" sections

935--Wesfil-Sojur association**Map Unit Setting**

MLRA: 27
 Landscape: Mountains
 Elevation: 5,000 to 5,600 feet
 Precipitation: 5 to 10 inches
 Air temperature: 50 to 54 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Wesfil very channery loam, 15 to 50 percent slopes--45 percent
 Sojur extremely channery silt loam, 15 to 50 percent slopes--40 percent
 Copperoid gravelly loam, 15 to 30 percent slopes--5 percent
 Rock outcrop, 15 to 50 percent slopes--4 percent
 Xeric Torrfluvents gravelly loam, 2 to 8 percent slopes--3 percent
 Xerollic Haplargids very channery loam, 15 to 50 percent slopes--3 percent

Component Description**Wesfil and similar soils**

Landform: Shoulders of mountains; backslopes of mountains
 Parent material: Colluvium derived from phyllite over residuum weathered from phyllite
 Typical vegetation: Lahontan sagebrush, Indian ricegrass, Bailey greasewood

Typical profile:

Layer 1--0 to 8 inches; very channery loam
 Layer 2--8 to 13 inches; weathered bedrock
 Layer 3--13 to 23 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, northwest to northeast aspects
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 4 to 10 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 0.6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY070NV--Droughty Claypan 8-10 P.Z.

Component Description**Sojur and similar soils**

Landform: Shoulders of mountains; backslopes of mountains
 Parent material: Residuum weathered from phyllite
 Typical vegetation: Shadscale, Indian ricegrass

Typical profile:

Layer 1--0 to 6 inches; extremely channery silt loam
 Layer 2--6 to 16 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent, southeast to southwest aspects
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 4 to 10 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 0.4 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 027XY027NV--Barren Gravelly Slope 4-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Coppereid and similar soils

Composition: 0 to 5 percent

Landform: Backslopes of mountains

Typical vegetation: Other perennial forbs, other perennial grasses, Utah juniper, Sandberg bluegrass, desert needlegrass, other shrubs, Thurber needlegrass, Lahontan sagebrush

Ecological site: 023XY045NV--Juos Wsg: 0r9

Rock outcrop

Composition: 0 to 4 percent

Landform: Mountains

Ecological site: None assigned

Xeric Torrifluvents

Composition: 0 to 3 percent

Landform: Drainageways

Typical vegetation: Spiny hopsage, bottlebrush squirreltail, basin big sagebrush, Indian ricegrass

Ecological site: 027XY029NV--Gravelly Fan 8-10 P.Z.

Xerollic Haplargids

Composition: 0 to 3 percent

Landform: Backslopes of mountains; footslopes of mountains

Typical vegetation: Wyoming big sagebrush, Thurber needlegrass

Ecological site: 027XY007NV--Loamy Slope 8-10 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

938--Weso very fine sandy loam, moderately saline, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24

Landscape: Bolson

Elevation: 4,000 to 4,300 feet

Precipitation: 6 to 8 inches

Air temperature: 45 to 50 degrees Fahrenheit

Frost-free period: 100 to 120 days

Composition

Weso very fine sandy loam, 0 to 2 percent slopes--85 percent

Boton loamy fine sand, 0 to 2 percent slopes--5 percent

Dun Glen silt loam, 0 to 2 percent slopes--5 percent

Typic Torrifluvents silt loam, 0 to 2 percent slopes--5 percent

Component Description

Weso and similar soils

Landform: Fan skirts

Parent material: Volcanic ash and loess over alluvium derived from mixed rocks

Typical vegetation: Black greasewood, shadscale

Typical profile:

Layer 1--0 to 3 inches; very fine sandy loam

Layer 2--3 to 29 inches; fine sandy loam

Layer 3--29 to 60 inches; stratified very gravelly loamy sand to fine sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 8 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3s

Nonirrigated land capability: 7s

Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Boton and similar soils

Composition: 0 to 5 percent

Landform: Basin-floor remnants

Typical vegetation: Basin wildrye, big sagebrush, black greasewood

Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Dun Glen and similar soils

Composition: 0 to 5 percent

Landform: Basin-floor remnants
 Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typic Torrfluvents

Composition: 0 to 5 percent
 Landform: Drainageways
 Typical vegetation: Basin wildrye, spiny hopsage, basin big sagebrush
 Ecological site: 024XY041NV--Gravelly Fan

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Crops and Pasture" section
- "Engineering" and "Soil Properties" sections

Layer 4--28 to 38 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 30 to 50 percent
 Runoff: High
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Moderate
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY054NV--Steep North Slope 14+ P.Z.

940--Westbutte-Rock outcrop association

Map Unit Setting

MLRA: 23
 Landscape: Mountains, plateau
 Elevation: 5,400 to 6,000 feet
 Precipitation: 12 to 14 inches
 Air temperature: 41 to 45 degrees Fahrenheit
 Frost-free period: 50 to 90 days

Composition

Westbutte extremely stony loam, 30 to 50 percent slopes--70 percent
 Rock outcrop, 30 to 50 percent slopes--20 percent
 Ninemile very gravelly loam, 4 to 15 percent slopes--10 percent

Component Description

Westbutte and similar soils

Landform: Backslopes of mountains; footslopes of mountains
 Parent material: Colluvium derived from volcanic rocks
 Typical vegetation: Idaho fescue, other perennial forbs, mountain big sagebrush

Typical profile:

Layer 1--0 to 6 inches; extremely stony loam
 Layer 2--6 to 15 inches; very cobbly loam
 Layer 3--15 to 28 inches; very cobbly clay loam

Component Description

Rock outcrop

Landform: Mountains

Component Properties and Qualities

Slope: 30 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Ninemile and similar soils

Composition: 0 to 10 percent
 Landform: Summits of plateaus
 Typical vegetation: Bluebunch wheatgrass, low sagebrush, Idaho fescue
 Ecological site: 023XY017NV--Claypan 14-16 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

- "Range" section
- "Engineering" and "Soil Properties" sections

965--Wylo-Bucklake-Rock outcrop association

Map Unit Setting

MLRA: 23
 Landscape: Plateau
 Elevation: 4,595 to 6,500 feet
 Precipitation: 8 to 12 inches
 Air temperature: 45 to 54 degrees Fahrenheit
 Frost-free period: 50 to 100 days

Composition

Wylo very stony loam, 8 to 30 percent slopes--55 percent
 Bucklake extremely stony loam, 15 to 50 percent slopes--20 percent
 Rock outcrop, 15 to 50 percent slopes--15 percent
 Frentera loam, 15 to 50 percent slopes--5 percent
 Woofus loam, 0 to 4 percent slopes--5 percent

Component Description

Wylo and similar soils

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Colluvium derived from basalt over residuum weathered from basalt
 Typical vegetation: Bluebunch wheatgrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 4 inches; very stony loam
 Layer 2--4 to 15 inches; gravelly clay
 Layer 3--15 to 25 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 8 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Component Description

Bucklake and similar soils

Landform: Backslopes of plateaus

Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, Wyoming big sagebrush

Typical profile:

Layer 1--0 to 6 inches; extremely stony loam
 Layer 2--6 to 10 inches; gravelly clay loam
 Layer 3--10 to 21 inches; gravelly clay
 Layer 4--21 to 31 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Component Description

Rock outcrop

Landform: Plateaus

Component Properties and Qualities

Slope: 15 to 50 percent

Interpretive Groups

Nonirrigated land capability: Not determined
 Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Frentera and similar soils

Composition: 0 to 5 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, Idaho fescue
 Ecological site: 023XY072NV--Ashy Slope 10-12 P.Z.

Woofus and similar soils

Composition: 0 to 5 percent

Landform: Flood plains
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

1000--Broyles fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24
 Landscape: Bolson
 Elevation: 4,200 to 4,300 feet
 Precipitation: 4 to 8 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Broyles fine sandy loam, 0 to 2 percent slopes--90 percent
 Blackhawk very fine sandy loam, 0 to 2 percent slopes--5 percent
 Davey gravelly sandy loam, 0 to 2 percent slopes--3 percent
 Typic Camborthids gravelly fine sandy loam, 0 to 2 percent slopes--2 percent

Component Description

Broyles and similar soils

Landform: Barrier beaches
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

Typical profile:

Layer 1--0 to 10 inches; fine sandy loam
 Layer 2--10 to 60 inches; stratified gravelly loamy sand to loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Very low
 Permeability class (root zone): Moderately rapid

Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2s
 Nonirrigated land capability: 7c
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Blackhawk and similar soils

Composition: 0 to 5 percent
 Landform: Fan remnants
 Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Davey and similar soils

Composition: 0 to 3 percent
 Landform: Sand sheets
 Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass
 Ecological site: 024XY020NV--Droughty Loam 8-10 P.Z.

Typic Camborthids

Composition: 0 to 2 percent
 Landform: Basin-floor remnants
 Typical vegetation: Black greasewood, shadscale
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

1010--Bubus very fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24
 Landscape: Bolson
 Elevation: 4,200 to 4,400 feet
 Precipitation: 6 to 8 inches
 Air temperature: 48 to 50 degrees Fahrenheit

Frost-free period: 100 to 120 days

Composition

Bubus very fine sandy loam, 0 to 2 percent slopes--90 percent

Durorthidic Torriorthents, 0 to 2 percent slopes--5 percent

Raglan loam, 0 to 2 percent slopes--5 percent

Component Description

Bubus and similar soils

Landform: Alluvial flats

Parent material: Alluvium derived from mixed rocks and volcanic ash

Typical vegetation: Black greasewood, shadscale

Typical profile:

Layer 1--0 to 2 inches; very fine sandy loam

Layer 2--2 to 60 inches; stratified sandy loam to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 9 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 3s

Nonirrigated land capability: 7s

Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Durorthidic Torriorthents

Composition: 0 to 5 percent

Landform: Alluvial flats

Typical vegetation: Basin wildrye, black greasewood, big sagebrush

Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Raglan and similar soils

Composition: 0 to 5 percent

Landform: Basin-floor remnants

Typical vegetation: Shadscale, black greasewood
Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

1030--Rio King loam

Map Unit Setting

MLRA: 24

Landscape: Valley

Elevation: 4,200 to 4,400 feet

Precipitation: 8 to 12 inches

Air temperature: 45 to 48 degrees Fahrenheit

Frost-free period: 90 to 110 days

Composition

Rio King loam, 0 to 2 percent slopes--95 percent

Cumulic Endoaquolls gravelly loam, 0 to 2 percent slopes--2 percent

Pachic Haploxerolls stony loam, 2 to 15 percent slopes--2 percent

Cumulic Endoaquolls loam, 2 to 15 percent slopes--1 percent

Component Description

Rio King and similar soils

Landform: Stream terraces

Parent material: Alluvium derived from mixed rocks, volcanic ash and loess

Typical vegetation: Basin wildrye

Typical profile:

Layer 1--0 to 6 inches; loam

Layer 2--6 to 60 inches; stratified coarse sandy loam to silt loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low

Permeability class (root zone): Moderate

Available water capacity: About 10 inches

Present flooding: None

Water table: Present

Natural drainage class: Moderately well drained

Interpretive Groups

Irrigated land capability: 2c

Nonirrigated land capability: 6c

Ecological site: 025XY003NV--Loamy Bottom 8-14 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Cumulic Endoaquolls

Composition: 0 to 2 percent

Landform: Flood plains

Typical vegetation: Tufted hairgrass, Nevada bluegrass

Ecological site: 025XY005NV--Wet Meadow

Pachic Haploxerolls

Composition: 0 to 2 percent

Landform: Stream terraces

Typical vegetation: Mountain big sagebrush, basin wildrye

Ecological site: 023XY056NV--Loamy 12-16 P.Z.

Cumulic Endoaquolls

Composition: 0 to 1 percent

Landform: Drainageways

Typical vegetation: Tufted hairgrass, bluegrass, other perennial forbs

Ecological site: 023XY025NV--Wet Meadow

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

1032--Raglan clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 24

Landscape: Bolson

Elevation: 4,100 to 4,250 feet

Precipitation: 6 to 9 inches

Air temperature: 45 to 50 degrees Fahrenheit

Frost-free period: 100 to 120 days

Composition

Raglan clay loam, 0 to 2 percent slopes--95 percent

Humboldt silty clay loam, 0 to 2 percent slopes--5 percent

Component Description

Raglan and similar soils

Landform: Fan skirts

Parent material: Alluvium derived from mixed rocks, volcanic ash and loess

Typical vegetation: Alfalfa

Typical profile:

Layer 1--0 to 7 inches; clay loam

Layer 2--7 to 16 inches; silt loam

Layer 3--16 to 30 inches; stratified very fine sandy loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Medium

Permeability class (root zone): Moderately slow

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 6 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2s

Nonirrigated land capability: 7s

Ecological site: None assigned

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Humboldt and similar soils

Composition: 0 to 5 percent

Landform: Flood plains

Typical vegetation: Basin wildrye, beardless wildrye

Ecological site: 025XY001NV--Moist Floodplain

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

1060--Raglan silt loam, 0 to 2 percent slopes***Map Unit Setting***

MLRA: 24
 Landscape: Bolson
 Elevation: 4,100 to 4,250 feet
 Precipitation: 6 to 9 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 100 to 130 days

Composition

Raglan silt loam, 0 to 2 percent slopes--95 percent
 Broyles very fine sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Raglan and similar soils**

Landform: Alluvial flats
 Parent material: Alluvium derived from mixed rocks, volcanic ash and loess
 Typical vegetation: Shadscale, black greasewood

Typical profile:

Layer 1--0 to 7 inches; silt loam
 Layer 2--7 to 16 inches; silt loam
 Layer 3--16 to 60 inches; stratified fine sandy loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Sodicty: Sodict within 40 inches
 Available water capacity: About 11 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 6s
 Nonirrigated land capability: 7s
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Broyles and similar soils**

Composition: 0 to 5 percent
 Landform: Barrier beaches
 Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
 Ecological site: 024XY002NV--Loamy 5-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

1080--Argenta complex***Map Unit Setting***

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 4,500 feet
 Precipitation: 6 to 8 inches
 Air temperature: 45 to 49 degrees Fahrenheit
 Frost-free period: 100 to 120 days

Composition

Argenta very fine sandy loam, 0 to 2 percent slopes--50 percent
 Argenta very fine sandy loam, 0 to 2 percent slopes--45 percent
 Raglan very fine sandy loam, 0 to 2 percent slopes--5 percent

Component Description**Argenta and similar soils**

Landform: Basin floors
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Basin wildrye, black greasewood

Typical profile:

Layer 1--0 to 4 inches; very fine sandy loam
 Layer 2--4 to 46 inches; stratified fine sandy loam to silt loam
 Layer 3--46 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicty: Sodic within 40 inches
 Available water capacity: About 10 inches
 Present flooding: None
 Water table: Present
 Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 6w
 Nonirrigated land capability: 7w
 Ecological site: 024XY011NV--Sodic Flat 6-8 P.Z.

Component Description

Argenta and similar soils

Landform: Basin floors
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Alkali sacaton, basin wildrye, black greasewood

Typical profile:

Layer 1--0 to 4 inches; very fine sandy loam
 Layer 2--4 to 46 inches; stratified fine sandy loam to silt loam
 Layer 3--46 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicty: Sodic within 40 inches
 Available water capacity: About 10 inches
 Present flooding: Rare
 Water table: Present
 Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 3w
 Nonirrigated land capability: 7w
 Ecological site: 024XY007NV--Saline Bottom

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Raglan and similar soils

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Shadscale, black greasewood
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

1081--Argenta-Clementine-Outerkirk complex

Map Unit Setting

MLRA: 24
 Landscape: Bolson
 Elevation: 4,000 to 5,000 feet
 Precipitation: 6 to 10 inches
 Air temperature: 45 to 50 degrees Fahrenheit
 Frost-free period: 80 to 120 days

Composition

Argenta fine sandy loam, 0 to 2 percent slopes--50 percent
 Clementine silt loam, 0 to 2 percent slopes--30 percent
 Outerkirk sandy loam, 1 to 2 percent slopes--15 percent
 Bubus very fine sandy loam, 0 to 2 percent slopes--5 percent

Component Description

Argenta and similar soils

Landform: Basin-floor remnants
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Basin wildrye, alkali sacaton, black greasewood

Typical profile:

Layer 1--0 to 4 inches; fine sandy loam
 Layer 2--4 to 46 inches; stratified fine sandy loam to silt loam
 Layer 3--46 to 60 inches; gravelly sandy loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderate
 Salinity: Saline within 40 inches
 Sodicity: Sodic within 40 inches
 Available water capacity: About 10 inches
 Present flooding: Rare
 Water table: Present
 Natural drainage class: Somewhat poorly drained

Interpretive Groups

Irrigated land capability: 3w
 Nonirrigated land capability: 7w
 Ecological site: 024XY007NV--Saline Bottom

Component Description**Clementine and similar soils**

Landform: Flood plains
 Parent material: Alluvium derived from mixed rocks and volcanic ash
 Typical vegetation: Beardless wildrye, basin wildrye

Typical profile:

Layer 1--0 to 3 inches; silt loam
 Layer 2--3 to 41 inches; stratified silt loam to silty clay loam
 Layer 3--41 to 60 inches; stratified loam to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent
 Runoff: Medium
 Permeability class (root zone): Moderately slow
 Salinity: Saline within 40 inches
 Available water capacity: About 12 inches
 Present flooding: Occasional
 Water table: Present
 Natural drainage class: Poorly drained

Interpretive Groups

Irrigated land capability: 3w
 Nonirrigated land capability: 6w
 Ecological site: 025XY001NV--Moist Floodplain

Component Description**Outerkirk and similar soils**

Landform: Basin-floor remnants
 Parent material: Alluvium derived from mixed rocks
 Typical vegetation: Basin wildrye, big sagebrush, black greasewood

Typical profile:

Layer 1--0 to 4 inches; sandy loam
 Layer 2--4 to 34 inches; sandy loam
 Layer 3--34 to 50 inches; loamy sand
 Layer 4--50 to 60 inches; loamy sand

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 1 to 2 percent
 Runoff: Low
 Permeability class (root zone): Moderately slow
 Available water capacity: About 6 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Irrigated land capability: 2s
 Nonirrigated land capability: 7c
 Ecological site: 024XY022NV--Sodic Terrace 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Bubus and similar soils**

Composition: 0 to 5 percent
 Landform: Basin-floor remnants
 Typical vegetation: Shadscale, black greasewood
 Ecological site: 024XY003NV--Sodic Terrace 6-8 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:
 "Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

1150--Saraph-Hangrock-Tuffo association**Map Unit Setting**

MLRA: 23
 Landscape: Fan piedmont
 Elevation: 5,700 to 6,100 feet
 Precipitation: 8 to 12 inches
 Air temperature: 43 to 50 degrees Fahrenheit
 Frost-free period: 80 to 120 days

Composition

Saraph very gravelly sandy loam, 4 to 30 percent slopes--35 percent
 Hangrock very gravelly loam, 2 to 15 percent slopes--30 percent
 Tuffo very gravelly sandy loam, 15 to 50 percent slopes--20 percent
 Xerollic Haplargids sandy loam, 0 to 4 percent slopes--7 percent
 Fulstone very gravelly sandy loam, 2 to 8 percent slopes--3 percent
 Xeric Torriorthents gravelly clay loam, 8 to 30 percent slopes--3 percent
 Badland, 50 to 75 percent slopes--2 percent

Component Description

Saraph and similar soils

Landform: Shoulders of pediments
 Parent material: Residuum weathered from tuff
 Typical vegetation: Thurber needlegrass, Indian ricegrass

Typical profile:

Layer 1--0 to 4 inches; very gravelly sandy loam
 Layer 2--4 to 9 inches; sandy loam
 Layer 3--9 to 16 inches; clay loam
 Layer 4--16 to 30 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description

Hangrock and similar soils

Landform: Summits of fan remnants
 Parent material: Alluvium derived from volcanic rocks and volcanic ash
 Typical vegetation: Thurber needlegrass, Indian ricegrass

Typical profile:

Layer 1--0 to 3 inches; very gravelly loam
 Layer 2--3 to 16 inches; gravelly clay loam
 Layer 3--16 to 60 inches; cemented

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 15 percent
 Runoff: Very high
 Depth to restrictive feature: Duripan: 14 to 20 inches
 Permeability class (root zone): Moderately slow
 Available water capacity: About 3 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description

Tuffo and similar soils

Landform: Hills
 Parent material: Residuum weathered from tuff
 Typical vegetation: None listed

Typical profile:

Layer 1--0 to 5 inches; very gravelly sandy loam
 Layer 2--5 to 8 inches; very fine sandy loam
 Layer 3--8 to 30 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 15 to 50 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (paralithic): 4 to 14 inches
 Permeability class (root zone): Moderately rapid
 Available water capacity: About 0.5 inches
 Present flooding: None
 Natural drainage class: Somewhat excessively drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY088NV--Chalky Knoll

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Xerollic Haplargids**

Composition: 0 to 7 percent

Landform: Inset fans

Typical vegetation: Wyoming big sagebrush, Nevada bluegrass, basin big sagebrush, western needlegrass, Thurber needlegrass

Ecological site: 023XY082NV--Loamy Fan 8-12 P.Z.

Fulstone and similar soils

Composition: 0 to 3 percent

Landform: Summits of fan remnants

Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Ecological site: 023XY093NV--Gravelly Clay 10-12 P.Z.

Xeric Torriorthents

Composition: 0 to 3 percent

Landform: Backslopes of pediments

Typical vegetation: Lahontan sagebrush, Thurber needlegrass

Ecological site: 023XY047NV--Gravelly Clay 8-10 P.Z.

Badland

Composition: 0 to 2 percent

Landform: Hills

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

1164--Devada-Ashcamp association**Map Unit Setting**

MLRA: 23

Landscape: Plateau

Elevation: 5,800 to 6,400 feet

Precipitation: 10 to 14 inches

Air temperature: 45 to 49 degrees Fahrenheit

Frost-free period: 80 to 110 days

Composition

Devada very gravelly loam, 2 to 15 percent slopes--60 percent

Ashcamp sandy loam, 2 to 15 percent slopes--25 percent

Saraph gravelly sandy loam, 4 to 30 percent slopes--5 percent

Wylo very gravelly loam, 2 to 15 percent slopes--5 percent

Vertic Durargids very gravelly fine sandy loam, 2 to 8 percent slopes--3 percent

Rock outcrop, 4 to 30 percent slopes--2 percent

Component Description**Devada and similar soils**

Landform: Summits of plateaus

Parent material: Volcanic ash and loess over residuum weathered from volcanic rocks

Typical vegetation: Low sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 5 inches; very gravelly loam

Layer 2--5 to 19 inches; clay

Layer 3--19 to 23 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 15 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 12 to 20 inches

Permeability class (root zone): Slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY031NV--Claypan 10-14 P.Z.

Component Description**Ashcamp and similar soils**

Landform: Summits of plateaus; shoulders of plateaus

Parent material: Residuum weathered from tuff

Typical vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Typical profile:

Layer 1--0 to 3 inches; sandy loam

Layer 2--3 to 8 inches; sandy loam

Layer 3--8 to 23 inches; weathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 2 to 15 percent

Runoff: Medium

Depth to restrictive feature: Bedrock (paralithic): 7 to 14 inches

Permeability class (root zone): Moderately rapid

Available water capacity: About 1.2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7e

Ecological site: 023XY020NV--Loamy 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Saraph and similar soils**

Composition: 0 to 5 percent

Landform: Shoulders of plateaus

Typical vegetation: Indian ricegrass, Thurber needlegrass

Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Wylo and similar soils

Composition: 0 to 5 percent

Landform: Summits of plateaus

Typical vegetation: Bluebunch wheatgrass, Lahontan sagebrush

Ecological site: 023XY037NV--Clay Slope 8-12 P.Z.

Vertic Durargids

Composition: 0 to 3 percent

Landform: Summits of plateaus

Typical vegetation: Thurber needlegrass, low sagebrush

Ecological site: 023XY059NV--Gravelly Claypan 10-12 P.Z.

Rock outcrop

Composition: 0 to 2 percent

Landform: Plateaus

Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section

"Engineering" and "Soil Properties" sections

1400--Bombadil-Ceejay association**Map Unit Setting**

MLRA: 23

Landscape: Plateau

Elevation: 4,800 to 5,000 feet

Precipitation: 8 to 12 inches

Air temperature: 46 to 54 degrees Fahrenheit

Frost-free period: 80 to 110 days

Composition

Bombadil very stony loam, 4 to 30 percent slopes--45 percent

Ceejay stony loam, 4 to 30 percent slopes--40 percent

Lithic Xerollic Haplargids very stony sandy loam, 4 to 30 percent slopes--6 percent

Ceejay very stony sandy loam, 30 to 50 percent slopes--4 percent

Lithic Argixerolls very stony loam, 15 to 50 percent slopes--4 percent

Rock outcrop, 4 to 50 percent slopes--1 percent

Component Description**Bombadil and similar soils**

Landform: Summits of plateaus; shoulders of plateaus
Parent material: Residuum weathered from volcanic rocks

Typical vegetation: Webber needlegrass, Thurber needlegrass

Typical profile:

Layer 1--0 to 4 inches; very stony loam

Layer 2--4 to 7 inches; gravelly loam

Layer 3--7 to 13 inches; loam

Layer 4--13 to 17 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent

Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches

Permeability class (root zone): Moderately slow

Available water capacity: About 2 inches

Present flooding: None

Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s

Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Component Description**Ceejay and similar soils**

Landform: Summits of plateaus; shoulders of plateaus
 Parent material: Colluvium derived from volcanic rocks over residuum weathered from volcanic rocks
 Typical vegetation: Thurber needlegrass, Lahontan sagebrush

Typical profile:

Layer 1--0 to 5 inches; stony loam
 Layer 2--5 to 16 inches; gravelly clay loam
 Layer 3--16 to 20 inches; unweathered bedrock

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 4 to 30 percent
 Runoff: Very high
 Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
 Permeability class (root zone): Slow
 Available water capacity: About 2 inches
 Present flooding: None
 Natural drainage class: Well drained

Interpretive Groups

Nonirrigated land capability: 7s
 Ecological site: 023XY093NV--Gravelly Clay 10-12 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions**Lithic Xerollic Haplargids**

Composition: 0 to 6 percent
 Landform: Shoulders of plateaus
 Typical vegetation: Indian ricegrass, bottlebrush squirreltail, Thurber needlegrass
 Ecological site: 023XY006NV--Loamy 8-10 P.Z.

Ceejay and similar soils

Composition: 0 to 4 percent
 Landform: Backslopes of plateaus
 Typical vegetation: Lahontan sagebrush, Thurber needlegrass
 Ecological site: 023XY093NV--Gravelly Clay 10-12 P.Z.

Lithic Argixerolls

Composition: 0 to 4 percent
 Landform: Backslopes of plateaus

Typical vegetation: Thurber needlegrass, Wyoming big sagebrush, bluebunch wheatgrass
 Ecological site: 023XY039NV--Loamy Slope 10-14 P.Z.

Rock outcrop

Composition: 0 to 1 percent
 Landform: Plateaus
 Ecological site: None assigned

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Engineering" and "Soil Properties" sections

1460--Weezweed loam, 0 to 2 percent slopes**Map Unit Setting**

MLRA: 23
 Landscape: Intermontane basin
 Elevation: 5,000 to 5,700 feet
 Precipitation: 10 to 14 inches
 Air temperature: 45 to 46 degrees Fahrenheit
 Frost-free period: 80 to 100 days

Composition

Weezweed loam, 0 to 2 percent slopes--85 percent
 Vitritorrandic Haploxerolls loam, 0 to 2 percent slopes--7 percent
 Xerollic Haplargids fine sandy loam, 0 to 4 percent slopes--5 percent
 Wetvit fine sandy loam, 0 to 2 percent slopes--3 percent

Component Description**Weezweed and similar soils**

Landform: Stream terraces
 Parent material: Alluvium derived from volcanic rocks and volcanic ash
 Typical vegetation: Basin wildrye, basin big sagebrush

Typical profile:

Layer 1--0 to 15 inches; loam
 Layer 2--15 to 60 inches; stratified gravelly loamy sand to silty clay loam

See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Medium
 Permeability class (root zone): Moderately slow
 Available water capacity: About 12 inches
 Present flooding: Rare
 Water table: Present
 Natural drainage class: Moderately well drained

Interpretive Groups

Irrigated land capability: 2e
 Nonirrigated land capability: 6e
 Ecological site: 023XY005NV--Dry Floodplain 8-10 P.Z.

Typical soil descriptions including ranges in characteristics are in the "Classification of the Soils" section.

Contrasting Inclusions

Vitrorrandic Haploxerolls

Composition: 0 to 7 percent
 Landform: Stream terraces
 Typical vegetation: Basin wildrye
 Ecological site: 023XY009NV--Loamy Bottom 8-12 P.Z.

Xerollic Haplargids

Composition: 0 to 5 percent
 Landform: Inset fans
 Typical vegetation: Basin big sagebrush, Wyoming big sagebrush, Nevada bluegrass, Thurber needlegrass, western needlegrass
 Ecological site: 023XY082NV--Loamy Fan 8-12 P.Z.

Wetvit and similar soils

Composition: 0 to 3 percent
 Landform: Flood plains
 Typical vegetation: Sedge, other perennial forbs, Nevada bluegrass, beardless wildrye
 Ecological site: 023XY089NV--Wet Meadow 10-14 P.Z.

Management

For information about managing this map unit, see the following sections and associated tables in Part II of this publication:

"Range" section
 "Crops and Pasture" section
 "Engineering" and "Soil Properties" sections

2080--Water

Map Unit Setting

MLRA: 23
 Landscape: None assigned

Composition

Water--100 percent

Component Description

Water

Landform: Unspecified

Prime Farmland

Prime Farmland and Other Important Farmland

In this section, prime farmland and other important farmland are defined. The map units in the survey area that are considered prime farmland are listed under "Prime Farmland Map Units" at the end of this section.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, seed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, woodland or for other purposes. They are used for food and fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are

favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage measures, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

About 32,900 acres, or nearly 1.7 percent of the survey area, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available, and, in some areas, when reclaimed from excess salt and sodium. The map units in the survey area that meet the requirements for prime farmland are listed under "Prime Farmland Map Units." On some soils included in the list, measures that overcome limitations are needed. The location of each map unit is shown on the detailed soil maps at the back of this publication. This list does not constitute a recommendation for a particular land use.

Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil qualities, location, growing season, and moisture supply needed for the economic production of sustained high yields of a specific high-quality crop when treated and managed by acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, and vegetables.

Unique farmland is used for a specific high-value food or fiber crop; has an adequate supply of available moisture for the specific crop because of stored moisture, precipitation, or irrigation; and has a combination of soil qualities, growing season, temperature, humidity, air drainage, elevation, aspect, and other factors, such as nearness to markets, that favor the production of a specific food or fiber crop.

Lists of unique farmland are developed as needed in cooperation with conservation districts and other entities. There are presently no soils recognized as unique farmland in Nevada.

Additional Farmland of Statewide Importance

Some areas other than areas of prime and unique farmland are of statewide importance in the production of food, feed, fiber, forage, and oilseed crops. The criteria used in defining and delineating these areas are determined by the appropriate State agency or agencies. Generally, additional farmland of statewide importance includes areas that nearly meet the criteria for prime farmland and that economically produce high yields of crops when treated and managed by acceptable farming methods. Some areas can produce as high a yield as areas of prime farmland if conditions are favorable. In some states additional farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Nevada has designated any farmland that is irrigated to be of statewide importance.

Prime Farmland Map Units

The following map units are prime farmland where irrigated with an adequate and dependable water supply:

- 1030 Rio King loam
- 1460 Weezweed loam, 0 to 2 percent slopes

The soils in Humboldt County typically have high salinity and sodicity which are restrictive to plant growth. Proper management to reduce the salinity and sodicity in the soil can alter the chemical properties of many soils so that they also will rate as prime farmland. The following map units may meet the soil requirements for prime farmland if reclaimed by reducing salinity and sodicity and they are irrigated.

- 202 Cresal silt loam, 0 to 2 percent slopes
- 252 Dun Glen very fine sandy loam, 0 to 2 percent slopes
- 276 Orovada fine sandy loam, 2 to 4 percent slopes
- 411 Shawave-Orovada complex
- 420 Jesse Camp very fine sandy loam, 0 to 2 percent slopes
- 574 Mazuma fine sandy loam, 0 to 2 percent slopes
- 575 Mazuma association
- 715 Wholan silt loam, 0 to 2 percent slopes
- 716 Wholan silt loam, rarely flooded, 0 to 2 percent slopes
- 790 Valmy very fine sandy loam, 0 to 2 percent slopes
- 938 Weso very fine sandy loam, moderately saline, 0 to 2 percent slopes
- 1010 Bubus very fine sandy loam, 0 to 2 percent slopes
- 1032 Raglan clay loam, 0 to 2 percent slopes

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 14, "Classification of the Soils," in Part II of this Publication shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

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 Xeroll (*Xer, meaning xeric, plus oll, from Mollisol*).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixeroll. (*Argi, meaning presence of argillic horizon, plus xeroll, the suborder of the Mollisols that have a xeric moisture regime*).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective

Typic identifies the subgroup that typifies the great group. An example is Typic Argixerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, frigid, Typic Argixerolls.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil that is typical of the unit in the survey area is described. The detailed description of each soil horizon follow standards in the "Soil Survey Manual"(18). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy"(17). Unless otherwise stated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units".

Aboten Series

The Aboten series consists of shallow over a duripan, well drained soils that formed in mixed alluvium with a component of loess and volcanic ash. Aboten soils are on fan remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 51 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow Haplic Nadurargids

Typical pedon: Aboten gravelly silt loam, 4 to 15 percent slopes, located in map unit 775. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles and 5 percent with cobbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2) gravelly silt loam, dark grayish brown (10YR 4/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; many very fine vesicular pores; 30 percent pebbles, 3 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

A2--2 to 7 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular and vesicular pores; 5 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

2Btk--7 to 14 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; weak fine prismatic structure; hard, firm, sticky and plastic; many very fine and common fine roots; common very fine tubular pores; 5 percent pebbles; few thin clay films on faces of peds; lime coatings on undersides of rock fragments; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

2Bqkm--14 to 30 inches; very pale brown (10YR 8/3) strongly cemented duripan, pale brown (10YR 7/3) moist; massive; very hard, very firm; few very fine roots in fractures; 50 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

3Bk--30 to 60 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial pores; 55 percent pebbles, 8 percent cobbles; lime disseminated throughout horizon; violently effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 3.5 miles north of Jungo Road, about 1,750 feet east and 2,700 feet south of the projected northwest corner of section 34, T.36 N., R.30 E.; (40 degrees, 57 minutes, 03 seconds north latitude and 118 degrees, 36 minutes, 42 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist late fall through early spring, dry from May through early November.

Soil temperature: 53 to 57 degrees, F.

Other features: The Bk horizons are above the Bqkm in some pedons.

A horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Reaction--Moderately alkaline or strongly alkaline.

2Btk horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4.

Texture--Loam, clay loam, or sandy clay loam.

Clay content--Averages 25 to 35 percent.

Rock fragments--5 to 15 percent, mainly pebbles.

Structure--Prismatic, subangular blocky, or the horizon may be massive when wet.

Consistence--Slightly hard or hard dry; friable or firm moist.

Reaction--Moderately alkaline or strongly alkaline.

SAR--13 to 90.

2Bqkm horizon:

Hue--10YR or 7.5YR.

Value--7 or 8 dry, 5 through 7 moist.

Chroma--2 through 4.

Rock fragments--50 to 70 percent, mainly pebbles imbedded in the matrix.

Structure--Platy, or horizon is massive.

Consistence--Hard or very hard dry.

Reaction--Strongly alkaline or very strongly alkaline.

3Bk horizon:

Value--7 or 8 dry, 5 through 7 moist.

Chroma--2 through 4.

Texture--Extremely gravelly sandy loam or very gravelly loamy sand, very gravelly loamy coarse sand and very gravelly coarse sand.

Clay content--3 to 8 percent.
 Rock fragments--50 to 70 percent, mainly pebbles.
 Structure--Horizon is massive or single grained.
 Consistence--Slightly hard, soft, or loose dry.
 Reaction--Moderately alkaline or strongly alkaline.
 Silica cementation--When present below the duripan, it is either weak and discontinuously cemented or consists of up to 25 percent durinodes in a friable matrix.

Acrelane Series

The Acrelane series consists of shallow, well drained soils that formed in residuum and colluvium weathered from granodiorite and granitic rocks. Acrelane soils are on mountain backslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Aridic Argixerolls

Typical pedon: Acrelane very bouldery coarse sandy loam, 30 to 50 percent slopes, located in map unit 117. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent pebbles, 2 percent cobbles, and 5 percent boulders.

A1--0 to 2 inches; brown (10YR 5/3) very bouldery coarse sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 15 percent pebbles, 2 percent cobbles, and 5 percent boulders; neutral (pH 7.0); abrupt wavy boundary.

A2--2 to 7 inches; brown (10YR 5/3) gravelly coarse sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 10 percent pebbles, 2 percent cobbles, and 1 percent boulders; neutral (pH 7.0); clear wavy boundary.

Bt--7 to 16 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; few moderately thick clay films bridging mineral grains and in pores; 35 percent pebbles, 5 percent cobbles, 1 percent boulders; neutral (pH 7.2); abrupt wavy boundary.

Cr--16 inches; decomposed granodiorite.

Type location: Humboldt County, Nevada; approximately 8 miles south of Denio Junction about 700 feet west and 100 feet north of the southeast corner of section 27, T.46 N., R.30 E.; (41 degrees, 49 minutes, 41 seconds north latitude and 118 degrees, 36 minutes, 15 seconds west longitude.)

Range in Characteristics:

Soil moisture: These soils are usually dry but are moist in the winter and spring.

Soil temperature: 47 to 53 degrees, F.

Mollic epipedon thickness: 7 to 12 inches.

Depth to paralithic contact: 10 to 20 inches.

Control section:

Rock fragments--35 to 60 percent, mainly pebbles.

Clay content--18 to 30 percent.

A horizons:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 2 or 3 moist.

Chroma--2 or 3.

Reaction--Medium acid to neutral.

Bt horizon:

Hue--5YR, 7.5YR, or 10YR.

Value--4 or 5 dry, 3 or 4 moist.

Chroma--3 through 6.

Texture--Very gravelly sandy clay loam, very gravelly coarse sandy loam, very gravelly sandy loam.

Clay content--18 to 30 percent.

Rock fragments--35 to 60 percent, mainly pebbles.

Reaction--Neutral or slightly alkaline.

Consistence--Slightly hard or hard dry; very friable or friable moist; slightly sticky or sticky and slightly plastic or plastic, wet.

Structure--Subangular blocky or is massive.

Alta Series

The Alta series consists of deep, somewhat excessively drained soils that formed in colluvium and residuum from granitic rocks. Alta soils are on mountains. Slopes are 30 to 75 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 40 degrees, F.

Taxonomic class: Sandy-skeletal, mixed Pachic Cryoborolls

Typical pedon: Alta extremely bouldery coarse sandy loam, 30 to 50 percent slopes, located in map unit

111. (Colors are for dry soil unless otherwise noted.)
The soil surface is partially covered with 25 percent boulders and 2 percent cobbles.

Rock fragments--35 to 60 percent, dominantly stones and boulders.

A horizons:

Value--3 or 4 dry, 2 or 3 moist.
Chroma--1 or 2.

C horizons:

Chroma--2 or 3.
Texture--Loamy coarse sand, thin subhorizons of coarse sandy loam are in the upper part of some pedons.
Clay content--5 to 10 percent.
Rock fragments--35 to 60 percent, dominantly stones and boulders.
Reaction--Slightly acid or neutral.

Oi--1 inch to 0; partially decomposed leaves and twigs with some coarse sand intermingled.

A1--0 to 4 inches; dark grayish brown (10YR 4/2) extremely bouldery coarse sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores; 15 percent pebbles, 25 percent boulders; slightly acid (pH 6.4); clear smooth boundary.

A2--4 to 17 inches; dark grayish brown (10YR 4/2) very bouldery coarse sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine, fine and medium roots; many very fine tubular pores; 15 percent pebbles, 20 percent boulders; slightly acid (pH 6.4); clear smooth boundary.

C1--17 to 20 inches; pale brown (10YR 6/3) very stony loamy coarse sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine interstitial pores; 20 percent pebbles, 2 percent cobbles, 30 percent stones; slightly acid (pH 6.4); clear smooth boundary.

C2--20 to 50 inches; pale brown (10YR 6/3) very stony loamy coarse sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 15 percent pebbles, 30 percent stones; neutral (pH 6.6); clear smooth boundary.

Cr--50 inches; weathered granitic rock.

Alvodest Series

The Alvodest series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediments. Alvodest soils are on basin floors. Slopes are 0 to 2 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Fine, montmorillonitic, mesic Natric Camborthids

Typical pedon: Alvodest silty clay loam, 0 to 2 percent slopes, located in map unit 105. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with salt efflorescence.

Type location: Humboldt County, Nevada; approximately 2 miles southeast of Knott Creek Reservoir, about 2,700 feet east and 200 feet north of the projected southwest corner of section 10, T.43 N., R.28 E.; (41 degrees, 39 minutes, 42 seconds north latitude and 118 degrees, 45 minutes, 17 seconds west longitude.)

Anz1--0 to 2 inches; very pale brown (10YR 7/3) silty clay loam, brown (10YR 4/3) moist; strong fine angular blocky structure; hard, friable, sticky and plastic; few very fine roots; many very fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.7); clear smooth boundary.

Anz2--2 to 4 inches; very pale brown (10YR 7/3) silty clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, sticky and plastic; few very fine roots; few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.5); clear smooth boundary.

Bnz1--4 to 11 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure; hard, friable, sticky and plastic; few very fine roots; few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.8); clear smooth boundary.

Range in Characteristics:

Soil moisture: Moist in winter, spring and early summer, dry mid July through early October.

Soil temperature: 39 to 41 degrees, F.

Summer soil temperature: 45 to 47 degrees, F.

Mollic epipedon thickness: 16 to 24 inches.

Depth to bedrock: 40 to 60 inches.

Control section:

Percent clay--5 to 10 percent.

Bnz2--11 to 15 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; common fine and medium roots; many very fine and fine tubular pores; strongly effervescent, very strongly alkaline (pH 9.8) clear smooth boundary.

Bnz3--15 to 32 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure; hard, firm, sticky and plastic; common fine and medium roots; many very fine and fine tubular pores; strongly effervescent, very strongly alkaline (pH 9.9); gradual smooth boundary.

Bnz4--32 to 41 inches; light brownish gray (10YR 6/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure; hard, firm, sticky and plastic; few fine roots; many very fine and fine tubular pores; strongly effervescent, very strongly alkaline (pH 10.0); gradual smooth boundary.

Cz--41 to 60 inches; light gray (10YR 7/2) silty clay, dark brown (10YR 3/3) moist; massive; hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2)

Type location: Humboldt County, Nevada; approximately 1.5 miles south of Denio, about 2,900 feet east and 1,300 feet south of the northwest corner of section 9, T.47 N., R.30 E.; (41 degrees, 58 minutes, 13 seconds north latitude and 118 degrees, 37 minutes, 45 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, but in most years are saturated with water within 40 inches of the surface in late winter and spring.

Soil temperature: 47 to 50 degrees, F.

Profile reaction: Very strongly alkaline throughout.

Salinity: Electrical conductivity is greater than 16 mmhos/cm. throughout the profile and is highest in the surface.

Control section:

Clay content--40 to 60 percent.

Anz horizons:

Value--6 or 7, and 3 or 4 moist.

Chroma--2 or 3 moist and dry.

Sodicity--800 to 1,000.

Organic matter--0.5 to 1.0 percent.

Bnz horizons:

Value--5 through 7 dry, 3 or 4 moist.

Chroma--2 dry, 2 or 3 moist.

Texture--Silty clay, clay or silty clay loam with 35 to 60 percent clay.

Sodicity--70 to 700.

Structure--Angular blocky or prismatic.

C horizon:

Value--6 through 8 dry, 3 through 5 moist.

Chroma--2 or 3 moist and dry.

Texture--Silty clay loam, silty clay or loam with 25 to 50 percent clay.

Anawalt Series

The Anawalt series consists of shallow, well drained soils that formed in materials weathered from lava rocks with some loess and ash influence in the surface. Anawalt soils are on summits of plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 42 degrees, F.

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical pedon: Anawalt very gravelly loam, 4 to 15 percent slopes, located in map unit 108. The soil surface is partially covered with 50 percent pebbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft, friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 40 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2--2 to 6 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine tubular and vesicular pores; 40 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt--6 to 15 inches; brown (10YR 4/3) gravelly clay, dark yellowish brown (10YR 3/4) moist; strong fine angular blocky structure; hard, very firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; common thin clay films on faces of ped; 20 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

R--15 inches; fractured igneous bedrock.

Type location: Humboldt County, Nevada; approximately 2 miles west of Denio in the Pueblo Mountains, about 600 feet east and 200 feet south of the northwest corner of section 6, T.47 N., R.30 E.; (41 degrees, 59 minutes, 30 seconds north latitude and 118 degrees, 40 minutes, 35 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry but are moist between depths of 4 and 12 inches for 60 days or more out of the 120 days following the winter solstice and are moist more than 1/4 of the time that the soil temperature is 41 degrees, F.

Soil temperature: 42 to 47 degrees, F.

Depth to bedrock: 12 to 20 inches.

Rock fragments: 5 to 35 percent.

Reaction: Neutral to moderately alkaline.

Other features: There is an abrupt clay increase between the A and Bt horizon, the clay increase is 15 to 25 percent absolute.

A horizons:

Value--5 or 6 dry and 2 to 4 moist.

Chroma--2 to 4. When the upper 7 inches of the epipedon is mixed, the dry value is 6.

Bt horizon:

Hue--10YR or 7.5YR.

Value--3 to 6 dry, 3 or 4 moist.

Chroma--2 to 6 dry and moist.

Clay content--Silty clay, clay, silty clay loam or clay loam with an average of 35 to 60 percent clay.

Other features--Lower subhorizons are typically clay loam or silty clay loam and may have accumulations of secondary silica as pendants on rock fragments in some pedons. Moist consistence is firm or very firm. The bedrock is fractured with carbonates or opal on the lower side of rock fragments in some pedons.

Arclay Series

The Arclay series consists of shallow, well drained soils that formed in residuum and colluvium weathered from granite. Arclay soils are on backslopes of mountains. Slopes are 30 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow Aridic Argixerolls

Typical pedon: Arclay very bouldery coarse sandy loam, 30 to 50 percent slopes, located in map unit 120. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent pebbles, 5 percent cobbles, and 5 percent boulders.

A--0 to 4 inches; brown (10YR 5/3) very bouldery coarse sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft; very friable; slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 20 percent pebbles, 10 percent cobbles, and 5 percent boulders; neutral (pH 7.2); clear smooth boundary.

Bt1--4 to 9 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; many very fine tubular pores; 25 percent pebbles; many thin clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt2--9 to 18 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; many very fine tubular pores; 25 percent pebbles; many thin clay films on faces of peds; slightly alkaline (pH 7.6); abrupt wavy boundary.

Cr--18 to 46 inches; weathered bedrock with very few very fine roots; gradual wavy boundary.

R--46 inches; unweathered granite.

Type location: Humboldt County, Nevada; approximately 3.5 miles south of Knott Creek Reservoir, about 1,400 feet east and 500 feet south of the northwest corner of section 31, T.43 N., R.28 E.; (41 degrees, 36 minutes, 47 seconds north latitude and 118 degrees, 49 minutes, 12 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from June through October.

Soil temperature: 47 to 52 degrees, F.

Mollic epipedon thickness: 7 to 12 inches, typically includes the upper Bt subhorizon.

Depth to paralithic contact: 14 to 20 inches.

Depth to lithic contact: 40 to 60 inches.

A horizon:

Hue--10YR or 2.5Y.

Value--4 through 6 dry, averages less than 5.5 dry after mixing the upper 7 inches.

Chroma--2 or 3.

Reaction--Neutral or slightly alkaline.

Bt horizons:

Value--4 through 6 dry and 3 or 4 moist.

Chroma--3 or 4.

Texture--Dominantly gravelly clay loam with gravelly sandy clay loam, gravelly loam common in subhorizons above the paralithic contact.

Clay content--27 to 35 percent.

Rock fragments--15 to 30 percent, mainly fine pebbles.

Structure--Subangular blocky or horizon is massive.

Consistence--Slightly hard or hard dry and friable or firm moist.

Reaction--Neutral or slightly alkaline.

Argenta Series

The Argenta series consists of very deep, somewhat poorly drained soils that formed from mixed rock sources high in pyroclastic materials. Argenta soils are on floodplains and basin-floor remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Aeric Halaquepts

Typical pedon: Argenta very fine sandy loam, 0 to 2 percent slopes located in map unit 1080. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; slightly effervescent; strongly alkaline (pH 9.0) abrupt wavy boundary.

A2--4 to 10 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 5/3) moist; weak very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

BA--10 to 14 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Ckq1--14 to 34 inches; very pale brown (10YR 7/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 70 percent durinodes; common fine segregated lime in filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Ckq2--34 to 46 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; few very fine tubular pores; 15 percent durinodes; common segregated lime in filaments; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2C--46 to 60 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; few fine distinct mottles, brown (7.5YR 4/4) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; few very fine tubular pores; 25 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6)

Type location: Humboldt County, Nevada; on the Alder Creek Ranch, about 1,600 feet east and 1,000 feet south of the northwest corner of section 23, T.45 N., R.28 E.; (41 degrees, 49 minutes, 18 seconds north latitude and 118 degrees, 44 minutes, 12 seconds west longitude.)

Range in Characteristics:

Soil moisture: A seasonal water table is at depths of 32 to 40 inches at some time during the months of February to July.

Soil temperature: 47 to 52 degrees, F.

Depth to Ckq horizon: 12 to 24 inches.

Reaction: Moderately alkaline to very strongly alkaline.

Relict mottles: Present in the upper profile of some pedons.

Salinity and sodicity: Slightly to strongly salt and strongly sodium affected to depths of 24 to 30 inches decreasing with depth. The exchangeable sodium percent ranges from 15 to 70 in half or more of the upper 15 inches and decreases with depth.

Other features: Unconformable strata of loamy fine sand, fine sand, gravelly or very gravelly sand or very coarse sand are below depth of 40 inches in some pedons.

Control section:

Clay content--8 to 18 percent.

Rock fragments--Up to 15 percent pebbles.

A and BA horizons:

Value--6 through 8 dry, 4 or 5 moist.

Chroma--2 through 4.
 Consistence--Very friable or friable, moist; nonsticky or slightly sticky and nonplastic or slightly plastic, wet.
 Reaction--Strongly alkaline or very strongly alkaline.

Ckq horizons:

Hue--10YR or 7.5YR.
 Value--6 through 8 dry, 4 through 6 moist.
 Consistence--Friable or very friable, moist, nonplastic or slightly plastic, wet.
 Chroma--2 through 4.
 Texture--Stratified very fine sandy loam, fine sandy loam, silt loam or loam.
 Other features--These horizons have 15 to 70 percent durinodes in a friable matrix.

Ashcamp Series

The Ashcamp series consists of very shallow, well drained soils formed in residuum and colluvium from andesitic tuff and pyroclastic rocks. Ashcamp soils are on ash flows. Slopes are 2 to 15 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 46 degrees. F.

Taxonomic class: Ashy, mesic, shallow Vitritorrandic Argixerolls

Typical pedon: Ashcamp sandy loam, 2 to 15 percent slopes, rangeland, in map unit 1164. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular and few very fine interstitial pores; 10 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bt--3 to 8 inches; brown (7.5YR 5/2) sandy loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds and bridging mineral grains; 10 percent pebbles; neutral (pH 7.0); abrupt irregular boundary.

Cr--8 to 23 inches; very pale brown (10YR 7/3) soft, weathered andesitic tuff, brown (10YR 5/3) moist; breaks into 2 to 6 centimeter thick plates; many roots and some soil in fractures; many thin glass coats in matrix.

Type location: Humboldt County, Nevada. About 1,000 feet north and 500 feet east of the southwest corner of section 34, T.42 N., R.24 E.; (41 degrees, 31 minutes, 15 seconds north latitude and 119 degrees, 15 minutes, 36 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from July through October; aridic moisture regime that borders on xeric.

Soil temperature: 47 to 51 degrees F.

Mollic epipedon thickness: 7 to 14 inches, includes the Bt horizon.

Depth to bedrock: 7 to 14 inches to a paralithic contact. The paralithic materials below the contact are vitric tuffs.

Volcanic glass content: 35 to 60 percent in the coarse silt through fine sand fractions.

Control section:

Clay content--12 to 18 percent.

Rock fragments--0 to 15 percent pebbles. Lithology of fragments are volcanic rocks such as tuff.

Other features--Many roots are present within bedrock fractures.

A horizon:

Value--2 or 3 moist.

Chroma--2 or 3, dry or moist.

Bt horizon:

Hue--10YR or 7.5YR.

Value--2 or 3 moist.

Chroma--2 or 3, dry or moist.

Structure--Angular blocky or subangular blocky.

Rock fragments--0 to 15 percent pebbles.

Consistence--Slightly hard or hard dry.

Aycab Series

The Aycab series consists of moderately deep, well drained soils that formed in residuum from granite. Aycab soils are on predominantly north-facing mountain backslopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Coarse-loamy, mixed, Pachic Cryoborolls

Typical pedon: Aycab gravelly coarse sandy loam, 50 to 75 percent slopes, located in map unit 111. (Colors

are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A1--0 to 2 inches; very dark grayish brown (10YR 3/2) gravelly coarse sandy loam, black (10YR 2/1) moist; weak fine subangular blocky parting to moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine tubular pores; 20 percent pebbles; slightly acid (pH 6.1); clear wavy boundary.

A2--2 to 8 inches; dark grayish brown (10YR 4/2) gravelly coarse sandy loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; 20 percent pebbles; slightly acid (pH 6.1); clear wavy boundary.

A3--8 to 16 inches; dark grayish brown (10YR 4/2) gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine and fine and few medium tubular pores; 25 percent pebbles; neutral (pH 6.6); clear wavy boundary.

A4--16 to 29 inches; brown (10YR 4/3) gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine and few medium tubular pores; 30 percent pebbles; neutral (pH 6.8); clear wavy boundary.

Bw--29 to 38 inches; dark yellowish brown (10YR 4/4) gravelly coarse sandy loam, dark brown (10YR 3/3) moist; common coarse (10YR 4/3), (10YR 2/2) moist organic stains; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine and few medium tubular pores; 30 percent pebbles; neutral (pH 6.8).

Cr--38 inches; highly fractured, semi-weathered granodiorite with more typical granitic grus below this. The fractured bedrock above granitic grus is about 3 to 4 inches thick, digs with spade easily and is broken in hands with minimal effort.

Type location: West Humboldt County, Nevada; in the Bilk Creek Mountains, about 1,400 feet east and 1,600 feet south of the northwest corner of section 12, T.46 N., R.31 E.; (41 degrees, 52 minutes, 34 seconds north latitude and 118 degrees, 27 minutes, 28 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry late July through early October.

Soil temperature: 43 to 47 degrees, F.

Summer soil temperature: 55 to 59 degrees, F.

Mollic epipedon thickness: 20 to 40 inches (may or may not include Bw horizon)

Reaction of profile: Slightly acid or neutral.

Depth to paralithic contact: 24 to 40 inches.

Control section:

Texture--Typically coarse sandy loam, but strata of sandy loam or loam are allowable.

Clay content--8 to 18 percent.

Rock fragments--15 to 35 percent, predominantly 2 to 5 millimeter size pebbles.

A horizons:

Value--3 or 4 dry, 2 or 3 moist.

Chroma--1 through 3 with chroma of 1 occurring predominantly in the A1 or A2 horizons and chroma of 3 occurring in the A3 horizon and below.

Bw horizon:

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 through 4.

Structure--Subangular blocky or is massive.

Consistence-- Soft or slightly hard dry.

Other features--Mixed colors are common in this horizon due to root and rodent activity. The Bw horizon may or may not meet the requirements of a cambic horizon.

Badgercamp Series

The Badgercamp series consists of shallow, well drained soils that formed in residuum from soft tuffaceous bedrock. Badgercamp soils are on mountains and shoulders of plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 40 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, shallow Argic Cryoborolls

Typical pedon: Badgercamp bouldery loam, 4 to 30 percent slopes, located in map unit 155. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 2 percent boulders and 10 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) bouldery loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular and tubular pores; 2 percent boulders, 10 percent pebbles; neutral (pH 6.8); clear smooth boundary.

A2--2 to 6 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.

Bt--6 to 15 inches; dark grayish brown (10YR 4/2) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; many very fine tubular pores; common thin clay films on faces of peds; 40 percent pebbles, 5 percent cobbles, 2 percent stones; neutral (pH 6.8); clear smooth boundary.

Cr--15 inches; tuffaceous bedrock.

Type location: Humboldt County, Nevada; approximately 6 miles northwest of Summit Lake, about 2,000 feet north and 2,000 feet west of the southeast corner of section 12, T.42 N., R.24 1/2 E.; (41 degrees, 34 minutes, 04 seconds north latitude and 119 degrees, 11 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter, spring and early summer, dry mid July through early October.

Soil temperature: 40 to 42 degrees, F.

Summer soil temperature: 54 to 59 degrees, F.

Mollic epipedon thickness: 7 to 15 inches.

Depth to paralithic contact: 14 to 20 inches.

Control section:

Clay content--12 to 18 percent.

Rock fragments--40 to 80 percent.

A horizons:

Value--3 through 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizon:

Value--4 or 5 dry, 3 or 4 moist.

Chroma--2 through 4.

Clay content--12 to 18 percent.

Consistence--Very friable or friable, slightly sticky or sticky, slightly plastic or plastic.

Bearbutte Series

The Bearbutte series consists of deep, well drained soils that formed in alluvium and colluvium from tuffaceous rocks. Bearbutte soils are on backslopes of plateaus. Slopes are 4 to 50 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Coarse-loamy, mixed, frigid Pachic Argixerolls

Typical pedon: Bearbutte stony loam, 4 to 30 percent slopes, located in map unit 155. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 2 percent stones and 10 percent pebbles.

A1--0 to 2 inches; dark grayish brown (10YR 4/2) stony loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine tubular pores; 2 percent stones, 10 percent pebbles; neutral (pH 6.6); clear smooth boundary.

A2--2 to 9 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine tubular pores; 10 percent pebbles; neutral (pH 6.8); clear smooth boundary.

Bt1--9 to 19 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; many very fine tubular pores; few thin clay films on faces of peds; 5 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt2--19 to 24 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and medium roots; many very fine and fine tubular pores; few thin clay films on faces of peds; 30 percent pebbles; neutral (pH 6.8); clear smooth boundary.

Bt3--24 to 30 inches; dark grayish brown (10YR 4/2) extremely stony sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; few thin clay films on faces of peds; 50 percent stones, 5 percent cobbles, 10 percent pebbles; neutral (pH 7.0); clear smooth boundary.

- C1--30 to 40 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 4/3) moist; few fine distinct yellowish brown (10YR 5/6) mottles; weak thin platy structure; slightly hard, friable, sticky and slightly plastic; few very fine, fine and medium roots; many very fine tubular pores; few thin lime coatings on undersides of rock fragments; non-effervescent matrix; 10 percent pebbles, 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.
- C3--40 to 53 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; many medium distinct yellowish brown (10YR 5/6) mottles; moderate thin platy structure; slightly hard, firm, sticky and slightly plastic; few very fine roots; many very fine tubular pores; 10 percent pebbles, 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.
- Cr--53 inches; soft tuffaceous bedrock.

Type location: Humboldt County, Nevada; approximately 6 miles northwest of Summit Lake, about 1,600 feet west and 1,550 feet north of the southwest corner of section 12, T.42 N., R.24 1/2 E.; (41 degrees, 34 minutes, 02 seconds north latitude and 119 degrees, 11 minutes, 15 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from late June through October.

Soil temperature: 42 to 45 degrees.

Mollic epipedon thickness: 20 to 40 inches.

Depth to paralithic contact: 40 to 60 inches.

Control section:

Clay content--10 to 18 percent.

Rock fragments--Averages 5 to 30 percent.

A horizons:

Value-- 4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizons:

Chroma--2 or 3.

Texture--Sandy loam or loam.

Clay content--10 to 18 percent.

Rock fragments--Averages 5 to 30 percent, mostly pebbles.

Structure--Weak, fine and medium subangular blocky.

C horizons:

Value-- 4 or 5 dry, 3 or 4 moist.

Chroma--2 through 4.

Clay content--3 to 15 percent.

Rock fragments--Averages 15 to 35 percent.

Structure--Massive or is platy.

Blackhawk Series

The Blackhawk series consists of shallow over duripan, well drained soils that formed in a loess mantle over alluvium from mixed rock sources. Blackhawk soils are on fan piedmont remnants. Slopes are 0 to 8 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Loamy, mixed, mesic shallow Entic Durorthids

Typical pedon: Blackhawk very gravelly fine sandy loam, 2 to 8 percent slopes, located in map unit 158. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 35 percent pebbles.

A1--0 to 3 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, brown (10YR 5/3) moist; weak thick platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 35 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw--3 to 18 inches; light gray (10YR 7/2) gravelly very fine sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular and interstitial pores; 15 percent pebbles; moderately alkaline (pH 8.3); abrupt smooth boundary.

Bqm--18 to 21 inches; pale brown (10YR 6/3) strongly silica-cemented duripan, brown (10YR 5/3) moist; strong thin platy structure; very hard, very firm; few very fine fine roots; many very fine interstitial pores; common thin silica films coating pores, bridging sand grains, and as discontinuous laminae; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bqk--21 to 33 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; slightly hard; friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 40 percent very hard, firm durinodes; few lime filaments and coatings on durinodes; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bqkm--33 to 34 inches; light gray (10YR 7/2) strongly silica-cemented duripan, brown (10YR 5/3) moist;

massive; very hard, very firm; few very fine roots; few very fine interstitial pores; common thin silica laminae; violently effervescent; very strongly alkaline (pH 9.2); wavy smooth boundary.

2Bqk--34 to 53 inches; light gray (2.5Y 7/2) very gravelly sand, grayish brown (2.5Y 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 20 percent very hard, firm durinodes; common lime filaments; 40 percent pebbles; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

3C--53 to 60 inches; brown (10YR 5/3) very gravelly sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine interstitial pores; 40 percent pebbles; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 9 miles north of Jungo, about 1,650 feet north and 900 feet east of the projected southwest corner of section 33, T.37 N., R.32 E.; (41 degrees, 01 minute, 55 seconds north latitude and 118 degrees, 24 minutes, 45 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and early spring, dry late May through November.

Soil temperature: 47 to 54 degrees, F.

Depth to duripan: 14 to 20 inches.

Control section:

Clay content--Averages 5 to 10 percent.

Rock fragments--Up to 30 percent, mainly pebbles.

Texture--Silt plus very fine sand, 65 to 80 percent.

A horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Reaction--Slightly alkaline to strongly alkaline.

Bw horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Texture--Silt loam, loam, very fine sandy loam.

Clay content--Averages 5 to 10 percent.

Consistence--Nonsticky or sticky and nonplastic or plastic wet.

Rock fragments--0 to 30 percent, mainly pebbles.

Structure--Weak or moderate, thin to thick, platy, subangular blocky, or horizon is massive.

Reaction--Slightly alkaline to strongly alkaline.

Bqm, Bqkm horizons:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 4 through 6 moist.

Chroma--2 or 3.

Structure--Weak to strong, thin or thick, platy, or horizon is massive.

Consistence--Very hard or extremely hard.

Reaction--Moderately alkaline to very strongly alkaline.

Effervescence--Noneffervescent to violently effervescent.

Silica cementation--The duripan usually consists of two or more strongly cemented layers interbedded with weakly silica-cemented material or strata with friable matrix containing durinodes.

Bqk horizons:

Textures--Immediately below the upper duripan of most pedons, textures are stratified loam to gravelly coarse sand.

Consistence--Soft or slightly hard, dry; very friable or friable, moist; nonsticky or sticky and nonplastic or plastic wet.

2Bqk and 3C horizons:

Texture--Unconformable strata of very gravelly or extremely gravelly sand, coarse sand, loamy coarse sand, and sandy loam are common below a depth of 30 inches.

Other features--Strata of clay are found below 30 inches in some pedons.

Bluewing Series

The Bluewing series consists of very deep, excessively drained soils that formed in very gravelly, sandy alluvium derived from mixed rock sources. Bluewing soils are on inset fans, drainageways, and barrier beaches. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Sandy-skeletal, mixed, mesic Typic Torriorthents

Typical pedon: Bluewing gravelly sandy loam, 2 to 8 percent slopes located in map unit 160. (Colors are for dry soils unless otherwise noted.) The soil surface is partially covered with 30 percent pebbles.

A--0 to 6 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic;

few very fine roots; few very fine and fine vesicular pores; 30 percent pebbles; strongly effervescent; moderately alkaline; (pH 8.4) abrupt wavy boundary.

Bk1--6 to 29 inches; very pale brown (10YR 7/3) very gravelly loamy coarse sand, brown (10YR 4/3) moist; massive; soft, very friable; nonsticky and nonplastic; many very fine and few fine roots; many very fine and fine interstitial pores; 55 percent pebbles; thin lime coatings on undersides of pebbles; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bk2--29 to 52 inches; pale brown (10YR 6/3) extremely gravelly loamy coarse sand, brown (10YR 4/3) moist; massive; slightly hard, very friable; nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 60 percent pebbles, 5 percent cobbles; thin lime coatings on undersides of rock fragments; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bk3--52 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy coarse sand, brown (10YR 4/3) moist; massive parting to single grain; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 65 percent pebbles; thin lime coatings on undersides of rock fragments; violently effervescent; strongly alkaline (pH 8.8)

Type location: Humboldt County, Nevada; approximately 1 mile northwest of the Meyer Ranch, 100 feet east and 2,500 feet north of the southwest corner of section 24, T.35 N., R.31 E.; (40 degrees, 53 minutes, 28 seconds north latitude and 118 degrees, 27 minutes, 45 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, intermittently moist in winter and early spring, dry from early May through October.

Soil temperature: 53 to 59 degrees, F.

Effervescence: Noneffervescent to violently effervescent.

Control section:

Clay content--Averages 3 to 8 percent.

Reaction--Slightly alkaline to strongly alkaline.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 through 4.

Bk horizons:

Hue--10YR or 2.5Y.

Value--5 through 8 dry; 3 through 5 moist.

Chroma--2 through 4.

Texture--Dominantly loamy coarse sand or coarse sand but may include strata ranging from loamy sand to loam.

Rock fragments--Averages 50 to 80 percent, mainly pebbles with up to 25 percent cobbles and stones; the pebbles are dominantly 3/4 to 1 1/4 inch in diameter.

Structure--Horizon is massive or single grained.

Consistence--Soft or slightly hard.

Bombadil Series

The Bombadil series consists of very shallow and shallow, well drained soils that formed in residuum from weathered basic igneous rock. Bombadil soils are on plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy, mixed, mesic Lithic Xeric Haplargids

Typical pedon: Bombadil stony loam, in map unit 1400, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered by 25 percent pebbles, 10 percent cobbles, and 5 percent stones.

A--0 to 4 inches; light brownish gray (10YR 6/2) stony loam, dark brown (10YR 4/3) moist; strong thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; very few fine roots; many fine vesicular pores; 5 percent stones, 15 percent cobbles, and 30 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

Bt1--4 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 4/3) moist; strong fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine, fine and medium roots; many very interstitial, and many very fine, fine and medium tubular pores; common thin clay films on faces of peds and in pores; 10 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bt2--7 to 13 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine, fine, medium and coarse roots; many very fine tubular pores; common thin and few moderately thick clay films on faces of peds and in pores; 25 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

R--13 to 18 inches; hard basalt; highly fractured in the upper 4 inches with common very fine and fine roots and soil in fractures.

Type location: Humboldt County, Nevada; in an unsurveyed area; (41 degrees, 26 minutes, 35 seconds north latitude and 119 degrees, 19 minutes, 06 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry in summer and early autumn.

Soil temperature: 47 to 53 degrees F.

Depth to bedrock: 7 to 14 inches.

Reaction: Neutral or slightly alkaline.

Control section:

Percent clay--18 to 27.

Rock fragments--10 to 25 percent.

A horizon:

Hue--10YR, 7.5YR.

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 or 3.

Bt1 horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 through 5 moist.

Chroma--3 or 4 except 2 in the upper part of some pedons.

Texture--Loam or clay loam.

Clay content--18 to 35 percent.

Rock fragments--10 to 25 percent by average.

Bt2 horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4.

Clay content--25 to 35 percent.

Consistence--Very friable or friable, slightly sticky or sticky, slightly plastic or plastic.

Rock fragments--10 to 20 percent by average.

Boton Series

The Boton series consists of very deep, well drained soils that formed in a thin layer of loess and alluvium influenced by volcanic ash over lacustrine sediments. Boton soils are on basin-floor remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents

Typical pedon: Boton silt loam, 0 to 2 percent slopes, located in map unit 150. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine vesicular pores; violently effervescent; less than 1 percent calcium carbonate equivalent; strongly alkaline (pH 8.8); abrupt smooth boundary.

A2--4 to 10 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; strong thin platy structure; hard, very friable, slightly sticky and slightly plastic, common very fine and fine roots; common very fine and fine vesicular pores; violently effervescent; less than 1 percent calcium carbonate equivalent; strongly alkaline (pH 8.8); clear smooth boundary.

Bq--10 to 16 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; strong thin platelike bedding planes; hard, friable, sticky and plastic; common very fine and fine, few coarse roots; 35 percent durinodes; violently effervescent; 10 percent calcium carbonate equivalent; very strongly alkaline (pH 9.2); clear smooth boundary.

2Bqk1--16 to 28 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; strong thin platelike bedding planes; hard, very friable, sticky and slightly plastic; common very fine and fine, few coarse roots; common very fine tubular pores; 35 percent durinodes; few fine segregated lime filaments; violently effervescent, 17 percent calcium carbonate equivalent; strongly alkaline (pH 8.8); abrupt smooth boundary.

2Bqk2--28 to 38 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; massive; hard, friable, sticky and slightly plastic; common very fine roots; common very fine tubular pores; 45 percent durinodes; few fine segregated lime filaments; violently effervescent; 20 percent calcium carbonate equivalent; very strongly alkaline (pH 9.2); clear smooth boundary.

2Bk1--38 to 55 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; common fine distinct strong brown (7.5YR 5/6) mottles; massive; hard, friable, sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; few fine lime filaments; violently effervescent; 20 percent calcium carbonate equivalent; very strongly alkaline (pH 9.2); clear smooth boundary.

2Bk2--55 to 60 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; few fine manganese stains; massive; slightly hard, friable, sticky and slightly plastic; few very fine roots; common very fine tubular pores; few fine lime filaments; violently

effervescent; 20 percent calcium carbonate equivalent; very strongly alkaline (pH 9.2).

Type location: Humboldt County, Nevada; approximately 9 miles southwest of Quinn River Crossing, about 1,650 feet south and 1,150 feet east of the projected northwest corner of section 24, T.42 N., R.30 E.; (41 degrees, 30 minutes, 10 seconds north latitude and 118 degrees, 34 minutes, 35 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist for short periods in winter and spring and dry May through early November.

Soil temperature: 53 to 57 degrees, F.

Depth to lacustrine materials: 10 to 20 inches.

Depth to Bq or Bqk horizons: 5 to 20 inches.

Control section:

Clay content--18 to 27 percent.

Relict iron mottles--Common or many, faint or distinct, fine to coarse in the lacustrine sediments.

Other features--Subhorizons with thin or very thin varves or lenses are common in the lacustrine sediments.

A horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Reaction--Moderately alkaline to very strongly alkaline

Bq and 2Bqk horizons:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 through 6 moist.

Chroma--2 or 3.

Structure--Platy bedding planes or horizon is massive, some pedons have subangular block or platy structure in the upper horizons.

Texture--Average silt loam with strata of silty clay loam and very fine sandy loam.

Consistence--Slightly plastic or plastic, wet

Cementation--20 to 60 percent weakly or strongly cemented durinodes in a friable matrix. Silica lenses and thin silica coatings are in the upper horizons of some pedons.

Calcium carbonate equivalent--Averages 5 to 20 percent.

Reaction--Moderately alkaline to very strongly alkaline

Exchangeable sodium--45 to 70 percent.

2Bk horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 5 or 6 moist.

Chroma--2 or 3.

Texture--Average silt loam, strata of silty clay loam and very fine sandy loam common in subhorizons of some pedons.

Consistence--Slightly hard or hard, dry; very friable or friable, moist; slightly plastic or plastic, wet.

Structure--Platelike bedding planes or horizon is massive.

Calcium carbonate equivalent--Averages 5 to 20 percent.

Reaction--Strongly alkaline or very strongly alkaline.

Exchangeable sodium--49 to 99 percent.

Gypsum filaments--Are lacking in subhorizons of some pedons.

Boulder Lake Series

The Boulder Lake series consists of very deep, somewhat rained soils that formed in clayey lacustrine sediments derived mainly from tuff, basalt, and andesite. Boulder Lake soils are on lake plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Fine, montmorillonitic, frigid Aquic Haploxererts

Typical pedon: Boulder Lake silty clay, 0 to 2 percent slopes, located in map unit 145. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; strong fine granular structure; slightly hard, friable, very sticky and very plastic; root crowns only; many very fine interstitial pores; neutral (pH 7.0); abrupt smooth boundary.

Bw--3 to 6 inches; grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) moist; moderate medium angular blocky structure; very hard, very firm, very sticky and very plastic, few fine roots; common fine tubular pores; neutral (pH 6.6); abrupt wavy boundary.

Bwss1--6 to 9 inches; grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) moist; moderate medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; common fine tubular pores; few slickensides on peds; neutral (pH 6.6); clear wavy boundary.

Bwss2--9 to 30 inches; light brownish gray (10YR 6/2) silty clay, dark grayish brown (10YR 4/2) moist; common fine distinct brown (7.5YR 4/4) iron mottles; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common fine tubular pores; common slickensides on peds; neutral (pH 6.8); gradual smooth boundary.

Bwss3--30 to 60 inches; light brownish gray (10YR 6/2) silty clay, dark grayish brown (10YR 4/2) moist; common fine distinct brown (7.5YR 4/4) and very dark brown (7.5YR 2/2) iron and manganese mottles; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few fine tubular pores; common slickensides on peds; neutral (pH 6.8).

Type location: Humboldt County, Nevada; approximately 8 miles southwest of Red Mountain, about 2,500 feet east and 600 feet north of the southwest corner of section 31, T.40 N., R.26 E.; (41 degrees, 19 minutes, 30 seconds north latitude and 119 degrees, 03 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Ponded for less than 45 consecutive days in most years, mainly in the spring; brief ponding occurs after intensive rainfall. Saturated to a depth of 30 to 60 inches in late winter and spring.

Soil temperature: 43 to 47 degrees F.

Summer soil temperature: 62 to 64 degrees F.

Effervescence: Noncalcareous or slightly effervescent but ranges to strongly effervescent in some pedons where few to common, very fine to medium lime segregations occur below depths of 20 inches.

Other features: Cracks at the surface are up to 3 inches wide and are 3 to 6 inches apart. These decrease in width as depth increases. Cracks remain open for few than 180 consecutive days.

A horizon:

Hue--10YR or 2.5Y.

Value--5 or 6 dry, 3 through 5 moist.

Chroma--2 or 3 moist, 1 through 3 dry.

Reaction--Slightly acid to mildly alkaline.

Bw and Bwss:

Hue--10YR or 2.5Y.

Chroma--2 or 3. (Some pedons have dry chromas of 1 in the upper Bwss.) Chromas are dominantly 2 or less above 20 inches.

Texture--Clay or silty clay, some pedons have clay loam in the immediate surface layer.

Structure--Moderate or strong, medium to very coarse prismatic, medium to very coarse angular blocky in the upper part and weak to strong, medium to very coarse prismatic and moderate or strong, medium to very coarse angular in the lower subhorizons.

Consistence--Very hard or extremely hard, dry; firm or very firm, moist; may be slightly hard and friable in upper part.

Mottles--Few or common, very fine to medium, distinct or prominent, redoximorphic concentrations with reddish, yellowish, and brownish colors hue 10YR through 5YR; chromas 2 through 6.

Reaction--Neutral to moderately alkaline.

Other features--Few to many slickensides and many pressure cutans. Soil is interpreted as having reduced matrix colors and redox concentrations due to saturation.

Broyles Series

The Broyles series consists of very deep, well drained soils that formed in a thin loess mantle over mixed loamy alluvium. Broyles soils are on beach plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Duric Camborthids

Typical pedon: Broyles fine sandy loam, 0 to 2 percent slopes located in map unit 1000. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, nonsticky and slightly plastic; few very fine and fine roots; common fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bw--3 to 10 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine tubular pores; moderately alkaline; (pH 8.4) abrupt smooth boundary.

2Bqk1--10 to 25 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; 20 percent durinodes; few fine filaments or threads of lime; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

2Bqk2--25 to 46 inches; white (10YR 8/2) fine sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic few very fine roots; many very fine tubular pores; 30 percent durinodes; few fine filaments or threads of lime; violently effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

C--46 to 60 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine interstitial pores; violently effervescent; strongly alkaline (pH 9.0).

Type location: Humboldt County, Nevada; approximately 4 miles northwest of Quinn River Crossing, about 100 feet west of the center of section 2, T.43 N., R.31 E.; (41 degrees, 37 minutes, 47 seconds north latitude and 118 degrees, 28 minutes, 25 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods through mid spring, dry in late May through November.

Soil temperature: 47 to 55 degrees, F.

Depth to Bk or Bqk horizon: 10 to 24 inches.

Other features: Some pedons have strongly cemented duripans below 40 inches.

Control section:

Clay content--5 to 15 percent

Rock fragments--0 to 35 percent pebbles with the greater percentage commonly in the lower part.

Texture--Stratified loam, fine sandy loam, very fine sandy loam or silt loam in the upper part, and loam, fine sandy loam, very fine sandy loam, sandy loam and loamy sand in the lower part.

A horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3

Reaction--Moderately alkaline or strongly alkaline.

Carbonates--Normally noncalcareous but may be effervescent in some pedons due to recharge from dust.

Bw horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4

Structure--Weak fine or medium subangular blocky, platy, or prismatic or it is massive.

Consistence--Soft to hard dry; very friable or friable, moist; slightly plastic or plastic, wet.

Reaction--Moderately alkaline or strongly alkaline.

2Bqk horizons:

Reaction--Moderately alkaline to very strongly alkaline.

Value--6 through 8 dry, 4 or 5 moist.

Cementation--20 to 75 percent durinodes; some pedons have very weak silica cementation in the matrix surrounding the durinodes.

Consistence--Nonplastic or slightly plastic, wet.

Other features--Some pedons have subhorizons with few or common fine gypsum in filaments or seams.

C horizon:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 through 6 moist.

Chroma--1 through 4.

Reaction--Strongly alkaline or very strongly alkaline.

Bubus Series

The Bubus series consists of very deep, well drained soils that formed in alluvium from mixed rock sources of mostly volcanic origin that are high in pyroclastic materials. Bubus soils are on alluvial flats and basin-floor remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical pedon: Bubus very fine sandy loam, 0 to 2 percent slopes, located in map unit 1010. (Colors are for dry soil unless otherwise noted.)

A--0 to 2 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine through coarse vesicular pores; 10 percent fine pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C1--2 to 10 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine tubular and interstitial pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2--10 to 15 inches; light gray (10YR 7/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; common very fine tubular and interstitial pores; strongly effervescent; strongly alkaline (pH 8.8) clear wavy boundary.

Cqy1--15 to 29 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak fine platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine tubular and interstitial pores; 10 percent durinodes; few fine filaments of gypsum; violently effervescent; strongly alkaline (pH 8.6) clear wavy boundary.

Cqky--29 to 60 inches; pale brown (10YR 6/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; few fine faint dark yellowish brown mottles (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular and interstitial pores; common fine soft filaments of lime; 25 percent durinodes; few fine filaments of gypsum; violently effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; about 1 mile southwest of Trout Creek Ranch in Desert Valley, about 250 feet north and 1,750 feet east of the southwest corner of section 20, T.38 N., R.32 E.; (41 degrees, 08 minutes, 47 seconds north latitude and 118 degrees, 25 minutes, 37 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry late May through November.

Soil temperature: 47 to 53 degrees, F.

Depth to durinodes: 10 to 30 inches.

Control section:

Clay content--10 to 15 percent.

Rock fragments--0 to 5 percent pebbles.

Salt and sodium--These soils are normally strongly salt and sodium affected throughout the profile, but some pedons are only moderately or slightly affected in the upper horizons.

Other features--Iron mottles and gypsum. Faint or distinct iron mottles and gypsum segregations are lacking in horizons below a depth of 10 inches in some pedons. Ck horizons are above the Cq horizons in some pedons.

A horizon:

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Reaction--Moderately alkaline to very strongly alkaline.

Effervescence--Slightly, strongly, or violently effervescent.

C horizons:

Value--6 or 7 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture--Stratified loam, silt loam, very fine sandy loam, fine sandy loam, or sandy loam, but is dominantly very fine sandy loam.

Structure--Platy structure or it is massive.

Consistence--Slightly hard or hard, dry; very friable or friable, moist; nonsticky or slightly sticky, wet.

Reaction--Moderately alkaline to very strongly alkaline commonly decreasing with depth.

Effervescent--Strongly effervescent or violently effervescent.

Cqy horizons:

Value--6 or 7 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture--Very fine sandy loam or fine sandy loam.

Consistence--Nonsticky or slightly sticky, wet.

Reaction--Moderately alkaline to very strongly alkaline.

Other features--20 to 70 percent durinodes.

Bucklake Series

The Bucklake series consists of moderately deep, well drained soils formed in material weathered from basalt or andesite. Bucklake soils are on mountain back slopes and plateaus. Slopes range from 4 to 50 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Fine, montmorillonitic, mesic Aridic Argixerolls

Typical pedon: Bucklake extremely stony loam, 30 to 50 percent slopes located in map unit 965. (Colors are for dry soil unless otherwise noted.) The soil

surface is partially covered with 20 percent stones, 10 percent cobbles, and 10 percent pebbles.

A1--0 to 2 inches; brown (7.5YR 5/2) extremely stony loam, dark brown (7.5YR 3/2) moist; weak medium platy structure; hard, very friable, sticky and plastic; many very fine roots; many very fine vesicular and tubular pores; 20 percent stones, 15 percent pebbles; neutral (pH 7.0) clear wavy boundary.

A2--2 to 6 inches; brown (7.5YR 5/2) very stony loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine roots; many very fine tubular pores; 10 percent stones, 15 percent cobbles, 20 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bt1--6 to 10 inches; brown (7.5YR 5/2) gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; many very fine, few fine and medium roots; many very fine tubular pores; common thick clay films on faces of peds; 20 percent pebbles; 2 percent cobbles; neutral (pH 7.0); clear wavy boundary.

Bt2--10 to 14 inches; brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; very hard, friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; many thin clay films on faces of peds; 20 percent pebbles; slightly alkaline (pH 7.5); clear wavy boundary.

Bt3--14 to 21 inches; brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 3/4) moist, weak medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; many thin clay films on faces of peds; 20 percent pebbles; slightly alkaline (pH 7.5); clear wavy boundary.

R--21 inches; hard fractured andesite.

Type location: Humboldt County, Nevada; approximately 35 miles north of Gerlach, about 2,250 feet west and 1,300 feet south of the projected northeast corner of section 36, T.37 N., R.23.5 E.; (41 degrees, 03 minutes, 56 seconds north latitude and 119 degrees, 18 minutes, 28 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, dry from July to November for about 100 to 130 days. Aridic bordering xeric moisture regime.

Soil temperature: 47 to 52 degrees.

Depth to hard bedrock: 20 to 40 inches.

Thickness of mollic epipedon: 10 to 20 inches, includes the upper part of the Bt horizon.

Control section:

Clay content--35 to 50 percent.

Rock fragments--5 to 30 percent, mainly basalt and andesitic pebbles.

A horizons:

Hue--10YR or 7.5YR.

Chroma--2 or 3.

Reaction--Slightly acid through slightly saline.

Bt horizons:

Hue--10YR, 7.5YR, or 5Y.

Value--4 or 5 dry; 3 or 4 moist.

Chroma--2 through 6.

Texture--Clay loam or clay.

Rock fragments--5 to 30 percent, mainly pebbles.

Clay content--35 to 50 percent.

Sand content--20 to 35 percent.

Reaction--Neutral or slightly alkaline.

Bullump Series

The Bullump series consist of deep, well drained soils that formed in colluvium from quartzite, chert, argillite, and rhyolite rocks with a component of loess. Bullump soils are on mountain backslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 15 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Argixerolls

Typical pedon: Bullump very gravelly loam, 30 to 50 percent slopes located in map unit 176. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 45 percent pebbles and 5 percent cobbles.

A1--0 to 2 inches; dark brown (10YR 4/3) very gravelly loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine tubular pores; 40 percent pebbles; neutral (pH 7.2); clear wavy boundary.

A2--2 to 6 inches; dark brown (10YR 4/3) very gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine,

common fine and medium roots; common fine tubular pores; 40 percent pebbles, 5 percent cobbles; neutral (pH 7.3); clear wavy boundary.

BA--6 to 15 inches; dark brown (10YR 4/3) very gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine, common fine and medium roots; common fine tubular pores; 35 percent pebbles, 5 percent cobbles; neutral (pH 7.3); gradual wavy boundary.

Bt1--15 to 27 inches; dark brown (10YR 4/3) very gravelly clay loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine, fine and medium roots; common fine tubular pores; common thin clay films on faces of peds and lining pores; 45 percent pebbles, 5 percent cobbles; neutral (pH 7.3); clear wavy boundary.

Bt2--27 to 57 inches; brown (7.5YR 4/4) very gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine, fine and medium roots; common fine tubular pores; many moderately thick clay films on faces of peds; 45 percent pebbles, 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

2R--57 inches; fractured bedrock.

Type location: Humboldt County, Nevada; in the Bilk Creek Mountains approximately 1 mile southeast of House Creek Butte, about 2,200 feet south and 1,300 feet east of the northwest corner of section 15, T.46 N., R.32 E.; (41 degrees, 52 minutes, 10 seconds north latitude and 118 degrees, 22 minutes, 37 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and early summer, dry late July to early October. Additional soil moisture may be supplied by lateral water movement in the lower part of the profile.

Soil temperature: 43 to 47 degrees, F.

Mollic epipedon thickness: 20 to 40 inches and may include the upper part of the argillic horizon.

Profile reaction: Slightly acid through slightly alkaline.

Other features: Some pedons have a C horizon that is below 40 inches.

Depth to bedrock: 40 to 80 inches.

Control section:

Clay content--25 to 35 percent.

Rock fragments--35 to 55 percent, mainly pebbles with some cobbles.

A horizons:

Value-- 3 through 5 dry, 2 or 3 moist.

Chroma--1 through 3.

Other features--Organic matter 2 to 6 percent.

Bt horizons:

Hue--7.5YR or 10YR.

Value--4 through 6 dry, 2 through 4 moist.

Chroma--2 through 6.

Texture--Very gravelly loam or very gravelly clay loam, very gravelly sandy clay loam.

Clay content--25 to 35 percent.

Rock fragments--35 to 55 percent, mainly pebbles.

Structure--Fine through coarse subangular blocky or angular blocky.

Consistence--Slightly sticky or sticky and slightly plastic or plastic, wet.

Other features--Uncoated sand grains and few silt coats lining pores occur in some pedons. Some pedons have few distinct mottles or manganese stains on pebbles.

Ceejay Series

The Ceejay series consists of shallow, well drained soils that formed in residuum weathered from basalt. Ceejay soils are on backslopes and shoulders of plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees F.

Taxonomic class: Clayey, montmorillonitic, mesic Lithic Xeric Haplargids

Typical pedon: Ceejay stony loam, 4 to 30 percent slopes, in map unit 1400, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with approximately 2 percent stones, 5 percent cobbles, and 20 percent pebbles.

A1--0 to 3 inches; light brownish gray (10YR 6/2) stony loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine vesicular and common very fine tubular pores; 25 percent pebbles and 2 percent stones; neutral (pH 7.0); clear smooth boundary.

A2--3 to 5 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular and

interstitial pores; 15 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1--5 to 11 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure parting to strong fine and medium angular blocky; hard, friable, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds; 5 percent cobbles, 20 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt2--11 to 16 inches; brown (7.5YR 5/4) gravelly clay loam, brown (7.5YR 4/4) moist; moderate fine prismatic structure parting to moderate fine angular blocky; hard, friable, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 20 percent pebbles, 5 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.

R--16 to 20 inches; hard basalt, fractured in some areas. Thin lime and silica coatings in rock fractures.

Type location: Humboldt County, Nevada; in an unsurveyed area; T.41 N., R.24 E.; (41 degrees, 26 minutes, 35 seconds north latitude and 119 degrees, 18 minutes, and 44 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, dry in the summer and fall, moist in winter and spring; aridic moisture regime that borders on xeric.

Soil temperature: 54 to 59 degrees F.

Depth to bedrock: 14 to 20 inches to a lithic contact.

Reaction: Neutral to moderately alkaline.

Control section:

Clay content--35 to 45 percent;

Rock fragments--Averages 15 to 30 percent, mainly pebbles and cobbles.

A horizons:

Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Bt horizons:

Hue--7.5YR or 10YR.

Value--4 or 5, dry or moist.

Chroma--3 or 4, dry or moist.

Texture--Clay loam or clay.

Clay content--35 to 45 percent.

Rock fragments--Averages 15 to 30 percent, mainly pebbles and cobbles.

Structure--Prismatic parting to platy or angular blocky.

Consistence--Slightly hard or extremely hard, moderately sticky or very sticky and moderately plastic or very plastic.

Other features--Lime coatings may be absent on bedrock in some pedons.

Cleavage Series

The Cleavage series consists of shallow, well drained soils that formed in residuum and colluvium from igneous and sedimentary rocks. Cleavage soils are on mountain. Slopes are 8 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical pedon: Cleavage extremely gravelly loam, 8 to 30 percent slopes located in map unit 189. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 60 percent pebbles and 5 percent with cobbles.

A--0 to 7 inches; dark grayish brown (10YR 4/2) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; 60 percent pebbles, 5 percent cobbles, slightly alkaline (pH 7.4); clear smooth boundary.

Bt--7 to 15 inches; brown (10YR 5/3) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; many very fine tubular pores; 30 percent pebbles, 25 percent cobbles; common thin clay films on faces of peds; slightly alkaline (pH 7.6); abrupt smooth boundary.

R--15 inches; fractured bedrock.

Type location: Humboldt County, Nevada; approximately 0.5 mile northeast of Knott Creek Reservoir in the Pine Forest Range about 1,600 feet north and 600 feet east of the southwest corner of section 4, T.43 N., R.28 E.; (41 degrees, 40 minutes, 47 seconds north latitude and 118 degrees, 47 minutes, 00 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from July through October for 70 to 120 consecutive days.

Soil temperature: 44 to 47 degrees, F. and ranges down to 39 degrees, F. in parts of Idaho.

Mollic epipedon thickness: 7 to 10 inches, does not include Bt horizon.

Depth to bedrock: 14 to 20 inches.

Control section:

Clay content--20 to 35 percent.

Rock fragments--50 to 80 percent, mostly pebbles or cobbles.

Reaction--Neutral or slightly alkaline.

A horizon:

Value-- 4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizon:

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Very cobbly, extremely cobbly, very gravelly or extremely gravelly clay loam, very gravelly sandy clay loam, some pedons have very cobbly or very gravelly loam.

Structure--Subangular blocky or angular blocky or it is massive.

Consistence--Very friable to firm, moist, slightly hard to hard dry, slightly sticky or sticky and slightly plastic or plastic wet.

Cleaver Series

The Cleaver series consists of shallow over a duripan, well drained soils formed in alluvium from basic igneous rocks. Cleaver soils are on fan piedmont remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 51 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow Typic Durargids

Typical pedon: Cleaver very stony sandy loam, 2 to 8 percent slopes, located in map unit 102. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent stones, 05 percent cobbles, and 25 percent pebbles.

A1--0 to 4 inches; pale brown (10YR 6/3) very stony sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 25 percent pebbles, 5 percent cobbles; 10 percent

stones; slightly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2--4 to 8 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bt--8 to 13 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine, few medium roots; common very fine tubular pores; continuous thin clay bridges; 15 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.4) clear wavy boundary.

Bqkm1--13 to 19 inches; white indurated duripan broken in places by krotovinas; very strongly effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bqkm2--19 to 23 inches; white strongly cemented duripan; violently effervescent; strongly alkaline (pH 9.0)

Type location: Humboldt County, Nevada; approximately 30 miles north of Gerlach, about 2,250 feet south and 2,000 feet east of the projected northwest corner of section 17, T.36 N., R.24 E.; (41 degrees, 00 minutes, 45 seconds north latitude and 119 degrees, 16 minutes, 50 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist winter and early spring, dry from late April through early December.

Soil temperature: 54 to 57 degrees, F.

Depth to the indurated duripan: 10 to 20 inches.

A horizons:

Secondary lime accumulation--The upper few inches are commonly calcareous due to recharge from dust.

Reaction--Neutral to strongly alkaline.

Chroma--1 through 3.

Rock fragments--0 to 50 percent, mainly pebbles.

Other features--Some pedons commonly have a varnished desert pavement.

Bt horizons:

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 3 through 5 moist.

Chroma--3 through 5.

Texture--Gravelly loam, gravelly clay loam with subhorizons of gravelly clay common in some pedons.

Structure--Weak or moderate; subangular blocky, prismatic or massive.

Clay content--25 to 35 percent.

Rock fragments--15 to 35 percent.

Reaction--Neutral to moderately alkaline.

Other features--In some pedons transitional Bt horizons with sandy loam, fine sandy loam, loam or clay loam containing few or no pebbles are common in the upper part of the argillic horizon and from 15 to 40 percent pebbles and cobbles in the lower part.

Clementine Series

The Clementine series consists of very deep, poorly drained soils that formed in alluvium from mixed rock sources with influence from loess. Clementine soils are on flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Fine-silty, mixed, mesic Cumulic Endoaquolls

Typical pedon: Clementine silt loam, 0 to 2 percent slopes, located in map unit 1081. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and coarse and common fine and medium roots; common very fine interstitial and vesicular pores; slightly alkaline (pH 7.4); abrupt wavy boundary.

A2--3 to 9 inches; gray (10YR 5/1) silt loam, black (10YR 2/1) moist; moderate coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine, fine and medium and common coarse roots; common very fine and few fine and medium tubular pores; slightly alkaline (pH 7.6); abrupt wavy boundary.

A3--9 to 17 inches; gray (10YR 5/1) silt loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and medium and common fine roots; common very fine and few fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Ak--17 to 24 inches; gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; few fine distinct dark brown (7.5YR 3/2) mottles; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine and few fine interstitial and tubular pores; few fine rounded soft lime masses; slightly alkaline (pH 7.6); clear wavy boundary.

Bk1--24 to 29 inches; light brownish gray (10YR 6/2) silty clay loam, dark brown (10YR 3/3) moist; common fine distinct dark brown (7.5YR 3/4) and pale yellow (2.5Y 7/4) mottles; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine and few fine tubular pores; common fine generally rounded soft lime masses; slightly alkaline (pH 7.6); clear wavy boundary.

Bk2--29 to 41 inches; gray (10YR 5/1) silty clay loam, very dark grayish brown (10YR 3/2) moist; common fine distinct dark yellowish brown (10YR 4/4) mottles, weak medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; few very fine and fine tubular pores; few fine lime filaments; noneffervescent matrix; moderately alkaline (pH 8.4); clear smooth wavy boundary.

Bk3--41 to 60 inches; light brownish gray (2.5Y 6/2) clay loam, dark brown (10YR 4/3) moist; common fine distinct yellow (2.5Y 7/6) and dark brown (7.5YR 3/2) mottles; massive; hard, friable, sticky and plastic; few very fine roots; few very fine and fine tubular pores; few fine lime filaments; noneffervescent matrix; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada, on the Paiute Meadows Ranch, about 800 feet east and 1,000 feet north of the projected southwest corner of section 8, T.39 N., R.27 E.; (41 degrees, 17 minutes, 42 seconds north latitude and 118 degrees, 55 minutes, 34 seconds west longitude.)

Range in Characteristics:

Soil moisture: Saturated at or near the surface for one month or more during February through July.

Drained phases are recognized.

Soil temperature: 47 to 53 degrees, F.

Mollic epipedon thickness: 24 to 30 inches.

Depth to carbonates: 12 to 40 inches.

Other features: Few to common, fine, redox concentrations occur below depths of 12 inches.

Control section:

Clay content--25 to 35 percent.

A horizons:

Value--4 or 5 dry, 2 or 3 moist.
 Chroma--1 through 3 dry or moist.
 Reaction--Neutral to strongly alkaline.

Bk horizons:

Hue--10YR or 2.5Y.
 Value--5 through 7 dry, 3 through 5 moist.
 Chroma--1 through 3 dry or moist.
 Texture--Stratified silt loam or silty clay loam. Strata of loam or clay loam are below depths of 40 inches in some pedons.
 Structure--Subangular blocky or is massive.
 Consistence--Friable or firm, moist, slightly sticky or sticky, wet.
 Reaction--Moderately alkaline or strongly alkaline.
 Other features--Few fine manganese stains are on peds in most pedons.

Coppereid Series

The Coppereid series consists of very shallow, well drained soils formed in residuum weathered from shale. Coppereid soils are on mountain back slopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical pedon: Coppereid gravelly loam, 15 to 50 percent slopes located in map unit 452. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; 20 percent hard pebbles; 15 percent soft fragments; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--2 to 9 inches; grayish brown (10YR 5/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine, fine and medium roots; common very fine tubular pores; 15 percent hard pebbles; 15 percent soft fragments; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Cr--9 inches; highly weathered soft bedrock.

Type location: Humboldt County, Nevada; approximately 9.5 miles northwest of Jungo, about 1,700 feet south and 1,300 feet east of the northwest corner of section 20, T.36 N., R.31 E.; (40 degrees, 58 minutes, 58 seconds north latitude and 118 degrees, 32 minutes, 16 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, dry in summer and fall, moist in winter and early spring.

Soil temperature: 53 to 57 degrees, F.

Depth to paralithic contact: 5 to 10 inches.

Reaction: Moderately alkaline to strongly alkaline.

Control section:

Carbonates--Calcareous throughout; 5 to 15 percent calcium carbonate by weight of the less than 20 millimeter fraction.

Clay content--10 to 18 percent.

Rock fragments--15 to 35 percent hard pebbles with 15 to 30 percent soft platy pebbles.

A horizons:

Hue--2.5Y or 10YR.

Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Cresal Series

The Cresal series consists of very deep, well drained soils that formed in loess high in volcanic ash over lacustrine sediments. Cresal soils are on basin-floor remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 51 degrees, F.

Taxonomic class: Coarse-silty, mixed (calcareous), mesic Durorthic Torriorthents

Typical pedon: Cresal silt loam, 0 to 2 percent slopes, located in map unit 202. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; moderate thin platy structure; slightly hard, very friable; slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2--2 to 5 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; strong thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many fine and medium vesicular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk--5 to 14 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; moderate thin platy structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine and medium vesicular pores; weak silica cementation; common thin lime seams; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bqk--14 to 23 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; common fine distinct strong brown (7.5YR 5/6) relict mottles; weak thin platy structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 25 percent durinodes; few thin lime seams; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2C1--23 to 46 inches; light brownish gray (2.5Y 6/2) silt loam, grayish brown (2.5Y 5/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; thin layers of volcanic ash; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2C2--46 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, grayish brown (2.5Y 5/2) moist; common fine distinct strong brown (7.5YR 5/6) relict mottles; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine tubular pores; violently effervescent; strongly alkaline (pH 8.6)

Type location: Humboldt County, Nevada; approximately 4 miles southwest of Jungo, about 1,650 feet east and 200 feet south of the projected northwest corner of section 32, T.35 N., R.32 E.; (40 degrees, 52 minutes, 14 seconds north latitude and 118 degrees, 25 minutes, 06 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in the winter and spring, dry May through early November.

Soil temperature: 53 to 57 degrees, F.

Depth to the Bqk horizon: 4 to 9 inches.

Depth to lacustrine sediments: 10 to 20 inches.

Profile reaction: Moderately alkaline or strongly alkaline.

Control section:

Clay content--8 to 15 percent.

Other features--Fine filaments and soft masses of gypsum are below 10 inches in some pedons.

A horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Bqk horizons:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 or 5 moist.

Chroma--2 or 3.

Texture--Stratified silt loam and very fine sandy loam.

Clay content--8 to 15 percent.

Structure--Prismatic, platy or is massive.

Consistence--Slightly hard, hard or very hard dry, very friable, friable or firm moist.

Relict mottles--None to common in any subhorizon.

Cementation--The upper subhorizon is very weakly cemented with silica coats and bridges on ped surfaces and commonly contains durinodes.

Some subhorizon within 20 inches, has 20 to 40 percent weak or moderately strong durinodes.

Sodicity--Slightly to strongly sodic affected.

2C horizons:

Hue--10YR or 2.5Y dry or moist, moist hue of 5Y is common in some pedons.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture--Stratified silt loam and very fine sandy loam.

Thin lenses of very fine sand or loamy very fine sand and volcanic ash are common in any subhorizon.

Clay content--8 to 18 percent.

Rock fragments--Up to 5 percent pebbles are common in any subhorizon.

Structure--Platy or it is massive.

Consistence--Soft to hard dry, very friable or friable, moist; nonsticky or slightly sticky, wet.

Sodicity--Slightly to strongly sodic affected.

Other features--Some pedons commonly have a strata of silty clay loam below a depth of 40 inches.

Croesus Series

The Croesus series consists of moderately deep, well drained soils that formed in residuum and colluvium from rhyolite. Croesus soils are on mountain backslopes. Slopes are 30 to 75 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 42 degrees, F.

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborolls

Typical pedon: Croesus extremely stony loam, 30 to 50 percent slopes located in map unit 620. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent pebbles, 10 percent cobbles, and 20 percent with stones.

A1--0 to 10 inches; dark grayish brown (10YR 4/2) extremely stony loam, very dark brown (10YR 2/2) moist; strong fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; 20 percent stones, 30 percent pebbles and 10 percent cobbles; neutral (pH 7.0); gradual wavy boundary.

A2--10 to 22 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; 45 percent pebbles; neutral (pH 7.2); gradual wavy boundary.

A3--22 to 29 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots in fractures; many very fine interstitial pores; 50 percent pebbles; slightly alkaline (pH 7.6); abrupt wavy boundary.

R--29 inches; rhyolite bedrock.

Type location: Humboldt County, Nevada; approximately 11 miles east of Denio, about 2,250 feet east and 250 feet south of the northwest corner of section 5, T.47 N., R.32 E.; (41 degrees, 59 minutes, 43 seconds north latitude and 118 degrees, 24 minutes, 48 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist in winter, spring, and early summer; dry 60 to 90 consecutive days from August to October; xeric moisture regime that borders on aridic.

Soil temperature: 42 to 45 degrees F.

Summer soil temperature: 52 to 59 degrees F.

Mollic epipedon thickness: 20 to 40 inches.

Depth to bedrock: 20 to 40 inches to a lithic contact.

Control section:

Clay content--10 to 18 percent.

Rock fragments--40 to 70 percent, mainly pebbles.

Lithology of fragments varies by survey area.

A1 horizon:

Hue--7.5YR or 10YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--1 through 3, dry or moist.

Reaction--Slightly acid or neutral.

A2 and A3 horizons:

Hue--7.5YR or 10YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--1 through 3, dry or moist.

Texture--Very gravelly loam, very gravelly sandy loam, very gravelly very fine sandy loam, extremely gravelly loam, or extremely gravelly fine sandy loam.

Reaction--Slightly acid to moderately alkaline.

Other features--Some pedons lack secondary carbonate coats on bottom of rock fragments in the lower subhorizons. Calcium carbonate equivalent ranges from 0 to 1 percent.

Davey Series

The Davey series consists of very deep, somewhat excessively drained soils that formed in alluvium from mixed rock sources. Davey soils are on sand sheets. Slopes are 0 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Sandy, mixed, mesic Xerollic Camborthids

Typical pedon: Davey loamy fine sand, 2 to 4 percent slopes located in map unit 875. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; neutral (pH 6.8); abrupt wavy boundary.

Bw--4 to 16 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine and medium roots; few very fine interstitial pores; neutral (pH 7.2); clear smooth boundary.

Ck--16 to 60 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; single grain, loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; few thin lime filaments; strongly effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; approximately 4 miles northeast of Quinn River Crossing, about 2,000 feet south and 700 feet east of the northwest corner of section 10, T.43 N., R.32 E.; (41 degrees, 36 minutes, 57 seconds north latitude and 118 degrees, 23 minutes, 05 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring; dry May through October.

Soil temperature: 47 to 53 degrees, F.

Thickness of A and Bw horizons: 11 to 23 inches.

Depth to lime: 0 to 30 inches.

Control section:

Clay content--5 to 10 percent.

Rock fragments--Up to 30 percent in any one horizon but average is less than 15 percent.

Gypsum--Gypsum crystals are below a depth of 20 inches in some pedons.

Cementation--Continuous weak or strong silica cemented horizons are below a depth of 50 inches in some pedons.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry (greater than 5.5 when the surface 7 inches are mixed), 3 through 6 moist.

Chroma--1 through 3.

Reaction--Neutral or slightly alkaline.

Bw horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 through 4.

Texture--Fine sandy loam or sandy loam, some pedons have subhorizons that are gravelly sandy loam.

Structure--Prismatic, subangular blocky or it is massive.

Reaction--Neutral to moderately alkaline.

Ck horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture--Fine sand, loamy fine sand, loamy sand, but thin strata of fine sandy loam or coarse sand are in some pedons.

Reaction--Slightly alkaline to strongly alkaline.

Effervescence--Slightly effervescent to violently effervescent in the Ck horizon. Segregated lime

occur as few or common filaments or as partial coats on rock fragments, or lime is disseminated.

Cementation--Up to 10 percent weakly cemented durinodes are below a depth of 20 inches in some pedons.

Mottles--Relict mottles occur below 40 inches in some pedons.

Other features--Unconformable very fine sandy loam or silt loam strata occur below a depth of 40 inches in some pedons.

Deadyon Series

The Deadyon series consists of very deep, well drained soils that formed in alluvium derived mainly from granite. Deadyon soils are on inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Xerollic Haplargids

Typical pedon: Deadyon sandy loamy, 0 to 2 percent slopes, located in map unit 410. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, very friable; slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; moderately alkaline (pH 8.0); clear smooth boundary.

A2--2 to 5 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine vesicular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1--5 to 8 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; common very fine tubular pores; few thin clay films lining pores and bridging mineral grains; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bt2--8 to 15 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable; slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; few thin clay films lining pores and bridging mineral

grains; 5 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

C--15 to 33 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; massive, soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine tubular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Ck1--33 to 48 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; massive, very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; 20 percent pebbles; strongly effervescent; few fine lime filaments; moderately alkaline (pH 8.4); clear smooth boundary.

3Ck2--48 to 60 inches; yellowish brown (10YR 5/4) gravelly loamy coarse sand, dark yellowish brown (10YR 4/4) moist; single grain, loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent pebbles; strongly effervescent; segregated soft lime masses; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 1.5 miles southeast of Denio summit, about 2,500 feet west and 500 feet south of the northeast corner of section 24, T.46 N., R.30 E.; (41 degrees, 51 minutes, 20 seconds north latitude and 118 degrees, 34 minutes, 19 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and early spring, dry from June through October.

Soil temperature: 47 to 53 degrees, F.

Depth to 2Ck horizons: 20 to 40 inches.

Depth to the base of the argillic horizon: 15 to 30 inches.

A horizons:

Hue--10YR or 2.5Y.

Value--5 or 6 dry and 3 or 4 moist, when the upper 7 inches is mixed, the value is lighter than 5.5 dry.

Chroma--2 or 3.

Consistence--Soft or slightly hard dry.

Reaction--Neutral through moderately alkaline.

Bt horizons:

Value-- 4 through 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Loam, sandy loam, coarse sandy loam.

Clay content--12 to 18 percent.

Rock fragments--5 to 15 percent, mainly fine pebbles.

Structure--Weak or moderate subangular blocky or is massive.

Consistence--Soft or slightly hard dry, very friable or friable moist.

Reaction--Slightly alkaline or moderately alkaline.

Clay films--Few or common on faces of peds, bridging mineral grains or lining pores.

C horizon:

Chroma--3 or 4.

Texture--Loam, sandy loam, coarse sandy loam.

Clay content--3 to 8 percent.

Rock fragments--5 to 15 percent, mainly fine pebbles.

Structure--Platy, or horizon is massive.

Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or nonsticky wet.

Reaction--Slightly alkaline or moderately alkaline.

Ck horizons:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--3 or 4.

Texture--Stratified sandy loam through gravelly coarse sand.

Clay content--Averages 3 to 7 percent.

Rock fragments--Averages 15 to 35 percent, mainly fine pebbles; subhorizons contain from 5 to 60 percent.

Structure--Platy or horizon is massive or single grained.

Consistence--Loose, soft or slightly hard dry, loose or very friable moist; nonsticky or slightly sticky wet.

Reaction--Moderately alkaline or strongly alkaline.

Carbonates--Noneffervescent through strongly effervescent.

Segregated lime--Few or common fine lime filaments or soft lime masses in the lower part.

Denio Series

The Denio series consists of very deep, somewhat excessively drained soils that formed in alluvium dominantly from granitic rocks. Denio soils are on barrier beaches. Slopes are 0 to 4 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Sandy-skeletal, mixed, mesic Xeric Torriorthents

Typical pedon: Denio gravelly sandy loam, 0 to 4 percent slopes, located in map unit 670. (Colors are

for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; weak fine platy structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine tubular pores; 20 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

C1--3 to 16 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine tubular pores; 30 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

2C1--16 to 28 inches; yellowish brown (10YR 5/4) very gravelly loamy coarse sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

2C2--28 to 60 inches; yellowish brown (10YR 5/6) extremely gravelly coarse sand, dark yellowish brown (10YR 4/6) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 70 percent pebbles; moderately alkaline (pH 8.0).

Type location: Humboldt County, Nevada; approximately 16 miles south of Denio Junction, about 2,000 feet west and 500 feet south of the northeast corner of section 5, T.44 N., R.31 E.; (41 degrees, 43 minutes, 23 seconds north latitude and 118 degrees, 31 minutes, 47 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and early spring; dry from June through November.

Soil temperature: 50 to 52 degrees, F.

Profile reaction: Slightly alkaline or moderately alkaline.

Control section:

Clay content--3 to 7 percent.

Rock fragments--Averages 35 to 60 percent, mainly fine pebbles, 2 to 5 millimeters.

A horizon:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 or 3.

Consistence--Soft or slightly hard, dry.

C horizon:

Value--4 or 5 moist.

Chroma--3 or 4.

Clay content--5 to 8 percent.

Rock fragments--15 to 30 percent, mainly fine, 2 to 5 millimeter pebbles.

Structure--Platy or is massive.

Texture--Averages very gravelly loamy coarse sand through very gravelly coarse sand.

2C horizons:

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 through 6 dry or moist.

Texture--Very gravelly loamy coarse sand through extremely gravelly coarse sand.

Clay content--2 to 5 percent.

Rock fragments--40 to 70 percent, mainly fine 2 to 5 millimeters pebbles.

Structure--Single grain or is massive.

Consistence--Slightly hard or loose dry, very friable or loose moist.

Other features--Some pedons have many thin strata of loamy sand.

Deppy Series

The Deppy series consists of shallow over a duripan, well drained soils that formed in alluvium. Deppy soils are on fan remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow Haplic Durargids

Typical pedon: Deppy very cobbly loam, 2 to 8 percent slopes, located in map unit 240. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent pebbles and 25 percent cobbles.

A1--0 to 1 inch; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 25 percent cobbles, 15 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2--1 to 3 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine vesicular pores; 25 percent cobbles, 15 percent

pebbles; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bt--3 to 9 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable; slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; common thin clay films on faces of peds and lining pores; 5 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bqkm--9 to 21 inches; very pale brown (10YR 7/3) strongly cemented duripan; massive; very hard, very firm; few very fine roots in fracture planes; common very fine interstitial pores between laminae; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

2Ck1--21 to 25 inches; light gray (10YR 7/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 50 percent pebbles, 5 percent cobbles; disseminated lime; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Ck2--25 to 47 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine interstitial pores; 30 percent durinodes; violently effervescent, disseminated lime; 30 percent pebbles; strongly alkaline (pH 8.5); clear smooth boundary.

2Ck3--47 to 60 inches; very pale brown (10YR 7/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine and fine interstitial pores; violently effervescent, disseminated lime; 25 percent pebbles; strongly alkaline (pH 8.5).

Type location: Humboldt County, Nevada; approximately 4 miles east of Denio; about 450 feet south and 150 feet east of the center of section 6, T.47 N., R.31 E.; (41 degrees, 59 minutes, 06 seconds north latitude and 118 degrees, 32 minutes, 55 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist winter and early spring.

Soil temperature: 47 to 49 degrees.

Depth to duripan: 10 to 20 inches.

Control section:

Clay content--27 to 35 percent.

Rock fragments--0 to 15 percent, mainly pebbles.

A horizons:

Value--6 or 7 dry and 4 or 5 moist.

Chroma--2 through 4 moist and dry. It has 0.3 to 0.5 percent organic matter.

Bt horizon:

Value--6 or 7 dry; 3 or 4 moist.

Chroma--2 through 5 dry; 2 through 6 moist.

Other features--Some pedons have a firm brittle layer below the Bt horizon.

2C horizons:

Rock fragments--25 to 55 percent, dominantly gravel.

Reaction--It is moderately or strongly alkaline.

Devada Series

The Devada series consists of shallow, well drained soils that formed in residuum weathered dominantly from volcanic rock with additions of loess and volcanic ash. Devada soils are on plateaus and mountain backslopes. Slopes are 2 to 50 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Clayey, montmorillonitic, mesic Lithic Argixerolls

Typical pedon: Devada very stony loam, 4 to 50 percent slopes, located in map unit 180. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 5 percent pebbles, 5 percent cobbles, and 5 percent stones.

A1--0 to 3 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 5 percent pebbles, 5 percent cobbles, 5 percent stones; neutral (pH 7.0); abrupt smooth boundary.

A2--3 to 5 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and plastic; many very fine and few fine roots; many very fine interstitial pores; 5 percent pebbles, 5 percent cobbles, 10 percent stones; neutral (pH 7.0); abrupt smooth boundary.

Bt1--5 to 14 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure; hard, firm, very sticky and very plastic;

common very fine, fine and medium roots; few fine tubular pores; 5 percent pebbles, 2 percent stones; common thin clay films on faces of pedis; neutral (pH 7.0); abrupt smooth boundary.

Bt2--14 to 19 inches; pale brown (10YR 6/3) clay, dark brown (10YR 4/3) moist, moderate, fine, subangular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; few fine tubular pores, many moderately thick clay films on faces of pedis; neutral (pH 7.0); abrupt irregular boundary.

R--19 inches; unweathered basalt.

Type location: Humboldt County, Nevada; approximately 14 miles southwest of Denio Junction, about 2,000 feet east and 700 feet north of the southwest corner of section 2, T.44 N., R.29 E.; (41 degrees, 46 minutes, 02 seconds north latitude and 118 degrees, 41 minutes, 50 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer through late fall.(Aridic)

Soil temperature: 47 to 53 degrees.

Mollic epipedon: 7 to 20 inches thick, includes all or part of the argillic horizon.

Combined thickness of A and Bt horizons: 12 to 20 inches.

Depth to bedrock: 12 to 20 inches.

Other features: Some pedons have thin E or E/B horizons.

Control section:

Clay content--40 to 60 percent.

Rock fragments--0 to 30 percent, mainly pebbles.

A horizons:

Value--4 or 5 dry, 2 or 3 moist. Some pedons have a thin surface layer with value of 6 dry, but when the upper 7 inches are mixed, value is less than 5.5 dry.

Chroma--2 or 3.

Reaction--Slightly acid to slightly alkaline.

Bt horizons:

Hue--5YR, 7.5YR, or 10YR.

Value--4 through 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Dominantly clay or gravelly clay, commonly with thin subhorizons of clay loam.

Structure--Prismatic, angular blocky, subangular blocky.

Consistence--Slightly hard to very hard, dry; sticky to very sticky, wet.

Reaction--Neutral or slightly alkaline.

Other features--Some pedons have thin silica coats on peds and rock fragments in the lower part of the Bt horizon.

Dorper Series

The Dorper series consists of very deep, well drained soils that formed in alluvium from mixed rock sources with a component of loess and volcanic ash. Dorper soils are on fan piedmont remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Fine, montmorillonitic, mesic Duric Natrargids

Typical pedon: Dorper stony very fine sandy loam, 2 to 8 percent slopes located in map unit 463. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent pebbles and 1 percent stones.

A1--0 to 2 inches; pale brown (10YR 6/3) stony very fine sandy loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and slightly plastic; few very fine roots, common fine roots; common fine vesicular pores; 25 percent pebbles; 1 percent stones; moderately alkaline (pH 8.2); clear smooth boundary.

A2--2 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and slightly plastic; few very fine and common fine roots; common very fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

E--4 to 7 inches; light gray (10YR 7/2) silt loam, pale brown (10YR 6/3) moist; strong thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; 5 percent pebbles; violently effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

2Btk1--7 to 12 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure; hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; common thin clay films on faces of pedis; 5 percent pebbles; few fine lime filaments; slightly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

2Btk2--12 to 17 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4)

moist; moderate fine prismatic structure; hard, firm, very sticky and very plastic; few very fine and common fine roots; few very fine tubular pores; many thin clay films on faces of peds; 15 percent pebbles; common fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

3Bqk--17 to 25 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and common fine roots; few very fine tubular pores; 30 percent weakly cemented durinodes; 65 percent pebbles, 5 percent cobbles; lime coatings on all sides of rock fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

4Bk--25 to 60 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; 45 percent pebbles, 5 percent cobbles; lime coatings on all sides of rock fragments; violently effervescent; moderately alkaline (pH 8.0).

Type location: Humboldt County, Nevada; approximately 8 miles west of Jungo about 650 feet south and 2,000 feet east of the northwest corner of section 25, T.35 N., R.30 E.; (40 degrees, 53 minutes, 00 seconds north latitude and 118 degrees, 34 minutes, 12 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and early spring, dry late May through November.

Soil temperature: 53 to 57 degrees, F.

Depth to the base of the natric horizon: 10 to 20 inches.

Depth to the Bqk horizon: 10 to 20 inches.

Depth to segregated lime: 4 to 18 inches.

Profile reaction: Moderately alkaline or strongly alkaline.

A horizon:

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Consistence--Soft or slightly hard dry, very friable or friable moist.

Effervescence--Varies from noneffervescent to violent, this is a result of eolian surface recharge of lime.

Btk horizons:

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 through 6.

Texture--Clay or gravelly clay loam.

Clay content--35 to 45 percent.

Rock fragments--5 to 25 percent, mainly pebbles.

Structure--Prismatic, although some pedons are massive when moist.

SAR--13 to 40.

Carbonates--The upper Btk subhorizon matrix is noneffervescent to slightly effervescent, with none to few lime filaments or soft masses of lime. The lower Btk subhorizon matrix is slightly effervescent or strongly effervescent and has common or many, lime in filaments or soft masses.

Gypsum--Some pedons have few fine filaments in the lower Btk subhorizon.

Bqk horizon:

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 through 4.

Texture--Extremely gravelly sandy loam or very gravelly coarse sandy loam.

Clay content--8 to 15 percent.

Rock fragments--40 to 75 percent, mainly pebbles.

Cementation--20 to 40 percent weak through strongly cemented durinodes in a friable matrix or has weak or strong discontinuous silica cementation with common thin discontinuous silica laminae; continuous weakly silica cemented strata are common below a depth of 40 inches in some pedons.

Other features--In some pedons, loamy coarse sand is common at some depth below 40 inches.

Dun Glen Series

The Dun Glen series consists of very deep, well drained soils that formed in mixed alluvium with a loess mantle high in volcanic ash. Dun Glen soils are on basin-floor remnants. Slopes are 0 to 4 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Typic Camborthids

Typical pedon: Dun Glen very fine sandy loam, 0 to 2 percent slopes, located in map unit 252. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; weak coarse platy structure; slightly hard, friable, nonsticky and

nonplastic; few very fine roots; many very fine, fine and medium vesicular pores; moderately alkaline (pH 8.4); clear wavy boundary.

Bw--5 to 11 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine tubular pores; moderately alkaline (pH 8.4); clear wavy boundary.

Bk1--11 to 20 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; few fine line filaments; strongly effervescent; moderately alkaline (pH 8.4) clear wavy boundary.

Bk2--20 to 33 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; few lime seams; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk3--33 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; common fine lime seams; violently effervescent; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 2 miles northwest of Quinn River Crossing, about 1,700 feet north and 400 feet west of the projected southeast corner of section 13, T.43 N., R.31 E.; (41 degrees, 35 minutes, 53 seconds north latitude and 118 degrees, 26 minutes, 47 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in the winter and spring, dry from late May through November.

Soil temperature: 47 to 53 degrees, F.

Other features: Up to 15 percent hard and firm durinodes are common in some pedons.

Control section:

Clay content--9 to 14 percent.

Rock fragments--Up to 10 percent, when mixed.

A horizon:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Reaction--Slightly alkaline or moderately alkaline.

Bw horizon:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Texture--Very fine sandy loam or silt loam.

Rock fragments--Up to 10 percent, mainly pebbles.

Structure--Angular or subangular blocky structure.

Consistence--Very friable or friable, moist, nonsticky to slightly sticky and nonplastic or slightly plastic, wet.

Reaction--Slightly alkaline or moderately alkaline.

Bk horizons:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture--Fine sandy loam, very fine sandy loam or loam with 15 to 35 percent fine sand or coarser; thin subhorizons of silt loam are in the upper part of some pedons.

Clay content--9 to 14 percent.

Rock fragments--5 to 30 percent, mainly pebbles.

Reaction--Moderately alkaline to very strongly alkaline.

SAR--13 to 45 percent.

Structure--Subangular blocky structure or is massive.

Consistence--Very friable or friable, moist.

Other features--Some pedons are underlain by gravel below 40 inches. 2C or 3C horizons may be present below 40 inches in some pedons.

Fax Series

The Fax series consists of moderately deep to a duripan, well drained soils formed in alluvium from andesite or quartzite. Fax soils are on fan piedmont remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Aridic Durixerolls

Typical pedon: Fax gravelly loam, 2 to 8 percent slopes, located in map unit 442. (Colors are for dry soil unless otherwise noted.) The soil is partially covered with 15 percent pebbles.

A--0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, friable, slightly sticky and slightly plastic; few fine roots; common very fine

and fine vesicular pores; 25 percent pebbles, 3 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1--4 to 8 inches; brown (10YR 5/3) very gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine through coarse roots; common very fine and fine tubular pores; 30 percent pebbles, 5 percent cobbles; few thin patchy clay films; slightly alkaline (pH 7.8); clear smooth boundary.

Bt2--8 to 12 inches; brown (10YR 5/3) very gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; common very fine through coarse roots; common very fine and fine tubular pores; 35 percent pebbles, 10 percent cobbles; few thin clay films lining pores; lower 2 inches is effervescent in spots; moderately alkaline (pH 8.0); clear wavy boundary.

Bk--12 to 22 inches; white (10YR 8/2) very gravelly sandy clay loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; 40 percent pebbles, 10 percent cobbles; violently effervescent; few fine soft lime masses; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bqkm--22 to 48 inches; very pale brown (10YR 7/3) strongly cemented duripan, brown (10YR 5/3) moist; very cobbly and stony; thin strata and pockets of very cobbly loamy coarse sand; few fine roots in sandy strata and pockets.

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation, about center of section 29, T.42 N., R.26 E.; (41 degrees, 31 minutes, 39 seconds north latitude and 119 degrees, 02 minutes, 10 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist late winter and spring, dry in summer and fall.

Soil temperature: 47 to 50 degrees, F.

Depth to the duripan: 20 to 36 inches.

Mollic epipedon thickness: 7 to 14 inches. Includes part or all of the Bt horizon.

Control section:

Clay content--20 to 35 percent.

Rock fragments--35 to 55 percent.

A horizon:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Reaction--Slightly alkaline or moderately alkaline.

Bt horizons:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Texture--Very cobbly or very gravelly sandy clay loam or clay loam.

Clay content--20 to 35 percent.

Rock fragments--30 to 55 percent pebbles, 0 to 30 percent cobbles, 0 to 10 percent stones.

Structure--Moderate fine and medium subangular blocky.

Consistence--Slightly hard to hard, dry.

Reaction--Slightly alkaline or moderately alkaline.

Bk horizon:

Value--7 or 8 dry, 5 or 6 moist.

Chroma--2 or 3.

Texture--Very gravelly or very cobbly sandy clay loam or coarse sandy loam.

Clay content--14 to 28 percent.

Rock fragments--40 to 60 percent total, 30 to 50 percent pebbles, 5 to 30 percent cobbles and 0 to 20 percent stones.

Structure--Massive or weak medium subangular blocky.

Other features--High in disseminated lime.

Frentera Series

The Frentera series consists of moderately deep, well drained soils that formed in colluvium weathered from volcanic rocks and volcanic ash. Frentera soils are on backslopes of hills and plateaus. Slopes are 15 to 50 percent. The mean annual precipitation is 13 inches and the mean annual temperature is 44 degrees, F.

Taxonomic class: Ashy frigid Vitrandic Haploxerolls

Typical pedon: Frentera loam, located in map unit 480, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky, nonplastic; many very fine through medium roots; many fine and very fine interstitial pores; 5 percent pebbles; neutral (pH 7.0); clear wavy boundary.

A2--3 to 10 inches; brown (10YR 4/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate fine

granular structure; soft, very friable, nonsticky and nonplastic; many very fine through medium roots; many fine and very fine interstitial pores; 25 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bw1--10 to 17 inches; dark brown (10YR 4/3) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many fine roots; few very fine tubular pores; 10 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bw2--17 to 33 inches; brown (10YR 5/3) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine and medium roots, many fine and very fine tubular pores; 25 percent pebbles; neutral (pH 7.0); clear wavy boundary.

R--33 hard fractured bedrock.

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation, near center of section 16, T.42 N., R.26 E.; (41 degrees, 32 minutes, 50 seconds north latitude and 119 degrees, 01 minute, 50 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist in winter and spring, dry June through October. They are warmer than 41 degrees, F. from April 15 to November 1, and dry after July 1.

Soil temperature: 44 to 47 degrees, F.

Control section:

Depth to bedrock--20 to 40 inches.

Mollic epipedon--10 to 20 inches thick.

Volcanic ash--30 to 60 percent volcanic ash.

Reaction--Neutral in the upper part and neutral to moderately alkaline in the lower part.

Clay content--12 to 18 percent.

Rock fragments--10 to 35 percent.

A horizons:

Value--2 or 3 moist.

Chroma--2 or 3 dry.

Bw horizons:

Value--3 or 4 moist.

Structure--Weak to moderate subangular blocky structure.

Texture--Loam and sandy loam.

Rock fragments--15 to 35 percent.

Fulstone Series

The Fulstone series consists of shallow over a duripan, well drained soils that formed in alluvium from mixed rocks. Fulstone soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 51 degrees, F.

Taxonomic class: Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids

Typical pedon: Fulstone gravelly loam, 2 to 8 percent slopes located in map unit 350. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent pebbles.

A--0 to 3 inches; light gray (10YR 6/1) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few medium, and many fine and very fine interstitial and vesicular pores; 15 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

Bt1--3 to 12 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; very hard, firm, very sticky and very plastic; few fine and very fine roots; common fine and very fine tubular pores; continuous pressure faces; neutral (7.0); abrupt wavy boundary.

Bt2--12 to 18 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and very plastic; few fine and very fine roots; common fine and very fine tubular pores; common moderately thick clay films lining pores; neutral (pH 7.0); abrupt wavy boundary.

Bkqm1--18 to 29 inches; light yellowish brown (10YR 6/4) with grayish brown (10YR 5/2) laminae, indurated duripan, brown (10YR 4/3) moist; very thick platy structure; extremely hard, extremely firm; root mat on surface; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bkqm2--29 to 60 inches; light yellowish brown (10YR 6/4) alternating weak and strongly silica-lime cemented layers, brown (10YR 4/3) moist; massive; very hard, very firm; strongly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation, about 4,400 feet west and 1,000 feet north of the southeast corner of section 30, T.42

N., R.26 E.; (41 degrees, 31 minutes, 20 seconds north latitude and 119 degrees, 03 minutes, 42 seconds west longitude.)

(Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 50 percent pebbles and 2 percent cobbles.

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from June through October.

Soil temperature: 47 to 53 degrees, F.

Depth to indurated duripan: 14 to 20 inches.

Other features: Some pedons have a thin Bt3 horizon with clay or clay loam textures.

Control section:

Clay content--45 to 60 percent.

Rock fragments--0 to 15 percent with individual horizon ranging to as high as 20 percent.

A horizon:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--1 through 3.

Reaction--Slightly acid to slightly alkaline.

Bt horizons:

Hue--7.5YR or 10YR.

Value--4 through 6 dry, 3 or 4 moist.

Chroma--2 through 6.

Structure--Prismatic, angular blocky, or subangular blocky.

Clay content--45 to 60 percent.

Rock fragments--Usually free of rock fragments, but some pedons average up to 20 percent pebbles or cobbles due to mixing by burrowing animals.

Reaction--Neutral through moderately alkaline.

Bqkm horizons:

Other features--Essentially continuously cemented, but broken in some places by burrowing animals.

Genegraf Series

The Genegraf series consists of very deep, well drained soils that formed in alluvium derived from mixed volcanic rocks. Genegraf soils are on fan remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 52 degrees, F.

Taxonomic class: Fine-loamy, mixed, mesic Duric Natrargids

Typical pedon: Genegraf very gravelly very fine sandy loam, 2 to 8 percent slopes located in map unit 345.

A--0 to 6 inches; light gray (10YR 7/2) very gravelly very fine sandy loam, brown (10YR 5/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine vesicular pores; 40 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

Btk1--6 to 10 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure; hard, friable, sticky and plastic; common very fine and fine, few medium roots; common very fine tubular pores; many moderately thick clay films on faces of peds; 15 percent pebbles; few fine lime filaments; thin lime coatings on undersides of rock fragments; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

Btk2--10 to 14 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure; hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 20 percent pebbles; many fine lime filaments; thin lime coatings on undersides of rock fragments; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bqk--14 to 23 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 40 percent pebbles; weak continuous silica cementation; lime coatings on rock fragments; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Bk--23 to 60 inches; light yellowish brown (10YR 6/4) very gravelly loamy sand, yellowish brown (10YR 5/4) moist; single grain, loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 50 percent pebbles; lime coatings on rock fragments; violently effervescent; very strongly alkaline (pH 9.2).

Type location: Humboldt County, Nevada; approximately 0.5 mile northeast of Mormon Dan Peak, about 2,250 feet east and 300 feet south of the projected northwest corner of section 32, T.36 N., R.25 E.; (40 degrees, 58 minutes, 27 seconds north latitude and 119 degrees, 09 minutes, 26 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist November to May, dry June to October; typic aridic moisture regime.

Soil temperature: 53 to 59 degrees, F.

Depth to base of natric horizon and continuous weak brittle matrix: 11 to 24 inches.

A horizon:

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3, dry or moist.

Effervescence--None to strongly effervescent in the upper part, slightly effervescent to violently effervescent in the lower part.

Reaction--Moderately alkaline or strongly alkaline.

Btk horizons:

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4, dry or moist.

Texture (less than 2 millimeter fraction)--Loam, clay loam, or sandy clay loam.

Clay content--25 to 35 percent.

Rock fragments--Averages 10 to 25 percent pebbles, usually increasing with depth.

Effervescence--Strongly effervescent or violently effervescent.

Reaction--Strongly alkaline or very strongly alkaline.

Calcium carbonate equivalent--5 to 10 percent.

Salinity (EC)--8 to 16 mmhos/cm.

Sodicity (SAR)--31 to 90.

Bqk and Bk horizons:

Value--6 through 8 dry, 5 or 6 moist.

Chroma--2 through 4, dry or moist.

Texture (less than 2 millimeter fraction)--Sandy loam, fine sandy loam, loamy sand, or loam. Thin Bqk horizons underlying the natric horizons of some pedons are gravelly clay loam.

Rock fragments--25 to 50 percent mainly pebbles, increasing with depth, with up to 60 percent in the lower horizons.

Cementation--Weak continuous brittle matrix in the upper Bqk subhorizon and weak continuous, weak discontinuous, or 0 to 30 percent weak to strongly cemented durinodes in the lower Bqk or Bk subhorizons.

Reaction--Moderately alkaline to very strongly alkaline.

Calcium carbonate equivalent--5 to 10 percent.

Salinity (EC)--8 to 32 mmhos/cm.

Sodicity (SAR)--31 to 45.

Goldrun Series

The Goldrun series consists of very deep, somewhat excessively drained soils that formed in eolian and lacustrine sands from mixed rocks. The Goldrun soils are on sand dunes. Slopes are 2 to 15 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Mixed, mesic Xeric Torripsamments

Typical pedon: Goldrun fine sand, 4 to 15 percent slopes, located in map unit 105. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; moderately alkaline (pH 8.2); clear smooth boundary.

C1--5 to 20 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable; few very fine, fine and medium roots; many very fine and fine interstitial pores; moderately alkaline (pH 8.2); clear wavy boundary.

C2--20 to 40 inches; light gray (10YR 7/2) fine sand, grayish brown (10YR 5/2) moist; massive; soft, very friable; few very fine and fine roots; many very fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

C3--40 to 60 inches; light brownish gray (10YR 6/2) fine sand, brown (10YR 5/3) moist; single grain; loose, very friable; few very fine roots; many very fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 2 miles east of Denio near Pueblo Slough, about 1,500 feet south of the northwest corner of section 2, T.47 N., R.30 E.; (41 degrees, 59 minutes, 23 seconds north latitude and 118 degrees, 36 minutes, 05 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry early June through October.

Soil temperature: 47 to 52 degrees.

Depth to lime: 17 to 35 inches.

Other features: Some pedons have horizons with less than 15 percent durinodes or weak discontinuous silica bridging mineral grains.

Control section:

Texture--Dominantly fine sand with strata of coarse sand, loamy sand or loamy fine sand common in some pedons.

Clay content--1 to 8 percent.

A horizon:

Reaction--Neutral to moderately alkaline.

C horizons:

Reaction--Neutral to strongly alkaline

Granshaw Series

The Granshaw series consists of very deep, well drained soils that formed in alluvium from granitic sources. Granshaw soils are on fan skirts. Slopes are 2 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Typic Haplargids

Typical pedon: Granshaw gravelly coarse sandy loam, 2 to 8 percent slopes in map unit 357. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) gravelly coarse sandy loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 20 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--2 to 7 inches; pale brown (10YR 6/3) coarse sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 5 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bt--7 to 13 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; common thin clay films on faces of peds; 5 percent pebbles; strongly alkaline (pH 8.8); clear smooth boundary.

Btk--13 to 25 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many

very fine tubular pores; thin clay bridges between sand grains; 10 percent pebbles; strongly effervescent; few fine soft masses of lime; strongly alkaline (pH 8.8); clear smooth boundary.

Bk--25 to 40 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles; few fine lime filaments; strongly effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

C--40 to 60 inches; pale brown (10YR 6/3) very gravelly loamy coarse sand, brown (10YR 4/3) moist; slightly hard, very friable; nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles; strongly alkaline. (pH 8.6)

Type location: Humboldt County, Nevada; approximately 2.5 miles east of Denio Junction, about 1,900 feet east and 1,800 feet north of the southwest corner of section 13, T.47 N., R.30 E.; (41 degrees, 56 minutes, 58 seconds north latitude and 118 degrees, 34 minutes, 26 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and early spring, dry late May through November; typic aridic moisture regime.

Soil temperature: 53 to 57 degrees, F.

Control section:

Clay content--10 to 17 percent

Rock fragments--0 to 15 percent dominantly fine pebbles, lithology of fragments is granitic rocks such as granite or granodiorite.

Depth to base of argillic horizon--11 to 25 inches.

Other features--In some pedons, a buried Bt horizon occurs below a depth of 40 inches.

A horizons:

Value--5 or 6 dry, 4 or 5 moist.

Chroma--2 or 3.

Reaction--Moderately alkaline or strongly alkaline.

Other features--The surface is noneffervescent or slightly effervescent. When effervescent, it is the result of eolian lime recharge.

Bt and Btk horizons:

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4.

Texture--Sandy loam or coarse sandy loam. Some pedons have thin subhorizons of loam or sandy clay loam.

Clay content--10 to 17 percent.
 Rock fragments--Averages 0 to 15 percent, dominantly fine pebbles.
 Reaction--Moderately alkaline or strongly alkaline.
 Identifiable secondary carbonates--Few or common fine bodies of segregated lime in filaments, seams, or coats on rock fragments.
 Effervescence--Noneffervescent in the upper part of the argillic horizon. Slightly effervescent to strongly effervescent in the lower part of the argillic horizon on bodies of segregated lime. The matrix of some pedons is noneffervescent.
 Calcium carbonate equivalent--1 to 5 percent.

Bk and C horizons:

Value--6 or 7 dry, 4 through 6 moist.
 Chroma--3 or 4.
 Texture--Stratified coarse sandy loam to very gravelly coarse sand.
 Clay content--2 to 8 percent.
 Rock fragments--Averages 5 to 35 percent, subhorizons range from 5 to 50 percent, mainly fine pebbles.
 Consistence--Slightly hard or hard dry, very friable or friable moist.
 Reaction--Moderately alkaline to very strongly alkaline.
 Identifiable secondary carbonates--Bk horizons have lime coats on undersides of pebbles and few or common fine filaments throughout the horizons or as small pockets within parts of the horizons.
 Effervescence--Bk horizons are slightly effervescent to strongly effervescent. C horizons are noneffervescent or slightly effervescent.
 Calcium carbonate equivalent--5 to 15 percent.

Grumblen Series

The Grumblen series consists of shallow, well drained soils that formed in residuum and colluvium derived from rhyolite, rhyolitic tuff, andesite and basalt. Grumblen soils are on hill and lower mountain backslopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 51 degrees, F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids

Typical pedon: Grumblen very gravelly loam, 15 to 50 percent slopes, located in map unit 360. (Colors are for dry soil unless otherwise noted.) The soil surface

is partially covered with 40 percent pebbles and 5 percent cobbles.

A1--0 to 1 inch; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; 35 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--1 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine roots; common very fine tubular pores; 15 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bt--3 to 9 inches; brown (7.5YR 5/4) very gravelly clay, dark brown (7.5YR 4/4) moist; strong fine subangular blocky structure; hard, firm, sticky and very plastic; common fine and few very fine roots; many very fine tubular pores; many thin clay films on faces of peds; 40 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Btk--9 to 18 inches; brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and very plastic; few very fine roots; many very fine tubular pores; common thin clay films on faces of peds; 55 percent pebbles, 2 percent cobbles; common fine lime filaments; thin lime coatings on undersides of rock fragments; moderately alkaline (pH 8.4); clear smooth boundary.

R--18 inches; hard fractured rhyolite.

Type location: Humboldt County, Nevada; approximately 400 feet east of Burro Spring in the Calico hills, about 1,300 feet south and 950 feet west of the projected northeast corner of section 18, T.36 N., R.25 E.; (41 degrees, 00 minutes, 55 seconds north latitude and 119 degrees, 10 minutes, 07 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist winter and spring, dry June through early November.

Soil temperature: 53 to 55 degrees, F.

Depth to bedrock: 14 to 20 inches.

Depth to carbonates: 6 to 17 inches.

A horizons:

Hue--7.5YR, 10YR or 2.5Y.

Value--4 through 6 dry, 3 through 5 moist; the surface inches averages more than 5.5 dry and 3.5 moist after mixing.

Chroma--2 or 3.

Structure--Platy, granular or subangular blocky.

Consistence--Soft or slightly hard dry and friable or very friable moist.

Reaction--Slightly alkaline or moderately alkaline.

Bt horizon:

Hue--7.5YR or 10YR.

Value--4 through 6 dry, 3 through 5 moist.

Chroma--3 or 4.

Texture--Very gravelly clay, very gravelly clay loam.

Clay content--30 to 50 percent.

Rock fragments--35 to 60 percent, mainly pebbles.

Structure--Subangular blocky or prismatic.

Consistence--Slightly hard or hard dry, friable, firm, or very firm moist.

Reaction--Slightly alkaline or moderately alkaline.

Btk horizons:

Hue--7.5YR or 10YR.

Value--4 through 7 dry and 3 through 5 moist.

Chroma--3 or 4.

Texture--Very gravelly clay loam, very gravelly clay

Clay content--35 to 50 percent.

Rock fragments--35 to 60 percent, mainly pebbles.

Structure--Subangular blocky or the lower subhorizon of some pedons is massive.

Consistence--Slightly hard or hard dry and friable, firm or very firm moist.

Carbonates--Effervescence of the matrix ranges from noneffervescent through strongly effervescent.

Secondary carbonates exist as few or common filaments or as thin lime coatings on coarse fragments.

Gwena Series

The Gwena Series consists of shallow over a duripan, well drained soils that formed in alluvium from mixed rock sources with components of loess and volcanic ash. Gwena soils are on fan remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Nadurargids

Typical pedon: Gwena very fine sandy loam, 4 to 15 percent slopes, located in map unit 130. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate coarse and very fine platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine vesicular and interstitial pores; 5 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

A2--2 to 6 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine vesicular, interstitial and tubular pores; 3 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btn--6 to 9 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common very fine and medium roots; common very fine tubular and interstitial pores; very few thin clay films on faces of peds; 10 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.

Btnk--9 to 13 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and medium roots; common very fine tubular and interstitial pores; very few thin clay films on faces of peds; few fine lime filaments; 10 percent pebbles; strongly effervescent; strongly alkaline (pH 8.9); abrupt wavy boundary.

Bqk--13 to 15 inches; very pale brown (10YR 8/4) clay loam, brownish yellow (10YR 6/6) moist; massive; very hard, very firm, sticky and plastic; common very fine and medium roots; common very fine tubular pores; strong discontinuous cementation; 10 percent pebbles; violently effervescent; strongly alkaline (pH 8.9); clear smooth boundary.

Bqkm--15 to 31 inches; white (10YR 8/2) indurated duripan, pale brown (10YR 6/3) moist; very coarse plates 1 to 2 inches thick and 4 to 20 inches in diameter; extremely hard, extremely firm; few very fine and medium roots between plates; 1 mm thick continuous laminar cap; violently effervescent; strongly alkaline (pH 8.8); clear irregular boundary.

2B'qk--31 to 49 inches; light gray (10YR 7/2) extremely gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, firm, nonsticky and nonplastic;

common very fine tubular pores; discontinuous alternating layers of weak and strong discontinuous silica and lime cementation; 65 percent pebbles, 5 percent cobbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2C--49 to 60 inches; very pale brown (10YR 7/4) very gravelly loamy coarse sand, yellowish brown (10YR 5/6) moist; single grain; loose, nonsticky and nonplastic; common very fine interstitial pores; 55 percent pebbles; strongly effervescent lime coatings on the undersides of pebbles; noneffervescent matrix; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 3.6 miles southwest of Trout Creek Ranch in Desert Valley, about 1,850 feet west and 300 feet north of the projected southeast corner of section 35, T.38 N., R.31 E.; (41 degrees, 07 minutes, 07 seconds north latitude and 118 degrees, 28 minutes, 45 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry June through November.

Soil temperature: 47 to 52 degrees, F.

Depth to duripan: 14 to 20 inches.

A horizons:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 or 3.

Consistence--Soft or slightly hard dry, nonsticky or slightly sticky moist and nonplastic or slightly plastic wet.

Reaction--Mildly or moderately alkaline.

Bt horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Texture--Loam or clay loam.

Clay content--20 to 35 percent.

Rock fragments--Less than 15, mainly pebbles.

Some pedons have subhorizons with up to 25 percent pebbles.

Structure--Prismatic or subangular blocky.

Consistence--Slightly sticky or sticky and slightly plastic or plastic wet.

Reaction--Moderately alkaline or strongly alkaline.

Exchangeable sodium--20 to 35 percent.

Bqkm horizon:

Value--6 through 8 dry, 4 through 6 moist.

Chroma--2 through 6.

Structure--Platy or is massive.

Other features--Thickness of the duripan ranges from 6 to 17 inches.

Hackwood Series

The Hackwood series consists of very deep, well drained soils that formed in alluvium and colluvium derived from quartzite and igneous rocks with a component of loess. Hackwood soils are on mountain backslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 41 degrees, F.

Taxonomic class: Fine-loamy, mixed Pachic Cryoborolls

Typical pedon: Hackwood silt loam, 15 to 50 percent slopes, located in map unit 188. (Colors are for dry soil unless otherwise noted.)

Oi--1 to 0 inches; aspen leaf litter.

A1--0 to 2 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak coarse platy structure parting to moderate very fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; neutral (pH 6.8); clear wavy boundary.

A2--2 to 18 inches; dark brown (10YR 4/3) silt loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and plastic; common very fine, fine, medium and coarse roots; many very fine interstitial pores; neutral (pH 6.8); clear wavy boundary.

A3--18 to 30 inches; dark brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine and medium roots, few coarse roots; many very fine interstitial pores; 20 percent pebbles; neutral (pH 6.8); clear wavy boundary.

2C--30 to 60 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; many very fine tubular pores, very thin silt coatings lining pores; 40 percent pebbles; neutral (pH 6.6).

Type location: Humboldt County, Nevada; approximately 3 miles southeast of Summit Lake, about 250 feet south and 4,200 feet west of the projected northeast corner of section 10, T.41 N., R.26 E.; (41 degrees, 29 minutes, 21 seconds north

latitude and 118 degrees, 59 minutes, 50 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist late fall through summer, dry September and October. Additional soil moisture is supplied by lateral water movement in lower part of the control section or substratum. This additional moisture is transitory and dependent on snowpack and is sporadic.

Soil temperature: 38 to 44 degrees, F.

Summer soil temperature: 43 to 47 degrees, F.

Mollic epipedon thickness: 16 to 35 inches.

Depth to 2C horizon: 30 to 49 inches.

Control section:

Clay content--Averages 18 to 30 percent.

Rock fragments--Averages 15 to 35 percent, mainly pebbles.

Reaction--Neutral or slightly acid, decreasing with depth.

A horizons:

Value--4 or 5 dry, 2 or 3 moist.

Chroma--1 through 3 dry, 1 or 2 moist.

2C horizon:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3

Other features--Lined with very thin silt coats or uncoated sand grains. Some pedons have few to common fine distinct 10YR 5/6 dry and 4/4 moist mottles. Some pedons have few manganese stains coating pebbles and lining pores.

Texture--Gravelly clay loam, very gravelly loam, very gravelly clay loam or very gravelly silty clay loam.

Hangrock Series

The Hangrock series consists of shallow to a duripan, well drained soils that formed in alluvium derived from volcanic rocks and vitric pyroclastic materials. Hangrock soils are on fan piedmonts often overlapped on pediments. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic, shallow Haploxeralfic Argidurids

Typical pedon: Hangrock very gravelly loam, 2 to 15 percent slopes, rangeland, in map unit 1150. (Colors are for dry soil unless otherwise noted.) The soil surface is covered by approximately 40 percent pebbles and 5 percent cobbles.

A--0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brownish gray (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 40 percent pebbles; neutral (pH 6.7); clear smooth boundary.

Bt1--3 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds; 15 percent pebbles; neutral (pH 6.7); clear smooth boundary.

Bt2--8 to 16 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic parting to moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 15 percent pebbles; neutral (pH 6.8) abrupt wavy boundary.

Bqm--16 to 28 inches; strongly cemented duripan with fractured discontinuous lenses of very rigid material; massive; extremely hard, extremely firm; 25 percent pebbles; gradual wavy boundary.

Bqkm--28 to 60 inches; strongly cemented duripan consisting of many strongly cemented plates with weakly cemented material between the plates; 30 percent pebbles; thin lime coatings on some rock fragments and duripan fragments; strongly effervescent matrix; slightly alkaline (pH 7.6).

Type location: Humboldt County, Nevada; in an unsurveyed area; (41 degrees, 42 minutes, 22 seconds north latitude and 119 degrees, 17 minutes, 50 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry early June through October.

Soil temperature: 47 to 52 degrees F.

Depth to duripan: 14 to 20 inches.

Mineralogy: 35 to 60 percent volcanic glass, glass coats and glass aggregates in the very fine and fine sand size throughout.

Control section:

Clay content--25 to 35 percent.

Rock fragments--15 to 35 percent, dominantly pebbles.

A horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 or 4 moist, (after mixing 7 inches value greater than 5.5 dry)

Chroma--2 or 3.

Bt horizons:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 through 5 moist.

Chroma--2 through 4 or 6.

Texture--Loam or clay loam.

Clay content--25 to 35 percent.

Structure--Subangular blocky and prismatic.

Rock fragment--15 to 35 percent mainly pebbles.

Bqm horizon:

Cementation--Moderately cemented or strongly cemented with discontinuous lenses that are very strongly cemented

Harcany Series

The Harcany series consists of very deep, well drained soils that formed in colluvium from mixed rock sources. Harcany soils are on mountain backslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 37 degrees, F.

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborolls

Typical pedon: Harcany gravelly loam, 30 to 50 percent slopes, located in map unit 176. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A1--0 to 3 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; strong very fine granular structure; soft, very friable, slightly sticky and nonplastic; many fine roots; common fine tubular pores; 20 percent pebbles; neutral (pH 6.6); clear wavy boundary.

A2--3 to 8 inches; dark grayish brown (10YR 4/2) very gravelly silt loam, very dark brown (10YR 2/2) moist;

moderate very fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common very fine and fine interstitial pores; 45 percent pebbles; neutral (pH 6.6); clear wavy boundary.

A3--8 to 14 inches; dark brown (10YR 4/3) very gravelly silt loam, very dark brown (10YR 2/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine, common medium roots; many very fine and fine tubular pores; 40 percent pebbles; neutral (pH 6.6); clear wavy boundary.

2A4--14 to 34 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark brown (10YR 3/3) moist; massive; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; 65 percent pebbles; neutral (pH 6.8) clear wavy boundary.

2A5--34 to 60 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark brown (10YR 3/3) moist; massive; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; 65 percent pebbles; neutral (pH 6.8).

Type location: Humboldt County, Nevada; in the Bilk Creek Mountains, approximately 0.75 mile south of Raster Creek, about 1,050 feet west and 1,400 feet south of the northeast corner of section 9, T.46 N., R.32 E.; (41 degrees, 45 minutes, 33 seconds north latitude and 119 degrees, 00 minutes, 32 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, moist in winter through early summer, dry from August through September.

Soil temperature: 36 to 43 degrees, F.

Summer soil temperature: 54 to 59 degrees, F.

Mollic epipedon thickness: 30 to 70 inches.

Control section:

Clay content--10 to 20 percent but the average is less than 18 percent.

Rock fragments--50 to 80 percent, mainly pebbles.

A horizons:

Value-- 3 through 5 dry, 2 or 3 moist.

Chroma--2 or 3.

2A horizons:

Value-- 5 or 6 dry.

Texture--Extremely gravelly sandy loam, very gravelly silt loam, extremely stony or extremely cobbly loam with strata of gravelly loam or gravelly silt loam.

Rock fragments--60 to 80 percent.

Hart Camp Series

The Hart Camp series consists of shallow, well drained soils that formed in residuum weathered from tuff. Hart Camp soils are on plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Loamy, mixid, frigid, shallow, Aridic Argixerolls

Typical pedon: Hart Camp very stony loam, 4 to 30 percent slopes, located in map unit 381. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 5 percent stones, 5 percent cobbles, and 10 percent pebbles.

A1--0 to 2 inches; dark grayish brown (10YR 4/2) very stony loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine vesicular and tubular pores; 5 percent stones, 5 percent cobbles, 5 percent pebbles; neutral (pH 6.6); abrupt smooth boundary.

A2--2 to 7 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine vesicular pores; 1 percent stones; neutral (pH 6.6); abrupt smooth boundary.

BA--7 to 14 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and few medium roots; many very fine tubular pores; 5 percent cobbles; neutral (pH 6.8); abrupt wavy boundary.

Bt--14 to 19 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; strong fine subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine, fine and medium roots; many very fine tubular pores; common thin clay films on peds and many thin clay films in pores; 5 percent cobbles, 15 percent pebbles; neutral (pH 7.0); abrupt irregular boundary.

Cr--19 to 26 inches; weathered tuff

Type location: Humboldt County, Nevada; approximately 3 miles northwest of Bear Buttes, about 750 feet west and 500 feet south of the northeast corner of section 14, T.42 N., R.24 E.; (41

degrees, 34 minutes, 28 seconds north latitude and 119 degrees, 13 minutes, 38 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist winter and spring, dry late June through October.

Soil temperature: 44 to 47 degrees, F.

Mollic epipedon thickness: 7 to 15 inches, includes part or all of argillic horizon.

Depth to weathered bedrock horizon: 10 to 20 inches.

Control section:

Clay content--Averages 15 to 35 percent.

Rock fragments--Averages 15 to 35 percent.

Profile reaction--Slightly acid to neutral.

A horizons:

Value--4 through 6 dry, 2 or 3 moist. When the surface 7 inches are mixed, its value is less than 5.5.

Chroma--2 or 3.

Structure--Weak, fine or medium granular, subangular blocky, thin to thick platy or it is massive.

Consistence--Soft or slightly hard dry.

Bt horizon:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 2 through 4 moist.

Chroma--2 through 4.

Texture--Gravelly sandy clay loam, gravelly clay loam, gravelly loam.

Clay content--20 to 35 percent. Subhorizons of clay occur in some pedons.

Rock fragments--Averages 15 to 35 percent.

Structure--Weak to strong, fine to coarse subangular or angular blocky or has moderate or strong, fine or medium prismatic in some pedons.

Cr horizon:

Other features--Bedrock is weathered in at least the upper 2 inches to as thick as 20 inches.

Hawsley Series

The Hawsley series consists of very deep, somewhat excessively drained soils that formed in alluvium and water reworked eolian deposits from mixed rocks. Hawsley soils are on sand sheets. Slopes are 0 to 4 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is 52 degrees, F.

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical pedon: Hawsley fine sand, 2 to 4 percent slopes, located in map unit 378. (Colors are for dry soil unless otherwise noted.)

A--0 to 2 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; single grain, loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; moderately alkaline (pH 8.4); clear smooth boundary.

C--2 to 12 inches; light brownish gray (10YR 6/2) stratified fine sand, sand and coarse sand, dark grayish brown (10YR 4/2) moist; single grain, loose, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; moderately alkaline (pH 8.4); clear smooth boundary.

Ck1--12 to 42 inches; pale brown (10YR 6/3) stratified fine sand, sand and coarse sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; few thin lime coats on sand grains; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.

2Ck2--42 to 60 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; few thin lime coats on sand grains; strongly effervescent; strongly alkaline (pH 8.5).

Type location: Humboldt County Nevada; approximately 2 miles north of Wheeler Reservoir, about 3,200 feet south and 2,000 feet west of the projected northeast corner of section 3, T.38 N., R.25 E.; (41 degrees, 13 minutes, 21 seconds north latitude and 119 degrees, 06 minutes, 55 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods during winter and spring; typic torric moisture regime.

Soil temperature: 53 to 57 degrees, F.

Control section:

Rock fragments--0 to 15 percent pebbles.

Effervescence--Noneffervescent in the upper part of the profile and slightly effervescent to violently effervescent in the lower part.

Depth to carbonates--12 to 24 inches.

Sodicity (SAR)--0 to 12 above 40 inches. Some pedons have horizons below 40 inches with sodium adsorption ratios of 13 to 45.

Other features--Stratification of textures is typical.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 or 3.

Reaction--Neutral to moderately alkaline.

C and Ck horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Texture--Stratified fine sand through coarse sand.

The average texture (mixed) is sand, but is fine sand in some pedons. Some pedons contain thin strata of loamy fine sand.

Structure--Single grain or massive.

Consistence--Loose or soft and very friable.

Reaction--Commonly moderately alkaline or strongly alkaline, but is slightly alkaline in the upper part in some pedons.

Identifiable secondary carbonates--Lime is segregated as few coats on pebbles or coarse sand grains.

Effervescence--Subhorizons are slightly effervescent to violently effervescent.

Calcium carbonate equivalent--0 to 5 percent.

Other features--Some pedons have substrata composed of lacustrine sediments below 40 inches with texture of silt loam or silty clay loam.

Some pedons have strata with relict redoximorphic features as masses of iron accumulation with hue of 7.5YR.

Holbrook Series

The Holbrook series consists of very deep, well drained soils that formed in alluvium from mixed rocks. Holbrook soils are on alluvial fans. Slopes are 0 to 8 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Aridic Haploxerolls

Typical pedon: Holbrook gravelly loam 0 to 2 percent slopes, located in map unit 442. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A1--0 to 6 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist;

weak thin platy parting to weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, and few medium roots; many very fine and fine tubular pores; 20 percent pebbles; highly micaceous; neutral (pH 7.0); clear smooth boundary.

A2--6 to 14 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy parting to weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine, and few fine roots; many very fine and fine tubular pores; highly micaceous; 30 percent pebbles, 10 percent cobbles; neutral (pH 7.0); clear wavy boundary.

C--14 to 61 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots at the top of the horizon, and few fine roots near the bottom; many very fine and fine tubular pores; 40 percent pebbles, 10 percent cobbles, 2 percent stones; neutral (pH 6.6).

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation; about 1,000 feet east and 1,000 feet north of the southwest corner of section 17, T.42 N., R.26 E.; (41 degrees, 33 minutes, 07 seconds north latitude and 119 degrees, 02 minutes, 35 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 47 to 53 degrees, F.

Mollic epipedon thickness: 8 to 15 inches.

Control section:

Clay content--Averages 10 to 15 percent.

Rock fragments--35 to 50 percent.

A horizons:

Hue--2.5Y or 10YR.

Value--4 or 5 dry, maybe 6 or 7 in thin subhorizons with eolian volcanic ash influence.

Chroma--1 through 3.

C horizon:

Value--5 or 6 dry, 3 through 5 moist.

Chroma--2 or 3.

Structure--Massive, weak subangular blocky in some pedons.

Texture--Stratified sand through loam, averages sandy loam.

Consistence--Soft or slightly hard dry, nonsticky to slightly sticky, nonplastic to slightly plastic.

Reaction--Slightly acid to moderately alkaline.

Carbonates--May be calcareous below 40 inches.

Hoot Series

The Hoot series consists of shallow, well drained soils that formed in residuum and colluvium from volcanic rocks. Hoot soils are on backslopes of mountains and plateaus. Slopes are 4 to 50 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Haplargids

Typical pedon: Hoot very cobbly loam, 15 to 30 percent slopes, located in map unit 660. (Colors are for dry soils unless otherwise noted.) The soil surface is partially covered with 15 percent pebbles and 30 percent cobbles.

A1--0 to 2 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many fine vesicular pores; 20 percent pebbles, 20 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

A2--2 to 5 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine tubular pores; 30 percent pebbles and 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bt--5 to 15 inches; yellowish brown (10YR 5/4) very gravelly clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common medium and few very fine roots; common very fine and fine tubular pores; 45 percent pebbles, 10 percent cobbles and 1 percent stones; common thin clay films on faces of pedons and lining pores; moderately alkaline (pH 7.8); abrupt smooth boundary.

2R--15 inches; unweathered andesite.

Type location: Humboldt County, Nevada; approximately 1.5 miles north of Bilk Creek Reservoir, about 2,500 feet south and 750 feet east of the northwest corner of section 27, T.44 N., R.32 E.; (41 degrees, 39 minutes, 35 seconds north

latitude and 118 degrees, 22 minutes, 59 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in some part during winter and early spring, dry late May through October.

Soil temperature: 47 to 53 degrees, F.

Depth to bedrock: 10 to 20 inches.

A horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry; 4 or 5 moist.

Chroma--2 or 3 dry and moist.

Reaction--Slightly alkaline or moderately alkaline.

Bt horizon:

Hue--10YR or 7.5YR, clay films range to 5YR.

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4.

Texture--Extremely gravelly loam, extremely gravelly clay loam, or very gravelly clay loam.

Clay content--25 to 35 percent.

Rock fragments--50 to 70 percent, mainly pebbles.

Structure--Subangular blocky or is massive.

Consistence--Slightly sticky or sticky and slightly plastic or plastic, wet.

Reaction--Slightly alkaline to strongly alkaline.

Carbonates--Commonly noncalcareous. Some pedons have lime coats on the undersides of rock fragments that occur directly above the bedrock.

Humboldt Series

The Humboldt series consists of very deep, poorly drained soils that formed in silty alluvium from mixed rock sources with a component of volcanic ash. Humboldt soils are on floodplains. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Fine, montmorillonitic (calcareous), mesic Fluvaquentic Endoaquolls

Typical pedon: Humboldt silty clay loam, 0 to 2 percent slopes, located in map unit 647. (Colors are for dry soil unless otherwise noted.)

A1--0 to 9 inches; grayish brown (2.5Y 5/2) silty clay loam, very dark grayish brown (2.5Y 3/2) moist; weak medium subangular blocky structure; hard, firm, very

sticky and very plastic; many very fine and fine roots; many very fine and fine interstitial and tubular pores; numerous worm casts; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--9 to 13 inches; grayish brown (2.5Y 5/2) silty clay loam, very dark grayish brown (2.5Y 3/2) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

Ck1--13 to 18 inches; gray (10YR 6/1) silty clay, very dark gray (10YR 3/1) moist; few fine distinct dark brown (7.5YR 3/4) iron mottles; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; few fine soft masses of lime; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Ck2--18 to 23 inches; gray (10YR 6/1) silty clay, very dark gray (10YR 3/1) moist; strong fine subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine and fine roots; many very fine tubular pores; few fine soft masses of lime; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Cg1--23 to 40 inches; greenish gray (5GY 5/1) silty clay, dark greenish gray (5GY 4/1) moist; moderate medium subangular blocky structure; hard, friable, sticky and very plastic; few very fine and fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Cg2--40 to 51 inches; greenish gray (5GY 5/1) silty clay, dark greenish gray (5GY 4/1) moist; weak medium subangular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Cg3--51 to 60 inches; greenish gray (5GY 5/1) silt loam, dark greenish gray (5GY 4/1) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 5 miles southwest of Quinn River Crossing in the Quinn River floodplain, about 1,600 feet south and 500 feet east of the northwest corner of section 14, T.42 N., R.31 E.; (41 degrees, 30 minutes, 47 seconds north latitude and 118 degrees, 29 minutes, 07 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually saturated for one month or more during most years unless drained.

Water table: 0.5 to 2 feet unless drained.

Soil temperature: 50 to 54 degrees, F.

Mollic epipedon thickness: 10 to 24 inches.

Reaction: Slightly alkaline to very strongly alkaline, the higher values being only in sodium affected areas.

Carbonates: Slightly effervescent to strongly effervescent throughout; some strata below 20 inches in some pedons are noneffervescent. The calcium carbonate equivalent is less than 15 percent.

Redoximorphic features: Distinct or prominent iron mottles are in the lower part of the mollic epipedon or immediately below; or if no mottles, reduced matrix chroma is 1 or less.

Other features: Some pedons have stratified very fine sandy loam to fine sand below 30 inches. Buried A horizons common.

Control section:

Clay content--35 to 45 percent.

A horizons:

Hue--10YR or 2.5Y or N.

Value--4 or 5 dry, 6 on surface of some pedons due to deposition, 2 or 3 moist.

Chroma--0 through 2.

Organic matter content--2 to 4 percent organic matter.

C horizons:

Hue--10YR to 5GY or N.

Value--6 or 7 dry, 3 through 5 moist. Volcanic ash layers are 8 dry, 6 moist.

Chroma--0 through 3.

Structure--Moderate or strong prismatic or blocky in the upper part; weak medium and coarse subangular blocky structure in the lower part, or it is massive.

Texture--Stratified silty clay loam to clay with minor substrata of silt loam in some pedons.

Carbonates--Few to many very fine to medium lime concretions or soft segregations in some subhorizons.

Isolde Series

The Isolde series consists of very deep, excessively drained soils that formed in eolian sand from mixed rock sources. Isolde soils are on semi-stabilized dunes. Slopes are 2 to 30 percent. The mean annual

precipitation is about 6 inches and the mean annual temperature is about 52 degrees, F.

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical pedon: Isolde fine sand, 4 to 15 percent slopes, located in map unit 563. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; moderately alkaline (pH 8.0); clear smooth boundary.

C--3 to 60 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; moderately alkaline (pH 8.0).

Type location: Humboldt County, Nevada; approximately 12 miles north of Sulphur, about 1,250 feet east and 800 feet north of the projected southwest corner of section 31 T.37 N., R.29 E.; (41 degrees, 03 minutes, 02 seconds north latitude and 118 degrees, 43 minutes, 16 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and spring, dry from summer to mid-fall; typic torric moisture regime.

Soil temperature: 53 to 57 degrees, F.

Control section:

Texture--fine sand or sand, with 50 to 80 percent passing the number 40 sieve and 0 to 10 percent passing the number 200 sieve. No rock fragments are present.

Reaction--Neutral to moderately alkaline.

Carbonate effervescence--Noneffervescent to slightly effervescent.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Salinity (EC)--0 to 8 mmhos/cm.

Sodicity (SAR)--0 to 12.

C horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Salinity (EC): 0 to 4 mmhos/cm.

Sodicity (SAR): 0 to 12.

Other features--Some pedons have a lithologic discontinuity (2C horizon) below 40 inches. In some pedons the lower C horizon is strongly alkaline, strongly effervescent, and contains up to 10 percent calcium carbonate equivalent.

Jaybee Series

The Jaybee series consists on very shallow and shallow, well drained soils that formed in residuum and colluvium from basic volcanic rocks primarily from basalt. Jaybee soils are on hills, mountains, and plateaus. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Loamy, mixed, mesic Lithic Xerollic Haplargids

Typical pedon: Jaybee very gravelly sandy loam, 15 to 50 percent slopes, located in map unit 805. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 50 percent pebbles and 2 percent cobbles.

A1--0 to 4 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine roots; many very fine vesicular pores; 40 percent pebbles; neutral (pH 7.0); clear smooth boundary.

A2--4 to 7 inches; brown (10YR 5/3) gravelly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; 20 percent pebbles, 2 percent cobbles; neutral (pH 7.0); clear smooth boundary.

Bt--7 to 14 inches; brown (10YR 5/3) gravelly clay, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure; hard, very friable, sticky and plastic; few very fine roots; few very fine tubular pores; common moderately thick clay films on faces of peds; 30 percent pebbles; 3 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.

R--14 inches; hard fractured volcanic bedrock.

Type location: Humboldt County, Nevada; approximately 30 miles north of Gerlach about 2,250

feet south and 1,500 feet west of the projected northeast corner of section 13, T.36 N., R.23.5 E.; (41 degrees, 00 minutes, 34 seconds north latitude and 119 degrees, 19 minutes, 24 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry during summer and fall, moist winter and spring.

Soil temperature: 54 to 57 degrees, F.

Depth to lithic contact: 7 to 14 inches.

Control section:

Clay content--25 to 35 percent.

Rock fragments--Averages 15 to 35 percent after mixing.

A horizons:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Reaction--Neutral or slightly alkaline.

Other features--The surface 7 inches has value lighter than 5.5 dry or 3.5 moist after mixing.

Bt horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 or 4 moist

Chroma--2 through 4.

Texture--Clay or clay loam.

Clay content--35 to 45 percent.

Reaction--Neutral or slightly alkaline.

Jerval Series

The Jerval series consists of very deep, well drained soils that formed in loess over loamy and gravelly alluvium from mixed rock sources. Jerval soils are on fan remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Fine-loamy, mixed, mesic Duric Natrargids

Typical pedon: Jerval gravelly very fine sandy loam, 2 to 8 percent slopes located in map unit 463. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A1--0 to 2 inches; very pale brown (10YR 7/3) gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very

friable, slightly sticky and slightly plastic; common very fine roots; many very fine vesicular pores; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--2 to 4 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Btk1--4 to 12 inches; pale brown (10YR 6/3) gravelly clay loam, brown (10YR 4/3) moist; moderate fine prismatic structure; hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; common thin clay films on faces of peds; 15 percent pebbles; lime coatings on all sides of pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Btk2--12 to 20 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure; hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; common thin clay films on faces of peds; 15 percent pebbles; lime coatings on all sides of pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bqk--20 to 29 inches; very pale brown (10YR 8/3) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 40 percent pebbles; 30 percent weakly cemented durinodes; lime coatings on all sides of pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bk--29 to 60 inches; very pale brown (10YR 7/4) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 40 percent pebbles; lime coatings on all sides of pebbles; strongly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 7 miles west of Jungo, about 450 feet west of the southeast corner of section 8, T.35 N., R.31 E.; (40 degrees, 54 minutes, 50 seconds north latitude and 118 degrees, 31 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, moist in winter and spring and dry late May through November; typic aridic moisture regime.

Soil temperature: 53 to 59 degrees, F.
Depth to base of natric horizon: 20 to 30 inches.

A horizons:

Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Effervescence--Noneffervescent to strongly effervescent.

Btk horizons:

Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Texture--Gravelly clay loam or gravelly silty clay loam.
Clay content--27 to 35 percent.
Rock fragments--15 to 25 percent, mainly pebbles.
Structure--Moderate or strong, fine to coarse prismatic.
Consistence--Friable or firm moist, sticky or very sticky and plastic or very plastic wet.
Reaction--Moderately alkaline or strongly alkaline.
Salinity (EC)--8 to 16 mmhos/cm.
Sodicity (SAR)--13 to 30.
Effervescence--Slightly effervescent or strongly effervescent.
Identifiable secondary carbonates--Segregated lime is present on rock fragments, faces of peds, or in seams
Calcium carbonate equivalent--1 to 5 percent.
Other features--Some pedons have visible secondary gypsum in the lower subhorizon.
Gypsum content--0 to 3 percent.

Bqk and Bk horizons:

Value--7 or 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Very gravelly sandy loam or very gravelly fine sandy loam.
Clay content--5 to 12 percent.
Rock fragments--35 to 55 percent, mainly pebbles with 0 to 5 percent cobbles.
Reaction--Moderately alkaline or strongly alkaline.
Salinity (EC)--8 to 16 mmhos/cm.
Sodicity (SAR)--13 to 30.
Identifiable secondary carbonates--Segregated lime is present on rock fragments or in seams
Calcium carbonate equivalent--1 to 10 percent.
Gypsum content--0 to 5 percent.
Silica cementation--The Bqk horizon has 20 to 30 percent weak to strongly cemented durinodes in a friable matrix or has weak to strong discontinuous silica cementation with thin discontinuous laminae.

Jesse Camp Series

The Jesse Camp series consists of very deep, well drained soils that formed in silty alluvium and lacustrine materials derived mainly from volcanic rocks with a component of volcanic ash. Jesse Camp soils are on basin-floor remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 44 degrees, F.

Taxonomic class: Fine-silty, mixed, frigid Xerollic Camborthids

Typical pedon: Jesse Camp very fine sandy loam, 0 to 2 percent slopes located in map unit 420. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; many fine and medium vesicular and interstitial pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw--4 to 12 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; many very fine and fine interstitial and tubular pores; slightly effervescent; moderately alkaline (pH 8.3); clear wavy boundary.

Bk1--12 to 35 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine and medium angular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine, and few medium roots; common fine tubular pores; few brittle durinodes; strongly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bk2--35 to 60 inches; pale brown (10YR 6/3) silt loam, olive brown (2.5Y 4/3) moist; moderate fine angular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; few fine faint light gray (10YR 7/2) soft lime masses; violently effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation, about 1,400 feet east and 600 feet north of the southwest corner of section 13, T.42 N., R.25 E.; (41 degrees, 33 minutes, 04 seconds north latitude and 119 degrees, 04 minutes, 54 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry June through October.

Soil temperature: 45 to 47 degrees.

Thickness of A and Bw horizons: 10 to 35 inches.

Control section:

Clay content--18 to 27 percent.

Other features--Some pedons have C horizons below depths of 50 inches with textures of loam or sandy loam with 15 to 50 percent pebbles.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 or 4 moist.

Chroma--2 or 3.

Structure--Weak to strong very fine through medium platy or it is massive.

Consistence--Soft or slightly hard.

Reaction--Slightly alkaline or moderately alkaline.

Effervescence--Noneffervescent or slightly effervescent.

Bw horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 3 or 4 moist.

Chroma--2 or 3.

Texture--Silt loam, very fine sandy loam.

Structure--Weak or moderate very fine to medium platy or weak or moderate fine or medium subangular blocky.

Effervescence--Noneffervescent or slightly effervescent.

Reaction--Slightly alkaline or moderately alkaline.

Other features--Up to 20 percent durinodes may occur in the lower portion of this horizon when the combined thickness of the A and Bw horizon is 20 inches or more.

Bk horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Silt loam with thin strata of very fine sandy loam or light silty clay loam.

Structure--Prismatic, angular blocky or it is massive.

Reaction--Moderately alkaline through very strongly alkaline.

Effervescence--Strongly effervescent or violently effervescent.

Carbonates--Few to many very fine to medium soft lime masses, filaments, or seams in the lower part.

Durinodes--Up to 20 percent brittle durinodes, in a friable matrix, up to .5 inches in diameter and .5 to 2 inches in length that are hard to extremely hard.

Jungo Series

The Jungo series consists of very deep, well drained soils that formed in mixed alluvium with admixtures of loess and volcanic ash. Jungo soils are on erosional fan piedmont remnants. Slopes are 15 to 50 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 52 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Xerollic Haplargids

Typical pedon: Jungo very gravelly loam, 15 to 50 percent slopes, located in map unit 775. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 40 percent pebbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine vesicular pores; 40 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

A2--2 to 5 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 20 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary.

Btk1--5 to 11 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; thin lime coatings on undersides of pebbles; 50 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Btk2--11 to 22 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; common very fine and fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; thin lime coatings on undersides of pebbles; 50 percent pebbles; strongly

effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Btk3--22 to 35 inches; light yellowish brown (10YR 6/4) extremely gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; common very fine and fine tubular pores; many thin clay films bridging sand grains; thin lime coatings on undersides of rock fragments; 65 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Btk4--35 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; many thin clay films bridging sand grains; thin lime coatings on undersides of rock fragments; 65 percent pebbles, 5 percent cobbles, 2 percent stones; violently effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; approximately 6 miles northeast of Sulphur, about 750 feet west of the projected center of section 34, T.36 N. R.30 E.; (40 degrees, 57 minutes, 04 seconds north latitude and 118 degrees, 36 minutes, 40 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and early spring; dry from May through October.

Soil temperature: 53 to 55 degrees, F.

Depth to carbonates: 3 to 8 inches.

Control section:

Clay content--27 to 35 percent.

Rock fragments--Averages 35 to 60 percent, mainly pebbles.

A horizons:

Value-- 6 or 7 dry and 4 or 5 moist.

Chroma--2 or 3.

Reaction--Slightly alkaline or moderately alkaline.

Btk horizons:

Hue--10YR or 7.5YR.

Value--5 or 6 dry.

Chroma--3 or 4.

Texture--Gravelly clay loam, very gravelly clay loam or very gravelly sandy clay loam in the upper subhorizons and extremely gravelly clay loam or extremely gravelly sandy clay loam in the lower subhorizons.

Clay content--27 to 35 percent.

Rock fragments--Averages 35 to 75 percent, mainly pebbles; typically increasing with depth and including stones and cobbles in the lower subhorizons.

Structure--Weak to strong, fine to coarse subangular blocky or horizon is massive.

Consistence--Slightly hard or hard dry, friable or firm moist.

Reaction--Moderately alkaline or strongly alkaline.

Juva Series

The Juva series consists of very deep, well drained soils that formed in stratified alluvium from mixed rock sources. Juva soils are on fan skirts. Slopes are 0 to 2 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 52 degrees, F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Typic Torrifuvents

Typical pedon: Juva loam, 0 to 2 percent slopes, located in map unit 475. (Colors are for dry soil unless otherwise noted.)

A--0 to 6 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; slightly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C1--6 to 18 inches; light brownish gray (10YR 4/2) sandy loam, dark grayish brown (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C2--18 to 36 inches; stratified grayish brown (10YR 5/2) loamy sand, gravelly sand and very fine sandy loam, very dark grayish brown (10YR 3/2) moist; single grain and massive; loose and slightly hard, friable, nonsticky and nonplastic; common very fine roots; many very fine tubular and interstitial pores; 30 percent pebbles in the very gravelly coarse sand layers; slightly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

C3--36 to 60 inches; light gray (10YR 7/2) stratified gravelly sand, fine sand and sandy loam, brown (10YR 5/3) moist; single grain and massive; loose and slightly hard, friable, nonsticky and nonplastic;

few very fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 28 miles north of Gerlach, about 600 feet north and 250 feet east of the southwest corner of section 35, T.36 N., R.23.5 E.; (40 degrees, 57 minutes, 43 seconds north latitude and 119 degrees, 19 minutes, 40 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in some part for short periods during the winter and early spring and dry from May to November.

Soil temperature: 53 to 57 degrees, F.

Control section:

Rock fragments--Averages less than 35 percent, mainly pebbles.

Organic matter--Is less than 1 percent and decreases irregularly with depth.

Reaction--Slightly alkaline to strongly alkaline.

Exchangeable sodium--15 to 30 percent.

Other features--Some pedons have thin (up to 5 inches thick) discontinuous silt loam layers.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 or 3.

Effervescence--Slightly effervescent to violently effervescent.

C horizons:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 through 4.

Texture--Stratified coarse sand to loam and averages sandy loam or fine sandy loam; textures may be modified by pebbles or cobbles.

Structure--Single grain, platy, subangular blocky, or it is massive.

Effervescence--Slightly effervescent to violently effervescent.

Carbonates--Dominantly disseminated but lime coating rock fragments is common.

Locane Series

The Locane series consists of shallow, well drained soils that formed in residuum and colluvium from volcanic rock. Locane soils are on backslopes and

summits of hills. Slopes are 4 to 30 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 45 degrees, F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical pedon: Locane very cobbly loam, 4 to 30 percent slopes, located in map unit 535. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent cobbles and 20 percent pebbles.

A--0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; 25 percent cobbles, 20 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

Bt1--3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; many very fine tubular pores; few thin clay films lining pores; 30 percent pebbles, 8 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.

Bt2--7 to 14 inches; dark yellowish brown (10YR 4/4) very gravelly clay, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; common very fine roots; many very fine tubular pores; common moderately thick clay films on faces of peds; 30 percent pebbles, 10 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

R--14 inches; hard bedrock.

Type location: Humboldt County, Nevada; approximately 4 miles north of Bilk Creek Reservoir, about 2,800 feet east and 1,750 feet north of the southwest corner of section 15, T.44 N., R.32 E.; (41 degrees, 41 minutes, 08 seconds north latitude and 118 degrees, 22 minutes, 31 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in the winter and spring, dry late June through October.

Soil temperature: 44 to 47 degrees, F.

Depth to bedrock: 10 to 20 inches.

Reaction: Slightly acid or neutral.

A horizon:

Value-- 6 or 7 dry, 3 or 4 moist.

Chroma--2 or 3.

Bt horizons:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Structure--Weak to strong, angular blocky, subangular blocky or is massive.

Thickness--7 to 15 inches.

Texture--Gravelly clay loam, very gravelly clay loam or very gravelly clay.

Clay content--35 to 50 percent.

Rock fragments--35 to 50 percent, when averaged.

Longcreek Series

The Longcreek series consists of shallow, well drained soils formed in material weathered from volcanic rock. Longcreek soils are on plateaus, hills, and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls

Typical pedon: Longcreek very cobbly loam, 50 to 75 percent slopes, located in map unit 531. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent pebbles and 35 percent cobbles.

A--0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine and fine tubular pores; 15 percent pebbles and 35 percent cobbles; neutral (pH 7.0); clear smooth boundary.

BAt--2 to 5 inches; brown (10YR 5/3) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; many very fine and fine roots; many very fine and fine tubular pores; few thin clay films bridging mineral grains; 20 percent pebbles, 25 percent cobbles; neutral (pH 7.0); clear wavy boundary.

Bt1--5 to 9 inches; brown (10YR 5/3) very cobbly clay

loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine, few medium roots; many very fine and fine tubular pores; few thin clay films on faces of peds; 15 percent pebbles, 30 percent cobbles; neutral (pH 7.0); gradual wavy boundary.

Bt2--9 to 14 inches; pale brown (10YR 6/3) very cobbly clay, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; very hard, friable, very sticky and very plastic; few very fine, fine and medium roots; many very fine and fine tubular pores; few thin clay films on rock fragments; common pressure faces; 15 percent pebbles, 30 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.

R--14 inches; fractured andesite with some material between cracks and many clay film coatings on fractures.

Type location: Humboldt County, Nevada; approximately 8.5 miles east of Denio, about 1,475 feet north and 550 feet west of the southeast corner of section 11, T.47 N., R.31 E.; (41 degrees, 57 minutes, 51 seconds north latitude and 118 degrees, 27 minutes, 42 seconds west longitude.)

Range in Characteristics:

Soil moisture: This soil has an aridic moisture regime bordering on xeric and are dry in all parts of the moisture control section from early June through mid November (167 days).

Soil temperature: 47 to 50 degrees.

Depth to bedrock: 14 to 20 inches.

Mollic epipedon: 7 to 14 inches thick including the BA1 and the upper part of the Bt1 horizon.

A horizon:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 through 4.

Organic matter content--1 to 4 percent.

Bt horizons:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Very cobbly clay, very stony clay, very cobbly silty clay or very cobbly clay loam.

Clay content--35 to 50 percent.

Rock fragments--Mostly cobbles 35 to 55 percent.

Reaction--Neutral or slightly alkaline.

Structure--Strong or moderate fine or medium angular or subangular blocky in the upper part

and strong medium and coarse angular blocky or is weak or strong fine to coarse prismatic parting to strong or moderate fine to coarse angular blocky in the lower part.

Mazuma Series

The Mazuma series consists of very deep, well drained soils that formed in alluvium and lacustrine materials from mixed rock sources. Mazuma soils are on basin-floor remnants, lagoons, alluvial flats, fan skirts. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents

Typical pedon: Mazuma loamy fine sand, 0 to 2 percent slopes, located in map unit 575. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; light brownish gray (10YR 6/2) loamy fine sand, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Bk--5 to 13 inches; light brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; slightly effervescent; few fine lime concretions that are violently effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

2C1--13 to 27 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine tubular pores; violently effervescent; very strongly alkaline (pH 9.1); abrupt smooth boundary.

3C2--27 to 38 inches; pale brown (10YR 6/3) gravelly coarse sand, brown (10YR 4/3) moist; single grain, loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 15 percent pebbles; slightly effervescent; very strongly alkaline (pH 9.1); abrupt smooth boundary.

4C3--38 to 60 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; very strongly alkaline (pH 9.1).

Type location: Humboldt County, Nevada; approximately 1 mile south of the mouth of Donnelly Creek, about 800 feet north and 450 feet east of the southwest corner of section 15, T.37 N., R.25 E.; (41 degrees, 06 minutes, 01 second north latitude and 119 degrees, 07 minutes, 32 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and spring, dry from summer to mid-fall.

Soil temperature: 53 to 57 degrees, F.

Electrical conductivity: Greater than 2 millimhos.

Exchangeable sodium percent: 13 to 45.

Control section:

Clay content--5 to 15 percent.

Rock fragments--A few strata have up to 25 percent pebbles.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry; 4 through 6 moist.

Chroma--2 through 4.

Reaction--Moderately alkaline to very strongly alkaline.

Bk horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry; 4 through 6 moist.

Chroma--2 through 4.

Structure--Subangular blocky or it is massive.

Other features--Less than 3 percent calcium carbonate equivalent.

Consistence-- Slightly hard or hard, dry.

C horizons:

Hue--10YR or 2.5Y.

Value--5 through 7 dry; 4 through 6 moist.

Chroma--2 through 4.

Texture--Stratified sandy loam, fine sandy loam, very fine sandy loam and silt loam with some pedons containing thin strata of clay loam and strata up to 12 inches thick of coarse sand, very coarse sand, fine sand or loamy sand.

Reaction--Moderately alkaline to very strongly alkaline.

Segregated lime--Few fine or medium calcium carbonate concretions may be in any horizon.

Unconformable material--Lacustrine silts and clays occur below 40 inches in some pedons.

Other features--Salt crystals and relict mottles are in some pedons in the lower C horizon.

Structure--Subangular blocky, platy or is single grain or massive.

Consistence--Soft or slightly hard, dry or is loose.

McConnel Series

The McConnel series consists of very deep, somewhat excessively drained soils that formed in alluvium from mixed rock sources with a component of loess and volcanic ash over lacustrine beach sediments or gravelly alluvium. McConnel soils are on inset fans, beach terraces, and fan aprons. Slopes are 0 to 8 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Sandy-skeletal, mixed, mesic Xerollic Camborthids

Typical pedon: McConnel very stony sandy loam, 2 to 8 percent slopes, located in map unit 580. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles and 10 percent stones.

A--0 to 5 inches; grayish brown (10YR 5/2) very stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, friable, nonsticky and non-plastic; few very fine, fine and medium roots; many very fine vesicular pores; 20 percent pebbles; 10 percent stones; neutral (pH 7.0); abrupt smooth boundary.

Bw--5 to 15 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine, fine and medium roots; many very fine interstitial pores; 40 percent pebbles; 5 percent cobbles; slightly alkaline (pH 7.6); clear wavy boundary.

2Bk1--15 to 22 inches; light yellowish brown (2.5Y 6/4) very gravelly loamy sand, light olive brown (2.5Y 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 50 percent pebbles; 5 percent cobbles; common thin lime coatings on undersides of rock fragments; slightly effervescent; moderately alkaline (pH 8.0) clear wavy boundary.

3Bk2--22 to 29 inches; light yellowish brown (2.5Y 6/4) extremely gravelly loamy sand, light olive brown (2.5Y 5/4) moist; single grain, loose; nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 65 percent pebbles; 5 percent cobbles;

common thin lime coatings on all sides of rock fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

4C--29 to 60 inches; light yellowish brown (2.5Y 6/4) very gravelly loamy sand, light olive brown (2.5Y 5/4) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 45 percent pebbles; 10 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 1 mile west of Denio, about 2,100 feet east and 1,900 feet south of the northwest corner of section 5, T.47 N., R.30 E.; (41 degrees, 59 minutes, 15 seconds north latitude and 118 degrees, 39 minutes, 05 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry June through October.

Soil temperature: 50 to 54 degrees, F.

Depth to 2Bk1 horizon: 10 to 20 inches.

Control section:

Clay content--Averages up to 5 percent.

Rock fragments--Averages 50 to 80 percent, mainly pebbles.

A horizon:

Hue--10YR or 2.5Y.

Value--5 or 6 dry, 3 or 4 moist (5 dry and 3 moist only in the upper 3 inches).

Chroma--1 through 3.

Reaction--Neutral to moderately alkaline.

Bw horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 through 4 (1 if dark sand grains are present).

Texture--Loam, sandy loam, fine sandy loam.

Structure--Very fine to medium granular or subangular blocky or it is massive.

Reaction--Neutral to moderately alkaline.

Bk and C horizons:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 6 moist.

Chroma--2 through 4 (1 if dark sand grains are present).

Texture--Stratified very gravelly sandy loam to extremely gravelly coarse sand.

Structure--Single grain or massive, subangular or blocky in subhorizons of some pedons.

Consistence--Loose to slightly hard, dry, loose to friable moist.

Reaction--Slightly alkaline to very strongly alkaline.

Calcium carbonate equivalent--Less than 5 percent.

Ninemile Series

The Ninemile series consists of shallow, well drained soils that formed in residuum and colluvium derived from volcanic rocks. Ninemile soils are on plateaus and mountains. Slopes are 2 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical pedon: Ninemile very stony loam, 4 to 30 percent slopes, located in map unit 467. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent pebbles, 20 percent cobbles, and 5 percent stones.

A--0 to 3 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine, few medium roots; many very fine interstitial pores; 5 percent stones; 15 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt1--3 to 5 inches; brown (10YR 5/3) clay, very dark grayish brown (10YR 3/2) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; many very fine and fine, common medium roots; common very fine tubular pores; continuous clay films on faces of peds and lining pores; 10 percent pebbles; slightly alkaline (pH 7.6); abrupt broken boundary.

Bt2--5 to 11 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate fine angular blocky structure; extremely hard, very firm, very sticky and very plastic; common fine and medium roots; common very fine and few fine interstitial pores; continuous pressure cutans; 10 percent pebbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt3--11 to 14 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; few very fine roots; common very fine and fine tubular pores; continuous pressure cutans; 20 percent pebbles; slightly alkaline (pH 7.6); abrupt irregular boundary.

R--14 inches; basalt bedrock.

Type location: Humboldt County, Nevada; approximately 7 miles southeast of Denio Summit, about 1,580 feet north of the southwest corner of section 6, T.45 N., R.32 E.; (41 degrees, 48 minutes, 07 seconds north latitude and 118 degrees, 26 minutes, 33 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist during the winter and spring, dry mainly during late June through early October; aridic moisture regime that borders on xeric.

Soil temperature: 44 to 47 degrees, F.

Depth to base of mollic epipedon: 7 to 18 inches; commonly includes part or all of the argillic horizon.

Depth to bedrock: 10 to 20 inches to a lithic contact; where bedrock is less than 15 inches deep, the upper 1 to 5 inches of the bedrock is weathered.

Control section:

Clay content--Averages 40 to 60 percent

Rock fragments--0 to 35 percent, lithology of fragments are volcanic rocks such as andesite, basalt, rhyolite, or tuff.

A horizon:

Hue--7.5YR or 10YR.

Value--3 through 5 dry, 2 or 3 moist.

Chroma--1 through 3.

Reaction--Slightly acid to moderately alkaline.

Organic matter--1 to 4 percent.

Other features--The upper 1 or 2 inches of some pedons have color value of 6 and are massive.

Bt horizons:

Hue--5YR through 10YR.

Value--3 through 6 dry, 2 through 4 moist.

Chroma--2 through 4, lower subhorizons have chroma of 6 in some pedons.

Clay content--Typically 40 to 60 percent. Some subhorizons range to 35 percent.

Texture--Mainly clay or gravelly clay, but some subhorizons range to clay loam.

Rock fragments--0 to 30 percent pebbles or cobbles.

Structure--Moderate or strong subangular or angular blocky or prismatic. Bt3 horizons may be massive in some pedons.

Consistence--Hard to extremely hard dry.

Reaction--Neutral to moderately alkaline.

Other features--Some pedons are slightly hard dry, friable to firm moist; moderately sticky and moderately plastic wet in the Bt1 horizon.

Ola Series

The Ola series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from intermediate intrusive rocks. Ola soils are on mountain backslopes. Slopes are 30 to 75 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Coarse-loamy, mixed, frigid Pachic Haploxerolls

Typical pedon: Ola very bouldery sandy loam, 50 to 75 percent slopes, located in map unit 819. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent boulders and 35 percent pebbles.

A1--0 to 3 inches; dark grayish brown (10YR 4/2) very bouldery sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic, many very fine and fine and few medium roots; many very fine and fine interstitial pores; 10 percent boulders; 35 percent pebbles; slightly acid (pH 6.4); abrupt smooth boundary.

A2--3 to 11 inches; dark grayish brown (10YR 4/2) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic, common very fine and fine and few medium roots; common very fine and fine tubular pores; 10 percent pebbles; neutral (pH 6.6); clear wavy boundary.

A3--11 to 19 inches; brown (10YR 5/3) coarse sandy loam, dark brown (10YR 3/3) moist; fine medium granular structure; slightly hard, friable, slightly sticky and slightly plastic, common very fine and fine and few medium roots; common very fine and fine tubular pores; 10 percent pebbles; neutral (pH 6.6); clear wavy boundary.

AC--19 to 29 inches; grayish brown (10YR 5/2) coarse sandy loam with pieces of disintegrated granite, very dark grayish brown (10YR 3/2) moist; weak fine granular structure, slightly hard, friable, slightly sticky; few very fine and fine roots; common very fine and fine tubular pores; few thin clay films in pores; neutral (pH 6.6); clear wavy boundary.

C--29 to 38 inches; light brownish gray (10YR 6/2) gravelly coarse sandy loam with pieces of disintegrated granite, dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky; few very fine and fine roots; very fine and fine tubular pores;

few thin clay films in pores; 20 percent pebbles; neutral (pH 6.6); clear wavy boundary.
Cr--38 to 39 inches; soft, weathered granitic grus.
R--39 inches; unweathered granite.

Type location: Humboldt County, Nevada; in the Bilk Creek Mountains, about 1,700 feet west and 1,700 feet north of the southeast corner of section 15, T.46 N. R.31 E.; (41 degrees, 51 minutes, 42 seconds north latitude and 118 degrees, 29 minutes, 27 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, moist in winter and spring, dry in late summer and fall; xeric moisture regime bordering on aridic.

Soil temperature: 42 to 47 degrees, F.

Depth to bedrock: 20 to 40 inches to a paralithic (or lithic) contact.

Reaction: Slightly acid or neutral.

Control section:

Rock fragments--Lithology of fragments is intrusive igneous (plutonic) rocks such as granite and metamorphic rocks such as quartzite.

Other features--The mollic epipedon commonly extends to the bedrock contact.

A horizons:

Value--3 through 5 dry, 2 or 3 moist.

Chroma--1 through 3 dry or moist.

AC and C horizons:

Value--5 through 8 dry, 2 through 6 moist.

Chroma--2 or 3, dry or moist.

Texture--Loam, sandy loam, coarse sandy loam, gravelly coarse sandy loam, or gravelly sandy loam.

Other features--Illuvial clay is present, but the required clay increase is not met for these horizons to qualify as argillic horizons.

Oreneva Series

The Oreneva series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt. Oreneva soils are on shoulders of plateaus. Slopes are 4 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid Xerollic Camborthids

Typical pedon: Oreneva gravelly loam, 4 to 15 percent slopes, located in map unit 108. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate coarse platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; 25 percent pebbles; neutral (pH 6.8); clear smooth boundary.

Bw--4 to 12 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and slightly plastic; common fine and very fine roots; common very fine interstitial pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.

2C--12 to 24 inches; light yellowish brown (10YR 6/4) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 40 percent pebbles; 5 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

2R--24 inches; basalt.

Type location: Humboldt County, Nevada; approximately 2 miles west of Denio, about 1,700 feet south and 500 feet east of the northwest corner of section 6, T.47 N., R.30 E.; (41 degrees, 59 minutes, 16 seconds north latitude and 118 degrees, 40 minutes, 36 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist winter and spring.

Soil temperature: 44 to 47 degrees.

Depth to bedrock: 20 to 40 inches, but is typically 20 to 30 inches.

Control section:

Clay content--18 to 27 percent.

Rock fragments--35 to 50 percent, and consists predominantly of gravel.

A horizon:

Value--5 or 6 dry; 3 or 4 moist.

Chroma--2 or 3 dry; 3 moist.

Rock fragments--15 to 40 percent gravel and 0 to 15 percent cobbles.

Reaction--Neutral or slightly alkaline.

Bw horizon:

Value--5 or 6 dry; 3 or 4 moist.

Chroma--3 dry and moist.

Reaction--Neutral or slightly alkaline.

Texture--It is loam or clay loam with 18 to 30 percent clay. It has 0 to 15 percent gravel and 0 to 5 percent cobbles.

C horizon:

Value--5 through 7 dry; 3 through 5 moist.
 Chroma--4 dry; 3 or 4 moist.
 Reaction--Mildly or moderately alkaline.
 Texture--Loam or clay loam.
 Structure--Massive.
 Rock fragments--0 to 15 percent cobbles; 35 to 50 percent gravel.

Orovada Series

The Orovada series consists of very deep, well drained soils that formed in loess high in volcanic ash over alluvium from mixed rock sources. Orovada soils are on fan skirts and inset fans. Slopes are 0 to 4 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical pedon: Orovada fine sandy loam, 0 to 4 percent slopes, located in map unit 411. (Colors are for dry soil unless otherwise noted.)

A--0 to 6 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; common very fine tubular pores; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bw--6 to 17 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 10 percent pebbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bqk1--17 to 29 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; 10 percent pebbles; 20 percent strongly cemented durinodes; few fine segregated lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Bqk2--29 to 49 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist;

massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; 10 percent pebbles; 20 percent strongly cemented durinodes; few fine segregated lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bqk--49 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial and few very fine tubular pores; 10 percent pebbles; 20 percent durinodes; few fine segregated lime filaments; strongly effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; approximately 2 miles south of Denio Junction, about 1,000 feet south and 100 feet west of the northeast corner of section 28, T.47 N., R.30 E.; (41 degrees, 55 minutes, 39 seconds north latitude and 118 degrees, 37 minutes, 15 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from late June through early November.

Soil temperature: 47 to 52 degrees, F.

Depth to Bq or Bqk horizon: 10 to 28 inches.

Control section:

Clay content--5 to 18 percent.

Rock fragments--0 to 15 percent, mainly pebbles.

Other features--When mixed, value of the upper 7 inches is greater than 5.5 dry and 3.5 moist.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 or 4 moist.

Chroma--2 through 4.

Reaction--Neutral to moderately alkaline.

Bw horizon:

Hue--10YR or 2.5Y.

Value--6 through 8 dry; 3 through 6 moist.

Chroma--2 through 6.

Texture--Fine sandy loam, very fine sandy loam, loam, silt loam with strata of loamy fine sand or sandy loam in some pedon.

Clay content--5 to 18 percent.

Rock fragments--Averages 0 to 15 percent pebbles.

Structure--Subangular blocky, prismatic, or horizon is massive.

Consistence--Soft to slightly hard, very friable to friable nonsticky to slightly sticky, nonplastic to slightly plastic.

Reaction--Slightly alkaline or moderately alkaline.

Bqk horizons:

Hue-- 10YR or 2.5Y.
 Value--6 or 7 dry, 3 through 5 moist.
 Chroma--2 through 6.
 Texture--Fine sandy loam, very fine sandy loam, loam, silt loam with strata of loamy fine sand or sandy loam in some pedons.
 Rock fragments--Up to 30 percent pebbles in some subhorizons of some pedons.
 Consistence--Soft to hard dry, nonsticky or slightly sticky and nonplastic or slightly plastic, wet.
 Reaction--Moderately alkaline to very strongly alkaline, commonly increasing with depth.
 Cementation--Contains 20 to 80 percent durinodes. Horizons with less than 20 percent durinodes are common below 40 inches in some pedons.
 Other features--Gypsum crystals are below depths of 37 inches in some pedons. Very gravelly strata are found below depths of 40 inches in some pedons.

Outerkirk Series

The Outerkirk series consists of very deep, well drained soils that formed in mixed alluvium. Outerkirk soils are on alluvial flats and basin floor remnants. Slopes are 1 to 4 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical pedon: Outerkirk sandy loam, 1 to 2 percent slopes, located in map unit 679. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk1--4 to 24 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bk2--24 to 34 inches; light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 3/3) moist; weak

medium subangular blocky structure; hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bkq--34 to 50 inches; very pale brown (10YR 7/3) loamy sand, dark yellowish brown (10YR 3/4) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 10 percent pebbles; 50 percent durinodes; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2C--50 to 60 inches; brown (10YR 5/3) loamy sand, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 10 percent pebbles; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 2 miles southwest of Denio about 900 feet north and 500 feet east of the southwest corner of section 8, T.47 N., R.30 E.; (41 degrees, 57 minutes, 41 seconds north latitude and 118 degrees, 39 minutes, 27 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring.

Aridic bordering on xeric moisture regime.

Soil temperature: 47 to 50 degrees, F.

Depth to durinodes: 20 to 38 inches.

Depth to secondary carbonates: 3 to 8 inches.

Depth to calcic horizon (Bk2): 14 to 25 inches.

Control section:

Rock fragments--0 to 20 percent and are gravel.

Clay content--5 to 15 percent, with more than 15 percent coarser than very fine sand.

A horizon:

Value--5 to 7 dry, 2 or 3 moist.

Chroma--2 or 3 moist and dry. It has 0.5 to 0.8 percent organic matter.

Bk horizons:

Value--6 or 7 dry; 2 or 3 moist.

Chroma--2, 3 or 4 moist and dry.

Effervescence--It is strongly or violently effervescent.

Calcium carbonate equivalent--4 to 8 percent.

Bkq horizon:

Texture--Sandy loam or loamy sand.

Durinodes--20 to 50 percent durinodes and can be continuously hard, firm, and brittle in some pedons.

2C horizon:

Texture--Loamy sand, sandy loam, or silty clay loam.

Oxcorel Series

The Oxcorel series consists of very deep, well drained soils formed in alluvium derived from mixed rock sources with some influence from loess. Oxcorel soils are on fan remnants. Slopes are 2 to 30 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Fine, montmorillonitic, mesic Duric Natrargids

Typical pedon: Oxcorel very stony loam, 15 to 30 percent slopes, located in map unit 140. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 5 percent stones, 5 percent cobbles, and 15 percent pebbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2) very stony loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine vesicular pores; 5 percent stones, 5 percent cobbles, 15 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

A2--2 to 5 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; strong thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine tubular pores; 1 percent cobbles, 15 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btn1--5 to 9 inches; pale brown (10YR 6/3) clay, dark brown (10YR 4/3) moist; strong fine prismatic structure; hard, firm, sticky and plastic; common very fine and fine, few medium roots; common very fine and fine tubular pores; few thin clay films on faces of peds and lining pores; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btn2--9 to 20 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common very fine and fine roots; many very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

2Btqkn--20 to 24 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; massive; hard, firm, sticky and plastic; common very fine, few

fine and medium roots; many very fine tubular pores; common thin clay films on faces of peds and lining pores; 20 percent pebbles, 25 percent strongly cemented durinodes; common fine lime pendants on rock fragments; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3Bqk--24 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 30 percent pebbles, 10 percent cobbles; 20 percent strongly cemented durinodes; many fine lime filaments; strongly effervescent; moderately alkaline (pH 8.2).

Type location: Humboldt County, Nevada; approximately 4 miles north of the Trout Creek Ranch in Desert Valley, about 3,500 feet east and 100 feet south of the northwest corner of section 34, T.39 N., R.32 E.; (41 degrees, 13 minutes, 05 seconds north latitude and 118 degrees, 22 minutes, 45 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and early spring.

Soil temperature: 47 to 52 degrees, F.

Depth to base of natric horizon: 20 to 40 inches.

Depth to durinodes: 20 to 34 inches.

Other features: Some pedons have 1/2 to 2 inch thick E horizons capping the Bt horizon.

Control section:

Clay content--35 to 50 percent.

Rock fragments--0 to 10 percent pebbles in the upper part, 10 to 20 percent pebbles in the lower part.

A horizons:

Value--6 or 7 dry, 3 through 5 moist.

Chroma--2 or 3.

Btn horizons:

Hue--7.5YR or 10YR

Value--5 through 7 dry, 4 through 6 moist.

Chroma--3 through 6, chroma of 2 is common in the upper subhorizon of some pedons.

Reaction--Moderately alkaline to very strongly alkaline.

Texture--Clay or clay loam.

Consistence--Slightly hard to very hard dry; friable to very firm, moist; sticky or very sticky wet, and plastic or very plastic wet.

SAR--30 to 40 in the upper part; 40 to 60 in the lower part.

Carbonates--Matrix noneffervescent to strongly effervescent in the upper part and commonly has segregated lime in the lower part.
 Cementation--10 to 30 percent durinodes common in the lower subhorizon.
 Other features--Gypsum is common in the lower subhorizons of some pedons.

Bqk horizon:

Value--5 through 7 dry, 4 through 6 moist.
 Chroma--3 through 6.
 Rock fragments--35 to 60 percent.
 Textures--Very gravelly sandy loam or very gravelly loam.
 Cementation--20 to 60 percent, weakly or strongly cemented durinodes with up to 30 percent discontinuous weak cementation common.
 Consistence--Soft to hard, dry; very friable to firm moist; nonsticky or slightly sticky and nonplastic or slightly plastic, wet.
 Reaction--Moderately alkaline to very strongly alkaline.
 Other features--Some pedons have subhorizons with less than 20 percent durinodes in the upper part.

Pickup Series

The Pickup series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt. Pickup soils are on mountains. Slopes range from 30 to 75 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Aridic Argixerolls

Typical pedon: Pickup very stony loam, 30 to 50 percent slopes, located in map unit 720. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent pebbles, 10 percent cobbles, and 10 percent stones.

A1--0 to 2 inches; brown (10YR 5/3) very stony loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 25 percent pebbles, 10 percent cobbles; 10 percent stones; neutral (pH 7.0); clear wavy boundary.

A2--2 to 5 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and

slightly plastic; many very fine roots; many very fine tubular pores; few thin clay films bridging sand grains; 40 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt1--5 to 10 inches; brown (7.5YR 5/2) very gravelly clay, dark brown (7.5YR 3/2) moist; weak fine prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, very sticky and very plastic; common very fine and fine roots; many very fine tubular pores; 35 percent pebbles, 5 percent cobbles; common thin clay films on faces of pedis; neutral (pH 7.2); clear smooth boundary.

Bt2--10 to 22 inches; light brown (7.5YR 6/4) very gravelly clay, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; very hard, friable, sticky and very plastic; few very fine roots; many very fine tubular pores; 30 percent pebbles, 10 percent cobbles; common thin clay films on faces of pedis; neutral (pH 7.2); clear smooth boundary.

R--22 inches; fractured basalt bedrock.

Type location: Humboldt County, Nevada; approximately 2.5 miles southwest of Knott Creek Reservoir, about 1,400 feet east and 500 feet north of the southwest corner of section 19, T.43 N., R.28 E.; (41 degrees, 37 minutes, 50 seconds north latitude and 118 degrees, 49 minutes, 12 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry in summer and fall; aridic moisture regime that borders on xeric.

Soil temperature: 47 to 52 degrees, F.

Depth to bedrock: 20 to 40 inches to a lithic contact.

Control section:

Clay content--40 to 55 percent

Rock fragments--35 to 60 percent, mainly pebbles and cobbles. Lithology of fragments are volcanic rocks such as basalt, andesite, rhyolite, and tuff.

Reaction--Neutral to moderately alkaline.

A horizons:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3, dry or moist.

Bt1 horizon:

Hue--10YR or 7.5YR.

Value--4 or 5 dry.

Chroma--2 through 4, dry or moist.

Texture--Very gravelly clay loam or very gravelly clay.
 Structure--Prismatic, angular blocky, or subangular blocky.

Consistence--Slightly hard or hard; friable or very friable; moderately sticky or very sticky and moderately plastic or very plastic.

Clay content--35 to 45 percent.

Other features--In some pedons, this horizon is part of the mollic epipedon when chroma is less than 4.

Bt2 horizon:

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 through 5 moist.

Chroma--3 or 4, dry or moist.

Structure--Prismatic or subangular blocky.

Clay content--50 to 60 percent.

Reaction--Neutral to moderately alkaline.

Poisoncreek Series

The Poisoncreek series consists of shallow, well drained soils that formed in residuum derived from intermediate intrusive rocks. Poisoncreek soils are on mountains. Slopes are 4 to 75 percent. The mean annual precipitation is about 15 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid, shallow Aridic Argixerolls

Typical pedon: Poisoncreek very gravelly coarse sandy loam, 30 to 50 percent slopes, located in map unit 335. (Colors are for dry soil unless noted. The soil is partially covered with 45 percent pebbles.

A--0 to 5 inches; grayish brown (10YR 5/2) very gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine tubular pores; 35 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt--5 to 12 inches; brown (10YR 5/3) very gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine roots; many very fine tubular pores; 40 percent pebbles; few thin clay films on faces of peds and lining pores; neutral (pH 7.2); clear smooth boundary.

Cr--12 to 15 inches; weathered granite.

R--15 inches; slightly fractured granite.

Type location: Humboldt County, Nevada; in the Pine Forest Range, approximately 1 mile southwest of New York Peak, about 2,000 feet east and 2,000 feet

north of the southwest corner of section 9, T.42 N., R.28 E.; (41 degrees, 34 minutes, 29 seconds north latitude and 118 degrees, 46 minutes, 34 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, dry 70 to 120 days following summer solstice.

Soil temperature: 41 to 47 degrees, F.

Summer soil temperature: 61 to 67 degrees, F.

Mollic epipedon thickness: 7 to 12 inches

Depth to paralithic contact: 10 to 14 inches

Depth to hard bedrock: 14 to 20 inches

Control section:

Clay content--20 to 30 percent.

Rock fragments--35 to 75 percent.

A horizon:

Value--4 or 5 dry.

Chroma--2 or 3 dry, 1 to 3 moist.

Rock fragments--5 to 35 percent.

Bt horizon:

Hue--10YR or 2.5Y.

Value--4 to 6 dry, 3 or 4 moist.

Chroma--2 to 4.

Texture--Very gravelly sandy clay loam, very cobbly loam, or very gravelly loam.

Clay content--24 to 34 percent.

Rock fragments--35 to 60 percent.

Puett Series

The Puett series consists of shallow, well drained soils that formed in residuum and colluvium derived from weathered tuff, tuffaceous sandstone, and siltstone. Puett soils are on hills. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Loamy, mixed (calcareous), mesic shallow Xeric Torriorthents

Typical pedon: Puett very gravelly loam, 15 to 30 percent slopes, located in map unit 842. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 35 percent pebbles and 5 percent cobbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; moderate thin platy

structure; soft, very friable, nonsticky and nonplastic; few very fine roots, many very fine vesicular pores; 35 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C--3 to 15 inches; light yellowish brown (10YR 6/4) coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots, many very fine tubular pores; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Cr--15 to 18 inches; light yellowish brown (10YR 6/4) tuffaceous sandstone, yellowish brown (10YR 5/4) moist; few fine roots in cracks; violently effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 2 miles northwest of Bilk Creek Reservoir, about 500 feet north and 600 feet east of the center of section 29, T.44 N., R.32 E.; (41 degrees, 39 minutes, 38 seconds north latitude and 118 degrees, 24 minutes, 47 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry summer and fall; torric moisture regime that borders on xeric.

Soil temperature: 47 to 52 degrees, F.

Depth to bedrock: 10 to 20 inches to a paralithic contact.

Control section:

Clay content--5 to 10 percent.

Rock fragments--Up to 35 percent pebbles. Lithology of fragments are volcanic rocks such as tuff or sedimentary rocks such as tuffaceous sandstone and siltstone.

Reaction--Moderately alkaline or strongly alkaline.

Effervescence--Strongly effervescent or violently effervescent.

Calcium carbonate equivalent--1 to 10 percent. Some pedons have C horizons with up to 30 percent.

A horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4, dry or moist.

C horizon:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 through 6 moist.

Chroma--2 through 4, dry or moist.

Texture--Coarse sandy loam, sandy loam, fine sandy loam, or loam. Gravelly loam or gravelly sandy loam occurs in some pedons.

Structure--Subangular blocky or massive.

Consistence--Soft, to hard, dry; nonsticky or slightly sticky and nonplastic or slightly plastic, wet.

Other features--Some pedons have identifiable secondary carbonates as lime coats on rock fragments.

Pumper Series

The Pumper series consists of very deep, somewhat excessively drained soils that formed in loamy loess high in volcanic ash superimposed over very gravelly or extremely gravelly sand alluvium or lacustrine materials from mixed rock sources. Pumper soils are on inset fans beach terraces. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Sandy-skeletal, mixed, mesic Typic Camborthids

Typical pedon: Pumper sandy loam, 2 to 8 percent slopes, located in map unit 875. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent pebbles.

A--0 to 4 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; many very fine tubular pores; 10 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bw--4 to 11 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; many very fine tubular pores; 10 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

2Bk--11 to 25 inches; light brownish gray (10YR 6/2) very gravelly loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent pebbles; strongly effervescent; moderately thick lime coats on undersides of rock fragments; strongly alkaline (pH 8.8); abrupt smooth boundary.

3Ck--25 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly coarse sand, brown (10YR 5/3)

moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine, fine and medium interstitial pores; 65 percent pebbles; thin lime coats on undersides of rock fragments; violently effervescent; strongly alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 2 miles south of Quinn River Crossing, about 1,500 feet east of the northwest corner of section 6, T.42 N., R.32 E.; (41 degrees, 32 minutes, 58 seconds north latitude and 118 degrees, 26 minutes, 25 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry late May through November.

Soil temperature: 47 to 53 degrees, F.

Control section:

Clay content--0 to 10 percent.

Rock fragments--50 to 80 percent, mainly pebbles.

A horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Reaction--Slightly alkaline to strongly alkaline.

Other features--Slightly effervescent in some pedons due to recharge from dust.

Bw horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 or 4 moist (5 dry and 3 moist is due to dark colored sand grains).

Chroma--2 or 3.

Texture--Commonly loam, but includes very fine sandy loam, silt loam, fine sandy loam or sandy loam, with a clay content of 12 to 25 percent.

Structure--Weak medium or coarse subangular blocky or prismatic.

Consistence--Nonsticky or slightly sticky, wet.

Reaction--Slightly alkaline to strongly alkaline.

2Bk horizon:

Value--6 through 8 dry; 4 through 6 moist.

Chroma--2 or 3.

Texture--Very gravelly very fine sandy loam to extremely gravelly loam.

Clay content--8 to 15 percent.

Rock fragments--40 to 70 percent mainly pebbles.

Structure--Subangular blocky or is massive.

Consistence--Nonsticky or slightly sticky and nonplastic or slightly plastic when wet.

3C horizon:

Hue--10YR or 2.5Y.

Value--4 through 8 dry, 3 through 6 moist.

Chroma--1 through 3.

Texture--Is stratified and ranges from very gravelly sand to extremely gravelly coarse sand. Thin strata of sand or coarse sand are below 40 inches in some pedons.

Reaction--Moderately alkaline or strongly alkaline.

Carbonates--Very thin coatings on at least the underside of rock fragments, and few or common soft lime masses in some pedons.

Raglan Series

The Raglan series consists of very deep, well drained soils that formed in loamy mixed alluvium and lacustrine materials derived from mixed rock sources with a component of loess and volcanic ash. Raglan soils are on fan skirts and alluvial flat remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Duric Camborthids

Typical pedon: Raglan silt loam, 0 to 2 percent slopes located in map unit 1060. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; very pale brown (10YR 7/3) silt loam, dark brown (10YR 4/3) moist; moderate thin platy structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine vesicular and common very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

A2--2 to 7 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; few very fine and fine vesicular and common very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bw--7 to 16 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine interstitial and few very fine tubular pores; few thin silica bridges between sand grains and in pores; strongly alkaline (pH 8.8); clear smooth boundary.

Bqk--16 to 33 inches; pale brown (10YR 6/3) loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine interstitial and few very fine tubular pores; 20 percent discontinuous weak cementation, 20 percent durinodes; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

2Bky--33 to 38 inches; light gray (2.5Y 7/2) silt loam, light brownish gray (2.5Y 6/2) moist; common fine and medium prominent strong brown (7.5YR 5/6) mottles; massive; hard, friable, sticky and plastic; few very fine roots; common very fine interstitial and few very fine tubular pores; few fine and medium soft filaments of lime and gypsum; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

3C--38 to 60 inches; light gray (2.5Y 7/2) silty clay loam, olive (5Y 5/3) moist; many medium prominent strong brown (7.5YR 5/6) mottles; moderate medium platy structure; very hard, firm, sticky and plastic; few very fine roots; common very fine interstitial and few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 2.25 miles south of Trout Creek Ranch in Desert Valley, about 2,000 feet north and 750 feet east of the southwest corner of section 33, T.38 N., R.32 E.; (41 degrees, 07 minutes, 20 seconds north latitude and 118 degrees, 24 minutes, 42 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, intermittently moist in the winter and spring, dry late May through November.

Soil temperature: 47 to 52 degrees, F.

Depth to Bqk horizon: 10 to 20 inches.

Reaction: Slightly alkaline to very strongly alkaline, usually increasing with depth.

Salt and sodium: The soils are normally non-saline to slightly saline-sodic affected to a depth of 10 to 20 inches and slightly to strongly affected below. Moderate or strongly saline-sodic affected phases are recognized.

Other features: Mineralogy is mixed, but has a strong influence from volcanic ash.

Control section:

Clay content--18 to 25 percent.

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

A horizons:

Effervescence--Noneffervescent to strongly effervescent.

SAR--5 to 12.

Salinity--0 to 4 mmhos/cm.

Bw horizon:

Structure--Fine to thick platy, prismatic or subangular blocky or is massive.

Textures--Stratified, including loam, silt loam, very fine sandy loam, clay loam and silty clay loam; averages silt loam with 15 percent sand coarser than very fine sand.

Effervescence--Noneffervescent to strongly effervescent.

SAR--13 to 30.

Salinity--0 to 4 mmhos/cm.

Bqk horizon:

Durinodes--20 to 80 percent, up to 40 percent discontinuous weak silica cementation is common in any subhorizon where durinodes are present. Durinodes are hard or very hard dry, firm or very firm, moist and brittle.

Consistence--Matrix is soft to hard, dry, and very friable or friable moist.

3C horizon:

Hue--2.5Y or 5Y.

Structure--Platy or horizon is massive.

Effervescence--Slightly effervescent to violently effervescent.

Other features--Lacustrine material with Hue of 2.5Y or 5Y and relict mottles with reddish-Hue (7.5YR or 5YR) and high Chroma (4 through 6) iron stains commonly occur below depths of 24 inches. Gypsum segregations and shells from various aquatic animals are in the lacustrine material in most pedons.

SAR--13 to 45.

Salinity--4 to 8 mmhos/cm.

Ragtown Series

The Ragtown series consists of very deep, moderately well drained soils that formed in moderately fine and fine textured lacustrine materials derived from mixed rock sources. Ragtown soils are on basin-floor remnants. Slopes are 0 to 2 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Fine, montmorillonitic (calcareous), mesic Typic Torriorthents

Typical pedon: Ragtown silt loam, 0 to 2 percent slopes, located in map unit 432. (Colors are for dry unless otherwise noted.)

A1--0 to 2 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

A2--2 to 7 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and few fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

C--7 to 17 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; massive; hard, firm, sticky and plastic; common very fine and few fine roots; common very fine and fine tubular pores; slightly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

2C¹--17 to 30 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; massive; hard, firm, very sticky and very plastic; few very fine and fine roots; common very fine and fine tubular pores; slightly effervescent; very strongly alkaline (pH 9.2); abrupt smooth boundary.

2C²--30 to 60 inches; light gray (5Y 7/2) silty clay loam with a few thin stratas of fine sand, pale olive (5Y 6/3) moist; few fine distinct brown (7.5YR 5/4) moist mottles; weak thin platy structure; slightly hard, very friable, sticky and plastic; few very fine roots; many very fine tubular pores; slightly effervescent; strongly alkaline (pH 9.0).

Type location: Humboldt County, Nevada; approximately 1.5 miles east of Mormon Dan Peak, about 2,500 feet north and 1,750 feet east of the projected southwest corner of section 33, T.36 N., R.25 E.; (40 degrees, 58 minutes, 04 seconds north latitude and 119 degrees, 08 minutes, 24 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, intermittently moist for short periods in the winter and spring, dry May through November; typic torric moisture regime.

Soil temperature: 53 to 57 degrees, F.

Depth to fine textured materials: 16 to 32 inches.

Control section:

Clay content--Averages 35 to 45 percent, with 25 to 35 percent clay in the upper part and 35 to 60 percent clay in the lower part.

Texture--Stratified silty clay loam, clay loam or sandy clay loam in the upper part and stratified clay, silty clay or silty clay loam in the lower part.

Reaction--Moderately alkaline to very strongly alkaline. Very strongly alkaline usually occurs in strongly saline-sodic affected areas.

Effervescence--Slightly effervescent to violently effervescent.

A horizons:

Hue--10YR through 5Y.

Value--5 through 7 dry and 3 through 5 moist.

Chroma--2 through 4, dry or moist.

C horizons:

Hue--10YR through 5Y.

Value--6 or 7 dry and 4 through 6 moist.

Chroma--2 through 4, dry or moist.

Structure--Platy, subangular blocky, prismatic, or horizon is massive.

Consistence--Slightly hard or hard dry, sticky or very sticky and plastic or very plastic wet.

Salinity (EC)--0 to 32 mmhos/cm.

Sodicity (SAR)--1 to 90.

Calcium carbonate equivalent--1 to 40 percent.

Gypsum content--0 to 5 percent.

Redoximorphic features--Relict redox concentrations of iron or manganese may be present in any subhorizon.

Other features--Horizons with secondary carbonates are present in some pedons. Some pedons have few fine soft masses of secondary gypsum.

Rednik Series

The Rednik series consists of very deep, well drained soils that formed in mixed alluvium. Rednik soils are on fan remnants. Slopes are 50 to 75 percent. Mean annual precipitation is about 6 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Haplargids

Typical pedon: Rednik very gravelly sandy loam, 50 to 75 percent slopes, located in map unit 775. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 50 percent pebbles.

- A1--0 to 2 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 50 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.
- A2--2 to 6 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; 50 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.
- Btn--6 to 18 inches; brown (10YR 5/3) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; 50 percent pebbles, 5 percent cobbles; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
- C1--18 to 25 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; 40 percent pebbles; 3 percent cobbles; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.
- 2C2--25 to 37 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 50 percent pebbles; 3 percent cobbles; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
- 3C3--37 to 50 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; 3 percent cobbles; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
- 3C4--50 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 40 percent pebbles; 3 percent cobbles; strongly effervescent; strongly alkaline (pH 9.2).

Type location: Humboldt County, Nevada; approximately 10 miles northeast of Sulphur, about 1,500 feet north and 600 feet east of the projected southwest corner of section 29, T.36 N., R.30 E.; (40

degrees, 57 minutes, 45 seconds north latitude and 118 degrees, 39 minutes, 16 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist for short periods in the winter and spring, dry from summer to mid-fall; typical aridic moisture regime.

Soil temperature: 47 to 54 degrees, F.

Depth to base of argillic horizon: 15 to 30 inches.

Control section:

Clay content--Averages 18 to 27 percent

Rock fragments--35 to 75 percent, mainly pebbles.

Lithology of fragments is mixed.

A horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4, dry or moist.

Reaction--Slightly alkaline to strongly alkaline.

Btn horizon:

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4, dry or moist.

Texture (less than 2 mm fraction)--Sandy clay loam, sandy loam, or loam.

Structure--Moderate or strong, medium or fine, angular or subangular blocky structure.

Reaction--Moderately alkaline or strongly alkaline.

Salinity (EC)--4 to 8 mmhos/cm.

Sodicity (SAR)--13 to 30.

Effervescence--Strongly effervescent or violently effervescent.

Calcium carbonate equivalent--1 to 5 percent.

C horizons:

Hue--10YR or 7.5YR.

Value--6 through 8 dry, and 4 through 6 moist.

Chroma--2 through 4, dry or moist.

Texture (less than 2 mm fraction)--Fine sandy loam, sandy loam, loamy sand, sand, or loamy coarse sand.

Rock fragments--35 to 75 percent, mainly pebbles.

Reaction--Strongly alkaline or very strongly alkaline.

Sodicity (SAR)--5 to 30.

Effervescence--Strongly effervescent or violently effervescent.

Calcium carbonate equivalent--1 to 5 percent.

Rio King Series

The Rio King series consists of very deep, moderately well drained soils that formed in alluvium

from mixed rocks, loess, and volcanic ash. Rio King soils are on stream terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Aridic Haploxerolls

Typical pedon: Rio King loam, 0 to 2 percent slopes, located in map unit 1030. (Colors are for dry soil unless otherwise noted.)

Ap--0 to 6 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many fine interstitial pores; numerous worm casts; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bw--6 to 16 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common fine roots; few fine tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.

C1--16 to 35 inches; brown (10YR 5/3) very fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.

C2--35 to 60 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few fine roots; slightly alkaline (pH 7.4).

Type location: Humboldt County, Nevada; less than a mile northeast of Denio; (41 degrees, 59 minutes, 36 seconds north latitude and 118 degrees, 37 minutes, 36 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in some part late October to mid June; dry summer and early fall months.

Soil temperature: 47 to 53 degrees

Mollic epipedon thickness: 10 to 20 inches.

Control section:

Clay content--8 to 18 percent.

Rock fragments--0 to 10 percent, mainly fine pebbles.

A horizon:

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Reaction--Neutral or slightly alkaline; saline phases are moderately alkaline or strongly alkaline.

Bw horizon:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 or 3.

Structure--Subangular blocky or is massive.

Consistence--Slightly hard or hard, dry, very friable or friable, moist; nonsticky or slightly sticky wet.

Reaction--Neutral or slightly alkaline; saline phases are moderately alkaline to very strongly alkaline.

C horizons:

Hue--10YR or 7.5YR.

Values--5 through 7 dry, 3 or 4 moist.

Chroma--2 or 3.

Structure--Subangular blocky or is massive.

Texture--Stratified coarse sandy loam to silt loam.

Consistence--Slightly hard or hard, dry; very friable or friable, moist.

Reaction--Neutral or slightly alkaline; saline phases are strongly alkaline or very strongly alkaline.

Other features--Thin layers, less than 6 inches thick, with weak silica cementation are in some pedons.

Rocconda Series

The Rocconda series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium from shale, rhyolite, siltstone, and phyllite. Rocconda soils are on mountains and hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids

Typical pedon: Rocconda very channery loam, 15 to 50 percent slopes, located in map unit 452. The soil surface is partially covered with 35 percent channers. (Colors are dry unless otherwise noted.)

A--0 to 3 inches; light gray (2.5Y 7/2) very channery loam, light olive brown (2.5Y 5/4) moist; moderate fine platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine and fine tubular and common very fine and fine vesicular pores; 35 percent channers, moderately alkaline (pH 8.0); abrupt wavy boundary.

Bt--3 to 8 inches; light brownish gray (2.5Y 6/2) very channery clay, olive brown (2.5Y 4/4) moist;

moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; many fine and very fine roots; few very fine and fine interstitial pores; common thin clay films lining pores; 45 percent channers; slightly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R--8 inches; up to 14 inches is fractured bedrock; roots extend into vertical fractures.

Type location: Humboldt County, Nevada; approximately 5 miles southwest of Trout Creek Ranch in Desert Valley, about 2,700 feet south and 750 feet west of the projected northeast corner of section 3, T.37 N., R.31 E.; (41 degrees, 06 minutes, 38 seconds north latitude and 118 degrees, 29 minutes, 40 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist December through May and dry June through November.

Soil temperature: 47 to 52 degrees, F.

Depth to bedrock: 4 to 14 inches.

Control section:

Clay content--35 to 45 percent.

Rock fragments--35 to 70 percent, mainly channers or angular pebbles.

Profile reaction--Slightly alkaline or moderately alkaline.

A horizon:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 3 through 5 moist.

Chroma--2 through 4.

Other features--Effervescent in some pedons.

Bt horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 4 or 5 moist.

Texture--Very channery, very gravelly, extremely gravelly or extremely channery clay loam or clay.

Clay content--35 to 50 percent.

Rock fragments--35 to 70 percent, mainly channers or angular pebbles.

Structure--Subangular blocky or granular.

Consistence--Slightly hard or hard, dry.

Effervescence--Slightly effervescent to violently effervescent.

Other features--Some pedons have lithochromic colors that reflect the color of the parent rock.

Rodell Series

The Rodell series consists of shallow, somewhat excessively drained soils that formed in residuum

weathered from granitic rocks. Rodell soils are on mountain backslopes. Slopes are 50 to 75 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 38 degrees, F.

Taxonomic class: Sandy-skeletal, mixed, Lithic Cryorthents

Typical pedon: Rodell extremely bouldery coarse sandy loam, 50 to 75 percent slopes, located in map unit 785. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 5 percent cobbles and 20 percent boulders, and contains organic pine needles and some grass litter, undecomposed in the upper part, partially decomposed in the lower part.

A1--0 to 2 inches; grayish brown (10YR 5/2) extremely bouldery coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine interstitial pores; 20 percent boulders, 5 percent cobbles and 25 percent pebbles; medium acid (pH 6.0); abrupt wavy boundary.

A2--2 to 5 inches; grayish brown (10YR 5/2) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine and few medium roots; common very fine interstitial and tubular pores; about 30 percent pebbles; medium acid (pH 6.0); clear wavy boundary.

C1--5 to 11 inches; pale brown (10YR 6/3) very gravelly loamy coarse sand, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine and medium and few coarse roots; many very fine interstitial pores; about 35 percent pebbles and 5 percent cobbles; medium acid (pH 6.0); clear wavy boundary.

C2--11 to 17 inches; white (10YR 8/2) very gravelly loamy sand, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, fine and medium roots; many very fine interstitial and tubular pores; about 30 percent pebbles and 5 percent cobbles; medium acid (pH 6.0).

R--17 inches; fractured hard granite with fragments of boulder size; roots and some soil in crevices between fragments.

Type location: Humboldt County, Nevada; approximately 23 miles south and 4 miles west of Denio, about 1,600 feet east and 950 feet north of the

southwest corner of section 1, T.43 N., R.28 E.; (41 degrees, 40 minutes, 40 seconds north latitude and 118 degrees, 43 minutes, 12 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry late July through early October.

Soil temperature: 38 to 43 degrees, F.

Summer soil temperature: 54 to 59 degrees, F.

Depth to bedrock: 10 to 20 inches.

Profile reaction: Medium acid or slightly acid.

Control section:

Clay content--5 to 10 percent.

Rock fragments--35 to 45 percent, mostly pebbles.

A horizons:

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

C horizons:

Value--6 through 8 dry, 4 through 6 moist.

Chroma--2 or 3.

Texture--Loamy coarse sand, loamy sand.

Rock fragment--35 to 45 percent pebbles.

Rodock Series

The Rodock series consists of very deep, well drained soils that formed in alluvium from mixed rock sources with additions of loess and volcanic ash. Rodock soils are on inset fans, fan aprons, and stream terraces. Slopes are 0 to 8 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Aridic Duric Haploxerolls

Typical pedon: Rodock gravelly sandy loam, 0 to 4 percent slopes, located in map unit 442. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A--0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine, fine and medium vesicular pores; 15 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.

Bw1--2 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine and fine interstitial pores; 20 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bw2--10 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; many very fine and fine interstitial pores; 25 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bw3--14 to 20 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine to coarse roots; common very fine and fine tubular pores; 30 percent pebbles; few thin silica coats on faces of peds in the lower part; slightly alkaline (pH 7.4); clear wavy boundary.

Bqk--20 to 29 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; massive; very hard, firm, nonsticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; 30 percent pebbles; 50 percent strongly cemented durinodes and irregular silica and lime masses; slightly alkaline (pH 7.8); clear wavy boundary.

2Bqk--29 to 60 inches; pale brown (10YR 6/3) extremely gravelly coarse sand, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; many very fine and fine interstitial pores; 55 percent pebbles, 15 percent cobbles; many thin lime and silica pendants on rock fragments; strongly effervescent; slightly alkaline (pH 7.8).

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation, about 600 feet east and 100 feet north of the southwest corner of section 17, T.42., N. R.26 E.; (41 degrees, 32 minutes, 31 seconds north latitude and 119 degrees, 03 minutes, 10 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, October to late June. Dry from mid July to mid October

Soil temperature: 47 to 52 degrees, F.

Mollic epipedon: 10 to 19 inches thick.

Depth to continuous brittle matrix: 20 to 30 inches.

Depth to secondary carbonates: 20 to 40 inches.

Control section:

Clay content--Averages 10 to 18 percent.

Rock fragments--Averages 35 to 60 percent, mainly pebbles.

A horizon:

Chroma--2 or 3.

Reaction--Neutral or slightly alkaline.

Bw horizons:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 or 3.

Texture--Loam, very fine sandy loam or fine sandy loam.

Clay content--15 to 25 percent.

Rock fragment--0 to 30 percent, mainly pebbles.

Reaction--Neutral to moderately alkaline.

Bqk horizons:

Value--5 through 7 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Stratified; the upper part is loam to gravelly sandy loam and the lower part is very gravelly loam to extremely gravelly coarse sand.

Reaction--Slightly alkaline to strongly alkaline.

Consistence--Subhorizons have continuous brittle matrix; strongly cemented durinodes and coarse masses or pendants are in most pedons.

Saraph Series

The Saraph series consists of shallow, well drained soils that formed in residuum from soft tuffs with a minor admixture of basalt. Saraph soils are on shoulders of pediments and plateaus. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 45 degrees, F.

Taxonomic class: Ashy, mesic, shallow Xerollic Haplargids

Typical pedon: Saraph loamy sand, 2 to 8 percent slopes, located in map unit 841. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 pebbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine and

fine vesicular pores; 5 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2--2 to 4 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine tubular pores; 5 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

Bt1--4 to 9 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

Bt2--9 to 16 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; many very fine tubular pores; many thin clay films on faces of peds; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Cr--16 inches; soft tuff bedrock with few thin segregated lime coatings on the soil-bedrock interface.

Type location: Humboldt County, Nevada; approximately 0.5 mile east of Wildcat Gorge, about 2,800 feet east and 400 feet north of the southwest corner of section 28, T.42 N., R.24 E.; (41 degrees, 32 minutes, 02 seconds north latitude and 119 degrees, 16 minutes, 16 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring; dry from late June through October.

Soil temperature: 47 to 52 degrees, F.

Reaction: Neutral or slightly alkaline.

Depth to paralithic contact: 14 to 20 inches.

Control section:

Clay content--18 to 30 percent.

Volcanic glass--50 to 70 percent in the 0.2 to 2 mm size fraction.

Rock fragments--0 to 15 percent.

A horizons:

Value--3 or 4 moist.

Chroma--2 or 3.

Bt1 horizon:

Value--5 or 6 dry, 3 or 4 moist.

Texture--Sandy loam or sandy clay loam.

Clay content--15 to 25 percent.

Rock fragments--0 to 15 percent.

Bt2 horizon:

Value--5 or 6 dry, 3 or 4 moist.
 Texture--Sandy clay loam or clay loam.
 Clay content--20 to 35 percent.
 Rock fragments--0 to 15 percent.
 Structure--Moderate or strong, fine or medium,
 angular blocky or subangular blocky.
 Other features--May be slightly calcareous and have
 few or common lime segregations.

Shawave Series

The Shawave series consists of very deep, well drained soils that formed in alluvium derived from granitic rock with a component of loess and volcanic ash. Shawave soils are on fan piedmonts. Slopes are 2 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Fine-loamy, mixed, mesic Xerollic
 Haplargids

Typical pedon: Shawave gravelly sandy loam, 2 to 8 percent slopes, located in map unit 410. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine tubular pores; 20 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2--2 to 5 inches; light brownish gray (10YR 6/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to weak thin platy; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 20 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bt1--5 to 10 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; many very fine and common fine roots; common very fine tubular pores; 5 percent pebbles; few thin clay films on faces of peds and lining pores; moderately alkaline (pH 8.2); clear smooth boundary.

Bt2--10 to 16 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, firm, sticky and plastic; many very fine and common fine roots;

common very fine tubular pores; 5 percent pebbles; common thin clay films on faces of peds and lining pores; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk--16 to 46 inches; very pale brown (10YR 7/3) sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine tubular pores; 10 percent pebbles; 15 percent weakly cemented durinodes; common medium lime filaments; moderately alkaline (pH 8.2); clear wavy boundary.

2Ck--46 to 60 inches; light yellowish brown (10YR 6/4) loamy coarse sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 15 percent pebbles; few fine lime filaments; moderately alkaline (pH 8.2).

Type location: Humboldt County, Nevada; approximately 2.5 miles east of Denio Summit, about 2,000 feet north and 400 feet east of the southwest corner of section 17, T.46 N., R.31 E.; (41 degrees, 51 minutes, 43 seconds north latitude and 118 degrees, 32 minutes, 26 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and early spring; dry from June through November.

Soil temperature: 53 to 56 degrees, F.

Depth to secondary carbonates: 15 to 25 inches.

Depth to the base of the argillic horizon: 15 to 30 inches.

A horizons:

Value-- 5 or 6 dry and 3 or 4 moist (when mixed, the upper 7 inches averages greater than 5.5 dry or 3.5 moist).

Chroma--2 through 4.

Reaction--Slightly alkaline or moderately alkaline.

Bt horizons:

Hue--10YR or 7.5YR.

Value--5 or 6 dry and 4 or 5 moist, most pedons include bleached areas with value of 7 dry in the upper subhorizon.

Chroma--2 through 4.

Texture--Sandy loam, sandy clay loam, loam.

Clay content--18 to 25 percent.

Rock fragments--0 to 15 percent, mainly fine pebbles.

Structure--Subangular blocky or prismatic in the upper part and massive in the lower part.

Consistence--Slightly hard, hard or very hard dry and very friable, friable or firm moist.

Reaction--Slightly alkaline or moderately alkaline.

Effervescence--The matrix is typically noneffervescent but may contain a few fine lime filaments.

SAR--Less than 13.

Bk horizon:

Value--5 through 7 dry and 4 or 5 moist.

Chroma--3 through 6.

Texture--Sandy loam or coarse sandy loam.

Clay content--4 to 10 percent.

Rock fragments--0 to 15 percent, mainly fine pebbles.

Consistence--Soft, slightly hard or hard dry and very friable or friable moist.

Reaction--Slightly alkaline or moderately alkaline.

Other features--May contain up to 50 percent very weakly developed silica cemented nodules that are hard dry and very friable moist.

2C horizon:

Value--6 or 7 dry; 4 through 6 moist.

Chroma--3 through 6.

Texture--Loamy coarse sand, coarse sand or sand.

Clay content--2 to 6 percent.

Rock fragments--0 to 15 percent, mainly fine pebbles.

Structure--Horizon is massive or single grained.

Consistence--Loose, soft or slightly hard dry and loose or very friable moist.

Reaction--Slightly alkaline or moderately alkaline.

Other features--In some pedons these horizons are not present within a depth of 60 inches.

Simon Series

The Simon series consists of very deep, well drained soils formed in loess high in volcanic ash over gravelly and cobbly mixed alluvium. Simon soils are on fan remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 44 degrees, F.

Taxonomic class: Fine-loamy, mixed, frigid Aridic Argixerolls

Typical pedon: Simon loam, 4 to 15 percent slopes, located in map unit 826. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine and few fine vesicular pores; neutral (pH 6.8); clear smooth boundary.

A2--2 to 7 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine tubular pores; neutral (pH 6.8); clear smooth boundary.

Bt1--7 to 13 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; weak fine prismatic structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles; neutral (pH 6.8); clear smooth boundary.

Bt2--13 to 31 inches; grayish brown (10YR 5/2) clay loam, brown (10YR 4/3) moist; moderate fine prismatic structure; very hard, friable, sticky and plastic; common very fine and fine roots; few very fine tubular pores; many thin clay films on faces of peds; 10 percent pebbles; neutral (pH 6.8); gradual smooth boundary.

2Bt3--31 to 46 inches; light yellowish brown (10YR 6/4) cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; very hard, friable, very sticky and very plastic; common very fine roots; common very fine tubular pores; many thin clay films on faces of peds; 10 percent pebbles, 10 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

3Bt4--46 to 54 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, sticky and plastic; few very fine roots; many very fine interstitial pores; few thin clay films in pores; 45 percent pebbles, 3 percent stones, 10 percent cobbles; neutral (pH 6.8); diffuse smooth boundary.

3C--54 to 60 inches; brown (10YR 5/3) extremely gravelly clay loam, brown (10YR 4/3) moist; massive; hard, friable, sticky and slightly plastic; few very fine roots; many very fine interstitial pores; 60 percent pebbles, 3 percent stones; neutral (pH 6.8).

Type location: Humboldt County, Nevada; in Donnelly Flat, approximately 1 mile southwest of McCarthy Spring, about 300 feet east and 250 feet north of the center of section 18, T.37 N., R.24 E.; (41 degrees, 06 minutes, 21 seconds north latitude and 119 degrees, 17 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry mid-June through October.

Soil temperature: 45 to 47 degrees, F.

Mollic epipedon thickness: 10 to 17 inches, may include upper part of the argillic horizon.

Combined thickness of A and Bt horizons: 40 to 60 inches.

Control section:

Clay content--20 to 35 percent.

Rock fragments--0 to 25 percent, predominantly pebbles.

Reaction--Slightly acid or neutral.

A horizons:

Chroma--1 through or 3.

Bt horizons:

Value-- 4 through 6 dry, 3 through 5 moist.

Chroma--2 through 4.

Texture--Loam or clay loam.

Consistence--Hard to very hard.

Rock fragments--0 to 25 percent.

Clay content--18 to 35 percent.

Structure--Weak or moderate, very fine, fine or medium subangular blocky or angular blocky or prismatic.

Reaction--Slightly acid or neutral.

2Bt horizon:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Texture--Clay or clay loam.

Consistence--Hard or very hard, sticky or very sticky and plastic or very plastic wet.

Clay content--35 to 45 percent.

Rock fragments--15 to 35 percent. Dominantly cobbles.

Reaction--Slightly acid or neutral.

3Bt horizon:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Texture--Loam, clay loam or sandy clay loam.

Consistence--Hard or very hard dry.

Clay content--20 to 35 percent.

Rock fragments--0 to 60 percent.

3C horizon:

Value--5 or 6 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture--Sandy clay loam, clay loam, or loam.

Rock fragments--30 to 75 percent pebbles or cobbles.

Other features--Unconformable sand and gravel or clay is below 40 inches in some pedons; in these layers hue ranges to 5Y.

Singatse Series

The Singatse series consists of very shallow, somewhat excessively drained soils that formed in residuum and colluvium derived from rhyolite, andesite, dacite, and granite. Singatse soils are on backslopes of mountains and hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents

Typical pedon: Singatse very gravelly sandy loam, 30 to 50 percent slopes, located in map unit 805. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 40 percent pebbles and 5 percent cobbles.

A--0 to 4 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 40 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

C--4 to 8 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; massive; soft, friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 55 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

R--8 inches; rhyolite, fractured in upper 6 inches

Type location: Humboldt County, Nevada; approximately 23 miles north of Gerlach, about 1,800 feet north and 1,600 feet west of the projected southeast corner of section 24, T.36 N., R.23 1/2 E.; (40 degrees, 59 minutes, 41 seconds north latitude and 119 degrees, 18 minutes, 46 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and spring, dry in early May through October; typic torric moisture regime.

Soil temperature: 49 to 54 degrees, F.

Depth to bedrock: 4 to 10 inches to a lithic contact.

Reaction: Moderately alkaline or strongly alkaline.

Control section:

Clay content--5 to 15 percent

Rock fragments--35 to 60 percent, mainly pebbles.

Lithology of fragments are dominantly volcanic rocks such as rhyolite, andesite, dacite, or tuff.

Effervescence--Slightly effervescent to strongly effervescent
Calcium carbonate equivalent--1 to 10 percent.

A horizon:

Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3, dry or moist.

C horizon:

Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3, dry or moist.
Texture--Very gravelly loam or very gravelly sandy loam.

Siscab Series

The Siscab series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium derived from granite. Siscab soils are on predominantly south-facing mountain backslopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow Aridic Argixerolls

Typical pedon: Siscab very bouldery loamy coarse sand, 30 to 50 percent slopes, located in map unit 819. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 20 percent pebbles and 5 percent boulders.

A1--0 to 1 inch; grayish brown (10YR 5/2) very bouldery loamy coarse sand, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; 20 percent pebbles and 5 percent boulders; slightly acid (pH 6.4); clear wavy boundary.

A2--1 to 3 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse platy structure parting to weak medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; 30 percent pebbles; neutral (pH 6.6); abrupt wavy boundary.

Bt--3 to 8 inches; brown (10YR 4/3) gravelly clay loam, dark brown (7.5YR 3/2) moist; strong fine and medium subangular blocky structure; hard, friable, sticky and very plastic; common fine and medium

roots; common fine and medium tubular pores; common moderately thick clay films on faces of peds and lining pores; 20 percent pebbles; neutral (pH 6.8); clear irregular boundary.

Cr1--8 to 13 inches; soft, highly weathered granitic grus with clay coating on fracture faces and few very fine roots along fractures.

Cr2--13 inches; soft weathered granitic grus with pockets of hard angular granite.

Type location: Humboldt County, Nevada; in the Bilk Creek Mountains, about 3,700 feet east and 2,400 feet south of the northeast corner of section 10, T.46 N., R.31 E.; (41 degrees, 51 minutes, 50 seconds north latitude and 118 degrees, 30 minutes, 05 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry late July through early October.

Soil temperature: 48 to 52 degrees, F.

Mollic epipedon thickness: 6 to 14 inches (includes all of argillic or Bt horizon).

Depth to paralithic: 6 to 14 inches.

Reaction of profile: Slightly acid or neutral.

Control section:

Clay content--Average 18 to 27 percent.

Rock fragments--15 to 35 percent, predominantly 2 to 5 millimeter size pebbles.

A horizons:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizon:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Texture--Gravelly clay loam or gravelly sandy clay loam.

Clay content--Average 27 to 35 percent.

Rock fragments--15 to 35 percent, mainly fine pebbles.

Consistence--Slightly sticky or sticky and slightly plastic to very plastic.

Skedaddle Series

The Skedaddle series consists of very shallow and shallow, well drained soils that formed in residuum and

colluvium from weathered basalt. Skedaddle soils are on backslopes of mountains. Slopes range from 30 to 75 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, nonacid, mesic Lithic Xeric Torriorthents

Typical pedon: Skedaddle very stony loam, 50 to 75 percent slopes, located in map unit 830. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent pebbles, 5 percent cobbles, and 10 percent stones.

A1--0 to 2 inches; light brownish gray (10YR 6/2) very stony loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine interstitial pores; 25 percent pebbles, 5 percent cobbles, 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

A2--2 to 12 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 30 percent pebbles, 5 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

R--12 inches; hard bedrock weathered in the upper 2 to 4 inches.

Type location: Humboldt County, Nevada; northeast of the Jackson Creek Ranch about 850 feet north and 400 feet east of the southwest corner of section 16, T.40 N., R.31 E.; (41 degrees, 20 minutes, 23 seconds north latitude and 118 degrees, 30 minutes, 53 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist winter and early spring.

Soil temperature: 47 to 52 degrees.

Depth to bedrock: 4 to 12 inches.

Control section:

Clay content--18 to 27 percent.

Rock fragments--35 to 60 percent.

A horizons:

Value--5 or 6 dry, 3 or 4 moist; when mixed greater than 5.5 dry or 3.5 moist.

Chroma--2 or 3.

Reaction--Neutral or slightly alkaline.

Slawha Series

The Slawha series consists of very deep, well drained soils that formed in alluvium from mixed rock sources. Slawha soils are on alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 54 degrees, F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic, Typic Torrfluvents

Typical pedon: Slawha silt loam, 0 to 2 percent slopes, located in map unit 149. (Colors are for dry soil unless otherwise noted.)

A1--0 to 5 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

A2--5 to 13 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.1); clear smooth boundary.

C1--13 to 17 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and medium roots; common very fine and fine tubular pores; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

2C2--17 to 27 inches; light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; violently effervescent; very strongly alkaline (9.2); clear smooth boundary.

2C3--27 to 42 inches; light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; strongly effervescent; very strongly alkaline (9.2); clear smooth boundary.

3C4--42 to 60 inches; pale yellow (2.5Y 7/4) silty clay loam, olive brown (2.5Y 4/4) moist; few distinct mottles yellow (10YR 7/8), brownish yellow (10YR

6/6) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; few very fine tubular pores; violently effervescent; very strongly alkaline (pH 9.2).

Type location: Humboldt County, Nevada; approximately 2.5 miles north of Deer Creek Ranch, about 3,800 feet west and 1,800 feet south of the northeast corner of section 10, T.41 N., R.31 E.; (41 degrees, 26 minutes, 37 seconds north latitude and 118 degrees, 29 minutes, 46 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry July through October.

Soil temperature: 45 to 50 degrees, F.

Calcium carbonate: 1 to 4 percent.

Organic matter: Decrease irregularly with depth.

Control section:

Clay content--18 to 35 percent.

A horizons:

Value-- 6 or 7 dry, 4 through 6 moist.

Chroma--2 through 4.

Reaction--Strongly alkaline or very strongly alkaline.

Carbonates--Slightly effervescent to violently effervescent.

C horizons:

Hue--10YR or 2.5Y

Value--6 through 8 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture--Silty clay loam or silt loam.

Structure--Subangular blocky, platy or is massive.

Reaction--Strongly alkaline or very strongly alkaline.

Relict mottles--Common in any subhorizon.

Softscrabble Series

The Softscrabble series consists of very deep, well drained soils that formed in residuum and colluvium from volcanic rocks with some areas of chert, quartzite, and shale. Softscrabble soils are on plateaus and mountains. Slopes are 4 to 50 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 44 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Argixerolls

Typical pedon: Softscrabble very stony loam, 15 to 50 percent slopes, located in map unit 467. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent pebbles, 10 percent cobbles, and 5 percent stones.

A1--0 to 4 inches; very dark grayish brown (10YR 3/2) very stony loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 30 percent pebbles, 10 percent cobbles and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

A2--4 to 12 inches; very dark grayish brown (10YR 3/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and medium roots; many fine tubular pores; 30 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt1--12 to 19 inches; dark brown (10YR 4/3) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; strong fine angular blocky structure; hard, friable, sticky and plastic; common fine and medium roots; common fine tubular pores; common thin clay films lining pores; 40 percent cobbles; 10 percent pebbles; neutral (pH 6.8); gradual wavy boundary.

Bt2--19 to 36 inches; dark brown (10YR 4/3) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; strong fine angular blocky structure; hard, friable, sticky and plastic; common fine and medium roots; common fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 10 percent pebbles, 40 percent cobbles; neutral (pH 6.8); gradual smooth boundary.

2Bt3--36 to 61 inches; dark yellowish brown (10YR 4/4) gravelly clay loam, dark brown (10YR 3/3) moist; strong fine angular blocky structure; hard, friable, sticky and plastic; common fine medium roots; common fine tubular pores; few thin clay films on faces of peds; 20 percent pebbles, 10 percent cobbles; neutral (pH 6.6).

Cr--61 inches; highly weathered bedrock

Type location: Humboldt County, Nevada; in the Bilk Creek Mountains, approximately 12 miles southeast of Denio, about 2,500 feet west and 600 feet south of the northeast corner of section 1, T.46 N., R.31 E.; (41 degrees, 53 minutes, 57 seconds north latitude and 118 degrees, 27 minutes, 16 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry mid-July to early October.

Soil temperature: 44 to 47 degrees, F.

Mollic epipedon thickness: 20 to 38 inches.

Depth to base of Bt horizon: 60 to 80 inches.

Control section:

Clay content--Averages 27 to 35 percent.

Rock fragments--35 to 70 percent pebbles and cobbles with few stones, when mixed.

Reaction--Slightly acid or neutral.

A horizons:

Hue--10YR or 7.5YR.

Value--3 through 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizons:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 3 or 4 moist.

Chroma--2 through 4 (4 in lower part only).

Texture--Loam and clay loam with an average of 35 to 70 percent rock fragments. Individual horizons can have as few as 5 percent rock fragments.

Structure--Angular blocky or subangular blocky.

Consistence--Slightly hard or hard, dry; friable or firm, moist; slightly sticky or sticky and slightly plastic or plastic wet.

Sojur Series

The Sojur series consists of very shallow, well drained soils formed in residuum from phyllite, slate, and related metamorphic rocks. Sojur soils are on foothill backslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is around 52 degrees, F.

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents

Typical pedon: Sojur extremely channery silt loam, 15 to 50 percent slopes, located in map unit 935. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 65 percent channers.

A--0 to 6 inches; light gray (10YR 7/2) extremely channery silt loam, grayish brown (10YR 5/2) moist; moderate thin platy structure; slightly hard, very friable sticky and plastic; few very fine roots; many fine vesicular pores; 65 percent channers; strongly

effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

R--6 inches; fractured horizontally oriented phyllite with common very fine roots in the upper 6 inches of fracture and few very fine roots in the lower part; hard at 16 inches.

Type location: Humboldt County, Nevada; approximately 2 miles west of Jungo, about 1,700 feet south and 2,100 feet west of the projected northeast corner of section 17, T.35 N., R.32 E.; (40 degrees, 54 minutes, 35 seconds north latitude and 118 degrees, 24 minutes, 49 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist for short periods in winter and early spring, dry mid-May through November; typic torric soil moisture regime.

Soil temperature: 53 to 57 degrees, F.

Depth to bedrock: 4 to 10 inches to a lithic contact.

Control section:

Clay content--18 to 25 percent

Rock fragments--50 to 75 percent when mixed with the surface rock fragments, mainly channers; lithology of fragments is phyllite, schist, or similar metamorphic rocks.

Reaction--Moderately alkaline or strongly alkaline.

Calcium carbonate equivalent--1 to 10 percent.

Effervescence--Strongly effervescent or violently effervescent.

Other features--Some pedons have thin C horizons with greater than 60 percent rock fragments overlying the lithic contact. Thin zones with greater than 90 percent rock fragments (fragmental material) less than 5 inches thick also may be present. Pararock fragments may occur as small pieces (paragravel or parachanners) of soft phyllite or schist.

A horizon:

Hue--10YR through 5Y.

Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture (fine-earth)--Silt loam or loam.

Sondoa Series

The Sondoa series consists of very deep, well drained soils that formed in alluvium and lacustrine sediments derived from mixed rock sources. Sondoa soils are on basin-floor remnants. Slopes are 0 to 2

percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic Typic Torriorthents

Typical pedon: Sonda silt loam, 0 to 2 percent slopes, located in map unit 563. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; strong coarse platy structure; slightly hard, friable, very sticky and plastic; few very fine roots; many very fine and fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.2); abrupt smooth boundary.

C1--5 to 20 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; massive; hard, firm, sticky and plastic; common very fine and few fine roots; common very fine tubular pores; few 1/4 to 1/2 inch diameter crustacean shells; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2Ck--20 to 32 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; few fine distinct dark reddish brown (5YR 3/3) relict mottles; massive; hard, firm, sticky and plastic; few very fine roots; common very fine tubular pores; strongly effervescent; common medium soft masses of lime; strongly alkaline (pH 8.8); abrupt smooth boundary.

2C2--32 to 40 inches; light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; common medium distinct dark reddish brown (5YR 3/3) relict mottles; massive; hard, firm, sticky and plastic; few very fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

3C3--40 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; approximately 2 miles north of Sulphur, about 550 feet east and 1,150 feet north of the projected southwest corner of section 15, T.35 N., R.29 E.; (40 degrees, 54 minutes, 10 seconds north latitude and 118 degrees, 43 minutes, 38 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in the winter and spring, dry June through November.

Soil temperature: 53 to 57 degrees, F.

Calcium carbonate equivalent: 4 to 12 percent.

Effervescence: Strongly effervescent or violently effervescent.

Profile reaction: Strongly alkaline or very strongly alkaline.

Control section:

Clay content--Averages 25 to 35 percent.

A horizon:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 3 through 5 moist.

Chroma--2 or 3.

Other features--Buried A horizons are common in some pedons and have the value of 3 moist and when rubbed, lighten to 4 moist.

C horizons:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture--Stratified silt loam and silty clay loam. Thin or very thin varves of fine sand are common in some pedons.

Clay content--25 to 35 percent.

Structure--Prismatic, subangular blocky or horizon is massive.

Reaction--Strongly alkaline or very strongly alkaline.

SAR--Greater than 46.

Segregated lime--Soft masses of lime occur in subhorizons of some pedons.

Relict mottles--Are common in any subhorizon in the lower profile.

Other features--Some pedons have few gypsum filaments below 25 inches. Some pedons have weak discontinuous silica cementation or durinodes or both. Some pedons lack crustacean shells.

Soughe Series

The Soughe series consists of shallow, well drained soils that formed in residuum and colluvium from volcanic rocks. Soughe soils are on hills, mountains, and plateaus. Slopes are 4 to 75 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical pedon: Soughe extremely gravelly fine sandy loam, 15 to 50 percent slopes, located in map unit 660. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 70 percent pebbles and 5 percent cobbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) extremely gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine vesicular pores; 70 percent pebbles, 5 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2--2 to 4 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine vesicular pores; 40 percent pebbles, 5 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

Bt--4 to 14 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine and fine roots; many very fine tubular pores; 40 percent pebbles, 10 percent cobbles; few thin clay films on faces of peds; moderately alkaline (pH 8.0); abrupt smooth boundary.

R--14 inches; unweathered bedrock

Type location: Humboldt County, Nevada; approximately 4 miles southwest of Denio Junction, about 1,300 feet west and 300 feet north of the projected southeast corner of section 19, T.46 N., R.29 E.; (41 degrees, 53 minutes, 53 seconds north latitude and 118 degrees, 41 minutes, 06 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry mid-June through October.

Soil temperature: 47 to 50 degrees.

Depth to bedrock: 10 to 20 inches.

Reaction: Neutral to moderately alkaline.

Control section:

Clay content--25 to 35 percent.

Rock fragments--35 to 60 percent, mainly pebbles with 0 to 10 percent cobbles.

A horizons:

Value--5 or 6 dry, 3 or 4 moist.

Bt horizon:

Value--4 through 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Texture--Very gravelly clay loam, very gravelly sandy clay loam, or very gravelly loam.

Structure--Weak to strong, very fine to very coarse subangular blocky or moderate to strong, medium angular blocky.

Consistence--Soft to hard, dry; very friable or friable, moist, sticky or very sticky and plastic or very plastic wet.

Sumine Series

The Sumine series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from mixed rocks. Sumine soils are found on hills, mountains, and plateaus. Slopes are 15 to 50 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 42 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical pedon: Sumine cobbly loam, 30 to 50 percent slopes, located in map unit 189. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 10 percent pebbles and 15 percent cobbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine and medium interstitial pores; 10 percent pebbles, 15 percent cobbles; neutral (pH 6.8); clear smooth boundary.

A2--2 to 5 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine and medium interstitial pores; 30 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1--5 to 10 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; many very fine and fine roots;

common fine and medium tubular pores; few thin clay films on faces of peds and lining pores; 40 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bt2--10 to 22 inches; yellowish brown (10YR 5/4) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine, few fine roots; common fine and medium tubular pores; few moderately thick clay films on faces of peds and lining pores; 50 percent pebbles; neutral (pH 7.2); abrupt wavy boundary.

Bt3--22 to 30 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common fine and medium tubular pores; common thin clay films on faces of peds; 50 percent pebbles; neutral (pH 7.2); abrupt wavy boundary.

R--30 inches; fractured rhyolite bedrock.

Type location: Humboldt County, Nevada; in the Bilk Creek Mountains, approximately 2 miles northeast of Etchart Springs, about 2,000 feet west and 650 feet south of the northeast corner of section 33, T.46 N., R.32 E.; (41 degrees, 49 minutes, 45 seconds north latitude and 118 degrees, 23 minutes, 32 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in the winter and spring, dry from early July through mid-October.

Soil temperature: 42 to 47 degrees, F.

Mollic epipedon thickness: 8 to 17 inches thick.

Depth to bedrock (lithic contact): 20 to 40 inches.

Combined thickness of the A and Bt horizons: 20 to 40 inches.

Profile reaction: Neutral or slightly alkaline.

Control section:

Clay content--25 to 35 percent, when mixed.

Rock fragments--35 to 60 percent, when averaged.

A horizons:

Value-- 4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizons:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 2 through 4 moist.

Chroma--2 through 4.

Consistence--Soft to hard dry, very friable to firm moist, sticky or very sticky and plastic or very plastic wet.

Structure--Weak or moderate, very fine to medium angular or subangular blocky structure. The lower Bt horizons may be massive.

Sumya Series

The Sumya series consists of shallow, well drained soils that formed in residuum and colluvium from andesite flows and breccias. Sumya soils are on backslopes of mountains. Slopes are 30 to 75 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 43 degrees, F.

Taxonomic class: Clayey-skeletal, montmorillonitic, nonacid, frigid Lithic Xeric Torriorthents

Typical pedon: Sumya very cobbly clay loam, 50 to 75 percent slopes, located in map unit 830. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles and 20 percent cobbles.

A1--0 to 3 inches; pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate thin platy structure; hard, firm, sticky and plastic; few very fine and fine roots; common very fine and fine vesicular pores; 20 percent cobbles, 20 percent pebbles; neutral (pH 7.2); clear smooth boundary.

A2--3 to 7 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate thin platy structure; hard, firm, sticky and plastic; common very fine and fine roots; many very fine tubular pores; 40 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

C--7 to 11 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, sticky and plastic; common very fine and fine roots; many very fine tubular pores; 40 percent pebbles, 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

R--11 inches; volcanic bedrock.

Type location: Humboldt County, Nevada; approximately 4 miles east of the Jackson Creek Ranch, about 2,500 feet north and 1,400 feet east of the southwest corner of section 23, T.40 N., R.31 E.; (41 degrees, 19 minutes, 25 seconds north latitude and 118 degrees, 28 minutes, 37 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from July through October.

Soil temperature: 44 to 47 degrees, F.

Depth to bedrock: 7 to 12 inches.

Control section:

Clay content--Averages 35 to 45 percent.

Rock fragments--35 to 60 percent, mainly pebbles.

Reaction--Neutral or slightly alkaline.

Other features--The profile is noncalcareous throughout.

A horizons:

Value--3 or 4 moist.

C horizon:

Hue--10YR or 7.5YR.

Chroma--3 or 4.

Texture--Very gravelly clay or very gravelly clay loam.

Tenabo Series

The Tenabo series consists of well drained soils that are shallow to an indurated duripan. These soils formed in a thin loess mantle high in volcanic ash over alluvium from mixed rocks. Tenabo soils are on summits and shoulders of fan remnants. Slopes are 4 to 30 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 47 degrees, F.

Taxonomic class: Loamy, mixed, mesic, shallow, Typic Nadurargids

Typical pedon: Tenabo cobbly very fine sandy loam, 4 to 15 percent slopes, located in map unit 140. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent cobbles and 10 percent pebbles.

A1--0 to 2 inches; light gray (10YR 7/2) cobbly very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 15 percent cobbles, 10 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--2 to 9 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine tubular and vesicular pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

2Btn1--9 to 12 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/6) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; common

very fine and few fine roots; common very fine tubular pores, many very fine interstitial pores; common thin clay films on faces of peds and lining pores; 10 percent pebbles; strongly alkaline (pH 8.6); clear wavy boundary.

2Btn2--12 to 16 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; weak medium prismatic structure; hard, friable, sticky and plastic; common very fine and few fine roots; many very fine tubular and interstitial pores; common thin clay films on faces of peds and lining pores; slightly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bqkm--16 to 32 inches; white (10YR 8/2) indurated duripan with continuous, horizontal 0.5 millimeter silica laminae, very pale brown (10YR 7/3) moist; massive; extremely hard, extremely firm; few fine roots matted on laminae; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

3C--32 to 60 inches; light gray (10YR 7/2) extremely gravelly loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine interstitial pores; lime coatings on undersides of rock fragments; 45 percent pebbles, 15 percent cobbles; violently effervescent; very strongly alkaline (pH 9.6).

Type location: Humboldt County, Nevada; approximately 1.5 miles northwest of the Willow Creek Ranch, about 1,000 feet west and 500 feet south of the northeast corner of section 34, T.39 N., R.32 E.; (41 degrees, 13 minutes, 03 seconds north latitude and 118 degrees, 22 minutes, 34 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry; moist in winter and spring, dry late May through November.

Soil temperature: 47 to 51 degrees, F.

Other features: In areas subject to recharge with lime, effervescence is highly variable above the duripan. It ranges from noneffervescent at the surface to violently effervescent in the layer above the duripan.

Control section:

Depth to duripan--9 to 20 inches.

Reaction--Moderately or strongly alkaline in the A and Bt horizons and moderately through very strongly alkaline below the Bt horizon.

Clay content--27 to 35 percent.

Rock fragments--Less than 20 percent, when mixed.

A horizons:

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 4 or 5 moist.
 Chroma--2 or 3.

Bt and Btn horizons:

Value--5 through 7 dry, 4 or 5 moist.
 Chroma--3 through 6.
 Texture of fine earth--Clay loam, silty clay loam, sandy clay loam with thin strata of silt loam in some pedons.
 Rock fragments--Less than 20 percent, mainly pebbles. This may include some duripan fragments.
 Structure--Weak or moderate fine or medium prismatic, angular blocky or subangular blocky.
 Consistence--Slightly hard to very hard, dry.
 Reaction--Moderately alkaline or strongly alkaline, usually increasing with depth.
 Exchangeable sodium--15 to 30 percent.
 Carbonates--The lower subhorizons of some pedons are violently effervescent and contain segregated lime.

Bqkm horizon:

Value--6 through 8 dry, 4 through 7 moist.
 Chroma--2 through 4.
 Other features--Very hard to extremely hard continuous laminae stratified with strongly cemented materials.

C horizon:

Value--6 or 7 dry, 4 or 5 moist.
 Chroma--2 or 3.
 Texture--Gravelly to extremely gravelly sand, loamy sand, or sandy loam.
 Rock fragments--15 to 85 percent, mainly pebbles.
 Other features--Discontinuous silica and lime cemented lenses that are very hard and firm in some pedons.

Tosp Series

The Tosp series consists of deep and very deep, well drained soils that formed in residuum and colluvium from granite. Tosp soils are on predominantly north-facing backslopes and foot-slopes of mountains. Slopes are 8 to 50 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 41 degrees, F.

Taxonomic class: Coarse-loamy, mixed Pachic Cryoborolls

Typical pedon: Tosp bouldery loam, 8 to 30 percent slopes, located in map unit 111. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 1 percent boulders and 5 percent pebbles.

- A1--0 to 4 inches; dark gray (10YR 4/1) bouldery loam, black (10YR 2/1) moist; moderate very fine and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine vesicular and interstitial pores; 5 percent or more organic matter; 5 to 10 percent pebbles, 1 percent boulders; slightly acid (pH 6.4); abrupt wavy boundary.
- A2--4 to 8 inches; dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist; moderate medium and coarse subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; common very fine and few fine tubular pores; 5 to 10 percent pebbles; slightly acid (pH 6.2); clear irregular boundary.
- A3--8 to 37 inches; brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, medium and coarse roots; many very fine and few fine tubular pores; 5 to 10 percent pebbles; slightly acid (pH 6.2); clear wavy boundary.
- C--37 to 50 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common very fine tubular pores; 40 percent pebbles; slightly acid (pH 6.2); abrupt irregular boundary.
- R--50 inches; hard fractured granitic bedrock.

Type location: Humboldt County, Nevada; in the Pine Forest Mountain Range, approximately 0.3 mile south of Onion Valley Reservoir, about 1,600 feet east and 1,300 feet south of the projected northwest corner of section 2, T.43N., R.28 E.; (41 degrees, 41 minutes, 21 seconds north latitude and 118 degrees, 44 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, not dry in all parts for as long as 45 consecutive days in the four months that follow the summer solstice, or not dry in some or all parts for more than 90 days cumulative.

Soil temperature: 41 to 45 degrees, F.
Summer soil temperature: 53 to 57 degrees, F.
Mollic epipedon thickness: 30 to 46 inches thick.
Depth to bedrock: 40 to over 60 inches.
Reaction: Slightly acid or neutral.
Control section:

Clay content--10 to 18 percent.
 Rock fragments--Averages 5 to 15 percent, predominantly 2 to 5 millimeters size pebbles, but subhorizons in the lower part of the control section may contain up to 50 percent pebbles. Fragment composition is mainly granite.

A horizons:

Value--3 through 5 dry, 2 or 3 moist.
 Chroma--1 through 3, with chroma of 1 occurring predominantly in the A1 or A2 horizons and chroma of 3 occurring in the A3 horizon and below.

C horizon:

Value--4 through 6 dry, 2 through 4 moist.
 Chroma--2 through 4.
 Texture--Coarse sandy loam or sandy loam.
 Rock fragments--10 to 50 percent, predominantly 2 to 5 millimeters size pebbles.

Toulon Series

The Toulon series consists of very deep, excessively drained soils that formed in alluvium derived from mixed rock sources. Toulon soils are on longshore bars, beach terraces, and beach plains. Slopes are 2 to 8 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 53 degrees, F.

Taxonomic class: Sandy-skeletal, mixed, mesic Typic Camborthids

Typical pedon: Toulon very gravelly loam, 2 to 8 percent slopes, located in map unit 345. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 40 percent pebbles and 2 percent cobbles, some of which is tufa.

A1--0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, grayish brown (10YR 5/2) moist; strong very coarse platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, few fine and medium roots; common very fine vesicular pores; 40 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2--3 to 6 inches; light gray (10YR 7/2) very gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, few fine and medium roots; common fine tubular pores; 35 percent pebbles; strongly alkaline (pH 8.6); clear wavy boundary
 Bw--6 to 14 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine, fine and medium roots; many very fine interstitial pores; 45 percent pebbles; slightly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.
 Bk--14 to 60 inches; light gray (10YR 7/2) extremely gravelly coarse sand with stratas of extremely cobbly very coarse sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent pebbles, 15 percent cobbles; lime coatings on undersides of rock fragments; strongly effervescent; strongly alkaline (pH 8.5).

Type location: Humboldt County, Nevada; approximately 2 miles northeast of Mormon Dan Peak, about 1,450 feet east and 2,100 feet north of the projected southwest corner of section 28, T.36 N., R.25 E.; (40 degrees, 59 minutes, 16 seconds north latitude and 119 degrees, 08 minutes, 29 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods during winter and spring, dry summer to mid-fall; typical aridic moisture regime.

Soil temperature: 53 to 57 degrees, F.

Depth to base of cambic horizon: 13 to 20 inches.

Reaction: Moderately alkaline or strongly alkaline.

Salinity (EC): 0 to 4 mmhos/cm.

Sodicity (SAR): 0 to 12.

Gypsum content: 0 to 2 percent.

Other features: Soils on the lower parts of bars and terraces, commonly have thinner A and Bw horizons than those on higher parts.

A horizons:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 or 5 moist.

Chroma--2 or 3, dry or moist.

Effervescence--Noneffervescent to violently effervescent.

Bw horizon:

Hue--2.5Y or 10YR.
 Value--6 or 7 dry, 4 or 5 moist.
 Chroma--2 through 4, dry or moist.
 Texture--Very gravelly sandy loam, very gravelly loam, or very gravelly coarse sandy loam.
 Rock fragments--40 to 60 percent, mostly pebbles.
 Consistence--Soft or slightly hard dry.
 Effervescence--Slightly effervescent to violently effervescent.
 Identifiable secondary carbonates--None to very few carbonate coats on the undersides of rock fragments.
 Calcium carbonate equivalent--1 to 5 percent.
 Redoximorphic features--Relict redox concentrations of iron commonly increase with depth.
 Other features--Some pedons lack gypsum and fragments of tufa. Some pedons have thin strata of fine sandy loam and very fine sandy loam.

Bk horizon:

Hue 10YR, 7.5YR, or neutral (N).
 Value--5 through 8 dry, 4 through 8 moist.
 Chroma--0 through 2 dry, 0 through 4 moist.
 Texture--Stratified gravelly coarse sand to extremely cobbly coarse sand.
 Clay content--0 to 5 percent.
 Rock fragments--Average 5 to 35 percent cobbles, 45 to 60 percent pebbles. Any single stratum may contain up to 80 percent pebbles or cobbles.
 Lithology of fragments is mixed, but includes tufa.
 Structure--Single grain or massive.
 Consistence--Soft dry, very friable moist or is loose.
 Calcium carbonate equivalent--1 to 5 percent.

Trocken Series

The Trocken series consists of very deep, well drained soils that formed in mixed alluvium. Trocken soils are on fan skirts, barrier and offshore bars of beach plains, beach terraces, and lake terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents

Typical pedon: Trocken very gravelly very fine sandy loam, 0 to 2 percent slopes, located in map unit 158.

(Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 35 percent pebbles.

- A--0 to 4 inches; light gray (10YR 7/2) very gravelly very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 35 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
- Bw--4 to 9 inches; brown (10YR 5/3) very gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; common very fine tubular pores; 40 percent pebbles, 10 percent cobbles; slightly effervescent; very strongly alkaline (pH 9.1); clear wavy boundary.
- Bk1--9 to 17 inches; brown (10YR 5/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine and medium roots; common very fine interstitial pores; 45 percent pebbles, 10 percent cobbles; violently effervescent; moderately thick lime pendants on undersides of rock fragments; very strongly alkaline (pH 9.1); clear wavy boundary.
- Bk2--17 to 37 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 45 percent pebbles, 10 percent cobbles; violently effervescent; moderately thick lime pendants on undersides of rock fragments; very strongly alkaline (pH 9.1); clear wavy boundary.
- 2Bk3--37 to 60 inches; grayish brown (10YR 5/2) very gravelly loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; very few very fine and fine tubular and many very fine and fine interstitial pores; 45 percent pebbles, 10 percent cobbles; strongly effervescent; lime occurs in few filaments and moderately thick coatings on undersides of pebbles and cobbles; very strongly alkaline (pH 9.1); abrupt wavy boundary.

Type location: Humboldt County, Nevada; approximately 4.5 miles south of Trout Creek Ranch, about 100 feet north of the projected southwest corner of section 9, T.37 N., R.32 E.; (41 degrees, 05 minutes, 14 seconds north latitude and 118 degrees, 24 minutes, 51 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in the winter and spring, dry late May through November; typic torric moisture regime.

Soil temperature: 53 to 57 degrees, F.

Combined thickness of A and Bw horizons: 5 to 10 inches.

Control section:

Clay content--Averages 8 to 18 percent

Rock fragments--35 to 70 percent. Lithology of fragments is mixed.

Reaction--Neutral to very strongly alkaline.

Effervescence--Slightly effervescent to violently effervescent.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry; 4 through 6 moist.

Chroma--2 or 3, dry or moist.

Bw, Bk, horizons:

Hue--7.5YR through 2.5Y.

Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 through 4, dry or moist.

Structure--Subangular blocky or platy in Bw horizons, Bk horizons are subangular blocky or massive.

Texture--Stratified horizons that average very cobbly loam to extremely gravelly coarse sandy loam, individual strata range from gravelly loam through extremely gravelly coarse sand.

Rock fragments--20 to 65 percent in individual subhorizons.

Consistence--Soft or slightly hard, dry.

Salinity (EC)--0 to 32 mmhos/cm.

Sodicity (SAR)--1 to 45.

Calcium carbonate equivalent--1 to 10 percent.

Tuffo Series

The Tuffo series consists of very shallow, somewhat excessively drained soils that formed in residuum from tuff, welded tuff, and tuffaceous sandstone. Tuffo soils are on backslopes of hills and pediments. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Ashy, nonacid, mesic, shallow Vitrandic Torriorthents

Typical pedon: Tuffo fine sandy loam, 15 to 30 percent slopes, located in map unit 480. (Colors are for dry

soil unless otherwise noted.) The soil surface is partially covered with 10 percent pebbles.

A--0 to 5 inches; pale brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; many very fine and common fine vesicular pores; 5 percent pebbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

C--5 to 8 inches; light yellowish brown (10YR 6/4) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine, common fine and few medium roots; common very fine tubular pores; 5 percent pebbles; slightly alkaline (pH 7.4); clear smooth boundary.

Cr--8 to 40 inches; highly weathered and fractured tuffaceous sandstone; massive; few fine roots in fractures; few fine lime seams in fracture planes.

Type location: Humboldt County Nevada, Summit Lake Indian Reservation, about 2,660 feet south and 1,000 feet west of the northeast corner of section 17, T.42 N., R.26 E.; (41 degrees, 33 minutes, 29 seconds north latitude and 119 degrees, 01 minute, 50 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from late June through October. Torric moisture regime that borders on xeric.

Soil temperature: 47 to 52 degrees, F.

Depth to paralithic contact: 4 to 15 inches.

Pyroclastic material: 60 to 75 percent of the 0.02 to 2 mm fraction and 30 to 60 percent of the fine earth fraction.

Control section:

Clay content--5 to 15 percent.

Rock fragments--5 to 25 percent, mainly pebbles.

Reaction--Neutral or slightly alkaline.

A horizon:

Value--5 through 7 dry, 3 or 4 moist.

Chroma--2 through 4 dry or moist.

C horizon:

Hue-- 2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4 dry or moist.

Texture--Dominantly very fine sandy loam or fine sandy loam with gravelly sandy loam common in some pedons.

Structure--Massive.

Cr horizon:

Carbonates--Few to common lime seams along fracture planes.

Weathering--Highly weathered material in the upper part, to soft weathered material in the lower part.

Tumtum Series

The Tumtum series consists of shallow over a duripan, well drained soils that formed in mixed alluvium. Tumtum soils are on summits and shoulders of fan remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Clayey, montmorillonitic, mesic shallow Typic Durargids

Typical pedon: Tumtum very cobbly loam, 4 to 15 percent slopes, located in map unit 402. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent cobbles and 15 percent pebbles.

A--0 to 2 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine vesicular pores; 30 percent cobbles, 15 percent pebbles; moderately alkaline (pH 7.9); clear wavy boundary.

Bt--2 to 10 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine, fine and medium roots; many very fine tubular pores; common thin clay films on faces of peds; 10 percent pebbles; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bqkm--10 to 18 inches; very pale brown (10YR 7/4) indurated duripan, dark yellowish brown (10YR 4/6) moist; massive, thick plates; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Ck--18 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 45 percent pebbles, 10 percent cobbles; lime coatings on rock fragments; violently effervescent; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 7 miles west of Denio, about 50 feet

east and 50 feet south of the projected northwest corner of section 21, T.47 N., R.28 E.; (41 degrees, 59 minutes, 33 seconds north latitude and 118 degrees, 46 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring. Aridic moisture regime.

Soil temperature: 47 to 49 degrees F.

Depth to indurated duripan: 9 to 18 inches.

Control section:

Rock fragments--5 to 15 percent, dominantly gravel.

Clay content--Averages 25 to 35 percent.

A horizon:

Value--5 or 6 dry; 3 or 4 moist.

Chroma--2 or 3, moist and dry.

Bt horizon:

Value--5 or 6 dry; 3 or 4 moist.

Chroma--3 or 4 moist and dry.

Texture--0 to 10 percent gravel.

Clay content--27 to 35 percent.

2Ck horizon:

Texture--Gravelly or very gravelly sandy loam.

Clay content--5 to 15 percent clay.

Typic Torriorthents

Typic Torriorthents consists of very deep, well, somewhat excessively through excessively drained soils that formed in water reworked alluvium from mixed rock sources on lacustrine sediments. Typic Torriorthents are on basin-floor remnants. Slopes are 2 to 75 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 54 degrees, F.

Taxonomic class: Mesic, Typic Torriorthents

Typical pedon: Typic Torriorthents extremely gravelly sandy loam, 2 to 75 percent slopes, located in map unit 847. (Colors are for dry soil unless otherwise noted.) The surface is covered with approximately 5 percent cobbles and 65 percent pebbles.

A--0 to 5 inches; grayish brown (2.5Y 5/2) extremely gravelly sandy loam, dark grayish brown (2.5Y 4/2)

moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 65 percent pebbles, 5 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C1--5 to 12 inches; grayish brown (2.5Y 5/2) very gravelly sand, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common medium and coarse and many very fine and fine roots; many very fine interstitial pores; 40 percent pebbles, 5 percent cobbles, 5 percent stones; slightly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

2C2--12 to 22 inches; grayish brown (2.5Y 5/2) stratified very gravelly sand through extremely gravelly loamy sand, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable; few fine and common very fine roots; common medium and many very fine and fine interstitial pores; 40 percent pebbles, 10 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

3C3--22 to 39 inches; light brownish gray (2.5Y 6/2) extremely gravelly sand, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; 50 percent pebbles, 10 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

4C4--39 to 60 inches; grayish brown (2.5Y 5/2) gravelly sand, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; 20 percent pebbles, 5 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 10.5 miles north of Sulphur, about 1,200 feet north and 1,000 feet east of the southwest corner of section 6, T.36 N., R.29 E.; (41 degrees, 02 minutes, 13 seconds north latitude and 118 degrees, 43 minutes, 20 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and early spring.

Soil temperature: 53 to 59 degrees, F.

Profile texture: Stratified extremely gravelly sand through clay.

Profile reaction: Moderately alkaline or strongly alkaline.

Carbonates: Slightly effervescent to violently effervescent.

Control section:

Clay content--Averages 3 to 30 percent

Rock fragments--Averages 0 to 90 percent

Valmy Series

The Valmy series consists of very deep, well drained soils that formed in a thin loess cap high in volcanic ash superimposed over loamy alluvium. Valmy soils are on inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 51 degrees, F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthodic Torriorthents

Typical pedon: Valmy very fine sandy loam, 0 to 2 percent slopes, located in map unit 790. (Colors are for dry soil unless otherwise noted.)

A--0 to 2 inches; grayish brown (10YR 5/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; moderately alkaline (pH 8.4); abrupt smooth boundary.

C--2 to 8 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, very friable, nonsticky and nonplastic; few very fine, fine and medium roots; many very fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Ck--8 to 20 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive, slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Cqk1--20 to 28 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 25 percent strongly cemented durinodes; few fine soft filaments of lime; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk2--28 to 42 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable, non-sticky and nonplastic; few very fine roots; common very fine tubular pores; 45 percent strongly cemented durinodes; common very fine segregated lime filaments; strongly effervescent, noneffervescent matrix; strongly alkaline (pH 8.8); clear wavy boundary.

C'k--42 to 51 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; common fine segregated lime filaments; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2C'--51 to 60 inches; light brownish gray (2.5Y 6/2) gravelly coarse sandy loam, olive brown (2.5Y 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 25 percent pebbles; slightly effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; approximately 4 miles south of the Knott Creek Ranch, about 1,500 feet north and 500 feet west of the southeast corner of section 27, T.43 N., R.27 E.; (41 degrees, 37 minutes, 05 seconds north latitude and 118 degrees, 52 minutes, 02 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and spring, dry from May through November. Aridic moisture regime.

Soil temperature: 47 to 53 degrees, F.

Depth to Cq horizon: 6 to 20 inches. Durinodes range from 5 to 85 percent by volume in any one horizon but one or more horizons more than 6 inches thick contains more than 25 percent.

Depth to unconformity: 30 to 50 inches, with some pedons deeper than 50 inches to sandy material. Some pedons have a stratified substratum.

Control section:

Clay content--5 to 15 percent.

Rock fragments--0 to 30 percent, mainly pebbles.

A horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Reaction--Moderately alkaline or strongly alkaline.

C horizon:

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture--Mainly fine sandy loam or sandy loam, but includes strata of very fine sandy loam or coarse sandy loam in some pedons.

Durinodes--Hard to extremely hard, very friable to very firm and brittle, nonsticky or slightly sticky and nonplastic or slightly plastic wet.

Reaction--Strongly alkaline or very strongly alkaline.

Effervescence--Slightly effervescent to violently effervescent.

2C horizon:

Texture--Gravelly sand or very gravelly sand; substratum phases have textures of silty clay loam below 40 inches, or are stratified very fine sandy loam to gravelly silt loam.

Clay content--1 to 18 percent.

Structure--Single grained, massive or platy.

Consistence--Loose through hard dry, nonsticky through sticky wet.

Rock fragments--5 to 55 percent.

Reaction--Strongly alkaline or very strongly alkaline.

Weezweed Series

The Weezweed series consists of very deep, moderately well drained soils that formed in alluvium from volcanic rocks and pyroclastic materials. Weezweed soils are on stream terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Vitritorrandic Haploxerolls

Typical pedon: Weezweed loam, 0 to 2 percent slopes, rangeland, in map unit 1460. (Colors are for dry soil unless otherwise noted).

A1--0 to 4 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; slightly hard, very friable, sticky and slightly plastic; common very fine and fine roots; common very fine tubular and interstitial pores; neutral (pH 6.8); clear wavy boundary.

A2--4 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic parting to moderate coarse subangular blocky structure; slightly hard, very friable, sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; neutral (pH 6.8); clear wavy boundary.

A3--10 to 15 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic parting to moderate coarse subangular blocky structure; slightly hard, very friable, sticky and slightly plastic; common very fine, fine, and medium roots; common very fine tubular pores; common thin dark gray (10YR 4/1) strata,

black (10YR 2/1) moist; neutral (pH 6.8); clear wavy boundary.

C1--15 to 26 inches; light brownish gray (10YR 6/2) finely stratified loam, dark grayish brown (10YR 4/2) moist; moderate coarse prismatic parting to strong thick platy structure; very hard, friable, sticky and plastic; few very fine through medium roots; few very fine tubular pores; common fine distinct dark yellowish brown (10YR 3/4) relict iron masses, black (10YR 2/1) moist; neutral (pH 6.7); clear wavy boundary.

C2--26 to 40 inches; light brownish gray (10YR 6/2) stratified loam and sandy clay loam, dark grayish brown (10YR 4/2) moist; moderate coarse prismatic parting to strong thick platy structure; very hard, firm, sticky and slightly plastic; few very fine through medium roots; few very fine tubular pores; few fine distinct yellowish brown (10YR 3/4) moist relict iron masses, few fine black (10YR 2/1) moist relict manganese masses; slightly acid (pH 6.5); clear wavy boundary.

C3--40 to 60 inches; light yellowish brown (2.5Y 6/3) stratified loam and sandy clay loam, olive brown (2.5Y 4/3) moist; massive; very hard, firm, sticky and slightly plastic; few very fine roots; common very fine tubular pores; common fine distinct black (10YR 2/1) moist relict manganese and grayish brown (2.5Y 5/3) moist relict iron masses; neutral (pH 6.6).

Type location: Humboldt County, Nevada; about 100 feet north and 2,100 feet west of the southeast corner of section 31, T.42 N., R.24 E.; (41 degrees, 31 minutes, 06 seconds north latitude and 119 degrees, 18 minutes, 31 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring; dry from mid-June through October; saturated below 5 feet during late winter and early spring. Aridic moisture regime that borders on xeric.

Soil temperature: 47 to 50 degrees F.

Thickness of mollic epipedon: 10 to 20 inches, organic matter decreases irregularly with depth.

Mineralogy: 60 to 90 percent volcanic glass, glass coats and glass aggregates in the very fine and fine sand fraction throughout: 25 to 50 percent is glass shards, remainder is coated grains and glass aggregates

Control section:

Clay content--18 to 27 percent.

Rock fragments--Less than 10 percent, mainly volcanic pebbles.

Other features--Some pedons have C horizons below depths of 36 inches with stratified textures of

sandy loam to silty clay loam. Thin discontinuous strata having up to 35 percent volcanic pebbles are present in some pedons.

A horizons:

Hue--10YR or 2.5Y.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--0 through 2.

Reaction--Neutral or slightly alkaline.

C horizons:

Hue--10YR, 2.5Y, or 5Y.

Value--6 through 8 dry, 4 or 5 moist.

Chroma--1 through 3.

Structure--Weak or moderate fine to medium prismatic parting to platy or blocky, or is massive.

Texture--Usually stratified gravelly loamy sand to silty clay loam. Dominantly loam or sandy clay loam when mixed.

Redox features--Relic redox concentrations are present in most pedons.

Welch Series

The Welch series consists of very deep, very poorly drained soils that formed in alluvium from mixed volcanic rock sources with a component of vitric pyroclastic materials. Welch soils are on flood plains and stream terraces. Slopes are 0 to 8 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees, F.

Taxonomic class: Fine-loamy, mixed, frigid Cumulic Endoaquolls

Typical pedon: Welch loam, 0 to 4 percent slopes, located in map unit 550. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; moderate thin platy structure; slightly hard, friable, sticky and plastic; many very fine, fine and medium roots; few very fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

A2--3 to 9 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; moderate fine granular structure; hard, friable, sticky and plastic; many very fine and fine, common medium and coarse roots; few very fine tubular pores; neutral (pH 6.8); gradual smooth boundary.

A3--9 to 31 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; few fine distinct brownish yellow (10YR 6/6) mottles; weak medium prismatic

structure; hard, friable, sticky and plastic; common very fine, fine and medium roots; many very fine and common fine tubular pores; neutral (pH 6.8); gradual smooth boundary.

A4--31 to 49 inches; dark gray (10YR 4/1) sandy clay loam, black (10YR 2/1) moist; common fine distinct brownish yellow (10YR 6/6) mottles; massive; hard, firm, sticky and plastic; common very fine and fine, few medium roots; common very fine and fine tubular pores; neutral (pH 6.8); gradual smooth boundary.

Cg--49 to 60 inches; gray (5Y 6/1) sandy clay loam, olive gray (5Y 4/2) moist; many fine distinct yellowish brown (10YR 5/4) mottles; massive; hard, friable, sticky and plastic; few very fine roots; common very fine tubular pores; 5 percent pebbles, 5 percent cobbles; neutral (pH 6.8).

Type location: Humboldt County, Nevada; in Leonard Creek Meadows of the Pine Forest Range, about 2,000 feet south and 600 feet east of the northwest corner of section 20, T.43 N., R.29 E.; (41 degrees, 38 minutes, 33 seconds north latitude and 118 degrees, 40 minutes, 59 seconds west longitude.)

Range in Characteristics:

Soil moisture: Welch soils are saturated and have aquic conditions for a least one month during normal years. Aquic conditions are often present at or near the soil surface, mainly during the late winter and early spring months. The water table drops to a depth of 18 to 36 inches from early spring through September.

Soil temperature: 41 to 46 degrees, F.

Mollic epipedon thickness: 26 to over 60 inches, organic matter decreases irregularly with depth.

Control section:

Clay content--Averages 27 to 35 percent.

Other features--The parent material typically has a large amount of vitric pyroclastic material such as volcanic ash. Buried A horizons are common.

Some pedons have gravelly strata or strata of silty clay loam, silt loam, clay, loam, very fine sandy loam, or sandy loam.

A horizons:

Hue--10YR through 5Y or neutral (N).

Value--3 through 5 dry, 2 or 3 moist.

Chroma--0 through 3 in the upper part and 0 through 2 in the lower part.

Reaction--Slightly acid to slightly alkaline.

Redoximorphic features--Few to many, fine or medium, distinct or prominent zones of iron or manganese accumulation either lining pores or as

masses within the matrix. Zones of iron depletion may also be present.

Cg horizon:

Hue--10YR through 5B, or neutral (N).

Value--5 through 8 dry, 3 through 5 moist.

Chroma--0 through 2.

Structure--Prismatic or is massive.

Texture--Stratified sandy loam to silty clay loam, stratified very fine sandy loam to gravelly clay loam, or stratified sandy clay loam to silty clay loam. Some pedons have horizons below 40 inches that are stratified very gravelly loamy sand to extremely gravelly coarse sand.

Consistence--Slightly hard or hard dry, very friable or friable moist. Slightly sticky or moderately sticky and slightly plastic or moderately plastic.

Redoximorphic features--None to many, fine to coarse zones of iron or manganese accumulation either lining pores or as masses within the matrix. Zones of iron depletion may also be present.

Wendane Series

The Wendane series consists of very deep, somewhat poorly drained soils that formed in silty alluvium from volcanic rocks, tuff, loess, and volcanic ash. Wendane soils are on alluvial flats, stream terraces, and floodplains. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical pedon: Wendane silt loam, 0 to 2 percent slopes located in map unit 648. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; light brownish gray (10YR 6/2) silt loam, yellowish brown (10YR 5/4) moist; moderate very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C--3 to 10 inches; light brownish gray (10YR 6/2) silt loam, yellowish brown (10YR 5/4) moist; massive; hard, very friable, sticky and plastic; common very fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk1--10 to 29 inches; light brownish gray (10YR 6/2)

silty clay loam, yellowish brown (10YR 5/4) moist; few fine distinct dark brown (7.5YR 4/4) mottles; massive; hard, firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; 25 percent weakly cemented durinodes; few fine soft filaments and masses of lime; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk2--29 to 46 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; many fine distinct dark brown (7.5YR 4/4) mottles; massive; hard, firm, sticky and plastic; few very fine roots; common very fine tubular pores; 20 percent weakly cemented durinodes; few fine soft filaments and masses of lime; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

C'--46 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, sticky and plastic; few very fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4).

Type location: Humboldt County, Nevada; approximately 1.75 miles west of Denio Junction in Pueblo Slough, about 1,800 feet south and 500 feet east of the northwest corner of section 17, T.47 N., R.30 E.; (41 degrees, 57 minutes, 17 seconds north latitude and 118 degrees, 39 minutes, 27 seconds west longitude.)

Range in Characteristics:

Soil moisture: Saturated within depths of 28 to 40 inches during the spring of most years. Dry mid-summer through mid-winter moist in mid-winter, spring, and early summer. Apparent seasonal water table is between 2.5 and 4 feet between February and July. Drained phases are recognized.

Soil temperature: 47 to 52 degrees, F.

Mineralogy: Mixed, but has a strong influence from volcanic ash and other pyroclastic materials.

Depth to Cqk horizon: 8 to 20 inches.

Depth to redoximorphic concentrations: 8 to 27 inches.

Salts: These soils are normally strongly saline affected in their upper profile, and slightly to strongly affected in the lower profile.

SAR: 13 to 99 percent in half or more of the upper 20 inches and decreases with depth.

Profile reaction: Moderately alkaline through very strongly alkaline.

Other features: Unconformable stratified gravelly sand or very gravelly sand are common in some pedons below 40 inches. Some pedons have Cq horizons that are noneffervescent below 40 inches.

Control section:

Clay content--20 to 30 percent, when mixed.

A horizon:

Value--6 or 7 dry, 4 through 6 moist.

Chroma--1 through 4.

SAR--13 to 99.

C horizons:

Hue--10YR or 2.5Y.

Value--6 through 8 dry, 4 through 7 moist.

Chroma--1 through 4.

Texture--Stratified very fine sandy loam, silt loam, silty clay loam, and clay loam.

Structure--Thin platy or is massive. Prismatic parting to angular blocky in some subhorizons.

SAR--Less than 13.

Other features--Strata of volcanic ash that are 4 to 10 inches thick are common at some depth between 13 and 36 inches.

Cqk horizons:

Thickness--13 to over 30 inches, when combined.

Cementation--10 to 40 percent weakly or strongly cemented durinodes in a friable matrix and up to 30 percent discontinuous weak silica cementation in any one horizon.

Wesfil Series

The Wesfil series consists of very shallow, well drained soils that formed in residuum from phyllite, slate, and related metamorphic rocks. Wesfil soils are on foothills and mountains. Slopes are 15 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 52 degrees, F.

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Lithic Xeric Torriorthents

Typical pedon: Wesfil very channery loam, 15 to 50 percent slopes, located in map unit 935. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 50 percent channers.

A--0 to 2 inches; light brownish gray (2.5Y 6/2) very channery loam, grayish brown (2.5Y 5/2) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 40 percent channers; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bk--2 to 8 inches; light brownish gray (2.5Y 6/2) very channery loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; 50 percent channers; moderately thick lime coatings on undersides of rock fragments; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

R--8 inches; fractured, horizontally oriented phyllite with moderately thick lime coatings in fracture planes; many very fine roots matted in fractures; hard at 13 inches.

Type location: Humboldt County, Nevada; approximately 5 miles west of Jungo, about 2,150 feet south and 750 feet east of the projected northwest corner of section 14, T.35 N., R.31 E.; (40 degrees, 54 minutes, 30 seconds north latitude and 118 degrees, 28 minutes, 46 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from June through early November.

Soil temperature: 53 to 57 degrees, F.

Depth to the lithic contact: 4 to 10 inches.

Control section:

Clay content--12 to 18 percent.

Texture--Very channery loam, or very channery silt loam.

Rock fragments--40 to 60 percent, mainly channers.

Profile reaction--Slightly alkaline or strongly alkaline.

Calcium carbonate equivalent--1 to 10 percent.

A horizon:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Calcium carbonate equivalent--1 to 5 percent.

Bk horizon:

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Structure--Massive or subangular blocky.

Calcium carbonate equivalent--5 to 10 percent.

Weso Series

The Weso series consists of very deep, well drained soils that formed in alluvium from mixed rock sources, with a loess mantle high in volcanic ash. Weso soils are on fan skirts and inset fans. Slopes are 0 to 4 percent.

The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees, F.

Taxonomic class: Coarse-loamy, mixed, mesic Duric Camborthids

Typical pedon: Weso very fine sandy loam, 0 to 2 percent slopes, located in map unit 938. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; slightly hard, friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine and fine vesicular pores; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bw--3 to 10 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bqk1--10 to 16 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak thick platy structure; plates weakly cemented by silica; very hard, firm, nonsticky and slightly plastic; few very fine, fine and medium roots; common very fine and fine interstitial pores; few fine lime filaments; slightly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

Bqk2--16 to 29 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak thick platy structure; hard, friable, slightly sticky and slightly plastic; many silica cemented lenses that are very hard and firm, brittle when wet; few very fine and fine roots; few very fine and fine interstitial pores; few fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bk--29 to 43 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 25 percent pebbles; lime disseminated; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

3C--43 to 60 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 10 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6).

Type location: Humboldt County, Nevada; approximately 4 miles northeast of the Woodward Ranch, about 3,700 feet south and 300 feet west of

the northeast corner of section 5, T.43 N., R.31 E.; (41 degrees, 37 minutes, 38 seconds north latitude and 118 degrees, 31 minutes, 28 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and spring, dry from late May through November.

Soil temperature: 47 to 53 degrees, F.

Depth to base of Bw horizon and upper boundary of silica cementation: 10 to 18 inches.

Other features: Some pedons are underlain by skeletal material below depths of 40 inches.

Control section:

Clay content--Average 4 to 15 percent, with subhorizons to 20 percent in some pedons.

Rock fragments--0 to 25 percent, mainly pebbles.

A horizon:

Value--6 or 7 dry, 3 through 5 moist.

Chroma--2 or 3.

Reaction--Moderately alkaline to very strongly alkaline.

Bw horizon:

Value-- 6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Textures--Dominantly fine sandy loam, very fine sandy loam or loam. Some pedons include minor strata of sandy loam, coarse sandy loam, or silt loam.

Clay content--5 to 15 percent.

Reaction--Moderately alkaline to very strongly alkaline.

Rock fragment--0 to 15 percent

Other features--The Bw is noncalcareous.

Bqk horizons:

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 or 3.

Cementation--Ranges from continuously brittle matrix to several weakly cemented plates up to 1 inch thick with firm and brittle or friable material between plates. Subhorizons in some pedons have durinodes in a friable matrix.

Structure--Platy or massive.

Reaction--Moderately alkaline to very strongly alkaline.

C horizon:

Texture--Stratified very gravelly loamy sand to fine sandy loam.

Rock fragments--Averages 0 to 20 percent.

Reaction--Strongly alkaline or very strongly alkaline.

Carbonates--Noneffervescent to violently effervescent.

Westbutte Series

The Westbutte series consists of moderately deep, well drained soils that formed in colluvium weathered from basalt, tuff, and andesite. Westbutte soils are on backslopes of mountains and plateaus. Slopes are 15 to 75 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees, F.

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Haploxerolls

Typical pedon: Westbutte stony loam, 15 to 50 percent slopes, located in map unit 181. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 1 percent stones, 10 percent cobbles, and 20 percent pebbles.

A--0 to 6 inches; grayish brown (10YR 5/2) stony loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; 1 percent stones, 10 percent cobbles and 5 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

AB--6 to 15 inches; dark grayish brown (10YR 4/2) very cobbly loam, dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 15 percent pebbles, 20 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

Bw--15 to 28 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; weak fine, subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots; many very fine tubular pores; 10 percent pebbles, 40 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

R--28 inches; fractured volcanic bedrock.

Type location: Humboldt County, Nevada; approximately 9 miles east of Denio, about 2,400 feet west and 1,000 feet north of the southeast corner of section 2, T.47 N., R.31 E.; (41 degrees, 58 minutes, 39 seconds north latitude and 118 degrees, 28 minutes, 08 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, dry for 60 to 90 consecutive days after the summer solstice.

Soil temperature: 40 to 47 degrees, F.

Depth to bedrock: 20 to 40 inches.

Control section:

Percent clay--18 to 30 percent.

Rock fragments--35 to 70 percent gravel, cobbles, and stones.

Reaction--Neutral or slightly alkaline.

A horizon:

Value--3 to 5 dry, 2 or 3 moist.

Chroma--1 or 2 dry and moist.

Texture--0 to 20 percent pumiceous ash. It is loam, very cobbly loam, cobbly loam, stony loam, very stony loam, and extremely stony loam. It has 0 to 50 percent cobbles and stones and 0 to 30 percent gravel.

AB horizon:

Value--4 or 5 dry; 2 or 3 moist.

Bw horizon:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3 moist; 2 to 4 dry.

Structure--Subangular blocky or granular structure or both.

Texture--Extremely cobbly clay loam, extremely cobbly loam, very cobbly clay loam, very stony loam or very cobbly loam.

Rock fragments--20 to 50 percent cobbles, 0 to 20 percent stones, and 5 to 30 percent gravel.

Wetvit Series

The Wetvit series consists of very deep, very poorly drained soils that formed in alluvium from volcanic rocks and pyroclastic materials. Wetvit soils are on flood plains adjacent to plateaus. Slopes are 0 to 2 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Aquandic Endoaquolls

Typical pedon: Wetvit loam, meadow. (Colors are for dry soil unless otherwise noted.)

A1--0 to 5 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak fine subangular block structure; hard, very friable, slightly

sticky and slightly plastic; many very fine and fine roots; common very fine tubular pores; slightly acid (pH 6.3); clear smooth boundary.

A2--5 to 16 inches; dark gray (10YR 4/1) loam, black (N 2/) moist; weak medium prismatic structure parting to moderate medium subangular blocky; very hard, very friable, sticky and plastic; common fine and very fine roots; common very fine tubular pores; few fine distinct brownish yellow (10YR 6/8) redox concentrations on faces of peds, yellowish brown (10YR 5/8) moist; slightly acid (pH 6.3); clear smooth boundary.

A3--16 to 30 inches; gray (N 5/) finely stratified loam, black (10YR 2/1) moist; weak medium prismatic structure parting to moderate medium subangular blocky; hard, very friable, sticky and plastic; few fine and very fine roots; common very fine and fine tubular pores; common medium distinct olive brown (2.5Y 4/3) moist and few fine distinct strong brown (7.5YR 4/6) moist iron concentrations in masses and in pores; few fine faint black (N 2/) moist manganese concentration in masses; few 1 to 2 millimeter dark brown (7.5YR 4/4) moist interior, yellowish brown (10YR 5/6) moist exterior iron concretions; neutral (pH 6.6); clear smooth boundary.

A4--30 to 41 inches; gray (10YR 5/1) finely stratified loam, very dark gray (10YR 3/1) moist; weak medium prismatic structure parting to moderate medium subangular blocky; hard, very friable, sticky and plastic; few very fine roots; common very fine tubular pores; common fine and medium distinct olive brown (2.5Y 4/3) moist and few fine distinct strong brown (7.5YR 4/6) moist iron concentrations in masses and in pores; common fine distinct dark gray (10YR 4/1) moist clay depletions in masses; neutral (pH 6.6); abrupt smooth boundary.

2C1--41 to 53 inches; gray (10YR 6/1) loamy sand, dark gray (10YR 4/1) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; common fine olive (5Y 4/4) moist iron concentrations in masses and in pores; 15 percent 2 to 5 millimeter rhyolitic tuff pebbles; neutral (pH 6.6); abrupt smooth boundary.

3C2--53 to 60 inches; light brownish gray (2.5Y 6/2) finely stratified loam, light olive (2.5Y 5/3) moist; massive; hard, very friable, sticky and plastic; few very fine roots; common very fine tubular pores; many coarse distinct gray (N 5/) moist, common fine and medium distinct olive (5Y 4/4) moist and few coarse greenish gray (5G 5/1) moist iron concentrations and clay depletions in masses and in pores; few fine distinct very dark gray (N 3/) moist iron concentrations around pores; common fine distinct dark yellowish brown (10YR 4/6) moist and

olive (5Y 5/6) moist iron concentrations in pores; neutral.

Type location: Humboldt County, Nevada; south of Badger Mountain and about 0.25 mile south of the Sheldon Antelope Range boundary along Cottonwood Canyon; about 300 feet west and 200 feet south of the north-east corner of section 7, T.42 N., R.24 E.; (41 degrees, 35 minutes, 23 seconds north latitude and 119 degrees, 18 minutes, 08 seconds west longitude.)

Range in Characteristics:

Soil moisture: Wetvit soils are saturated due to a seasonal water table at a depth of 0 to 18 inches mainly during the late winter and early spring months.

Soil temperature: 47 to 50 degrees F.

Mollic epipedon thickness: 26 to 48 inches, organic matter decreases irregularly with depth.

Mineralogy: 35 to 60 percent volcanic glass, glass coats and glass aggregates in the very fine and fine sand size throughout.

Control section:

Clay content--18 to 27 percent when mixed.

Rock fragments--Less than 15 percent.

Other features--Buried A horizons are common.

Some pedons have gravelly strata or strata of silty clay loam, silt loam, clay loam, very fine sandy loam or sandy loam. Due to eolian dust, some pedons are calcareous in the surface layer.

A horizons:

Hue--10YR, 2.5Y, 5Y or neutral.

Value--3 through 5 dry, 2 or 3 moist.

Chroma--0 through 2.

Reaction--Slightly acid to slightly alkaline.

Other features--Few to many redoximorphic concentrations either as pore linings or masses within 17 inches.

C horizons:

Hue--10YR, 2.5Y, 5Y or neutral.

Value--5 through 8 dry, 3 through 5 moist.

Chroma--0 through 3.

Reaction--Neutral or slightly alkaline.

Structure--Massive or prismatic.

Texture--Stratified loam with strata of gravelly loamy sand to clay loam.

Other features--None to many fine to coarse redoximorphic concentrations or depletions either as masses or pore linings.

Wholan Series

The Wholan series consists of very deep, well drained soils that formed in a loess mantle over silty alluvium from mixed rock sources. Wholan soils are on inset fans and fan skirts. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 49 degrees, F.

Taxonomic class: Coarse-silty, mixed, mesic Typic Camborthids

Typical pedon: Wholan silt loam, 0 to 2 percent slopes, located in map unit 716. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine tubular pores; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw--3 to 12 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bk--12 to 40 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few fine soft masses of lime; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C--40 to 60 inches; light yellowish brown (10YR 6/4) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; few very fine tubular pores; slightly effervescent; strongly alkaline (pH 8.8).

Type location: Humboldt County, Nevada; approximately 7 miles northwest of Quinn River Crossing, about 1,900 feet east and 1,100 feet south of the northwest corner of section 23, T.44 N., R.31 E.; (41 degrees, 40 minutes, 40 seconds north latitude and 118 degrees, 28 minutes, 32 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry

late May through October; typic aridic moisture regime.

Soil temperature: 47 to 53 degrees, F.

Depth to base of cambic horizon: 11 to 24 inches.

Control section:

Clay content--5 to 15 percent.

Reaction--Slightly alkaline to very strongly alkaline, increasing with depth.

A horizon:

Value-- 5 through 7 dry, 3 through 5 moist (5 dry and 3 moist in the A1 horizon only.)

Chroma--2 through 4.

Effervescence--Noneffervescent or slightly effervescent.

Bw horizon:

Value-- 6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture--Silt loam or very fine sandy loam.

Structure--Weak fine to coarse subangular blocky, medium or coarse prismatic.

Consistence--Soft or slightly hard dry; nonsticky or slightly sticky and nonplastic or slightly plastic, wet.

Salinity (EC)--4 to 8 mmhos/cm.

Sodicity (SAR)--0 to 12.

Bk and C horizons:

Value-- 6 through 8 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture--Silt loam or very fine sandy loam with thin strata of loam or fine sandy loam in some pedons.

Consistence--Soft to slightly hard nonsticky or slightly sticky and nonplastic or slightly plastic, wet.

Salinity (EC)--4 to 8 mmhos/cm in the Bk horizon and 8 to 16 mmhos/cm in the C horizons.

Sodicity (SAR)--0 to 12.

Identifiable secondary carbonates--Few to many, fine or medium soft masses of lime in veins and coats in the Bk horizons.

Calcium carbonate equivalent--0 to 15 percent.

Woofus Series

The Woofus series consists of very deep, very poorly drained soils that formed in loamy over sandy alluvium from mixed rock sources with a component from loess and volcanic ash. Woofus soils are on mountains and stream flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees, F.

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Fluvaquentic Endoaquolls

Typical pedon: Woofus loam, 0 to 2 percent slopes, located in map unit 430. (Colors are for dry soil unless otherwise noted.)

A1--0 to 6 inches; gray (10YR 5/1) loam, very dark gray (10YR 3/1) moist; moderate, medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and medium roots; common fine and medium tubular pores; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2--6 to 13 inches; gray (10YR 5/1) loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; few coarse, many medium and fine roots; few fine tubular pores; 10 percent pebbles; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

AC--13 to 20 inches; light brownish gray (10YR 6/2) loam, very dark gray (10YR 3/1) moist; few distinct dark yellowish brown (10YR 4/4) moist iron mottles; massive; slightly hard, friable, sticky and plastic; common fine and medium roots; few fine tubular pores; 10 percent pebbles; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

2C1--20 to 38 inches; light brownish gray (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

2C2--38 to 60 inches; light brownish gray (10YR 6/2) very gravelly coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; 40 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0).

Type location: Humboldt County, Nevada; Summit Lake Indian Reservation, about 2,000 feet east and 1,400 feet south of the northwest corner of section 20, T.42 N., R.26 E.; (41 degrees, 32 minutes, 43 seconds north latitude and 119 degrees, 02 minutes, 22 seconds west longitude.)

Range in Characteristics:

Soil moisture: Saturated at or near the surface for at least one month during most years, mainly during the late winter through early summer months.

Soil temperature: 47 to 50 degrees, F.
Mollic epipedon thickness: 10 to 24 inches.
Depth to 2C horizon: 20 to 38 inches.
Reaction: Slightly alkaline or moderately alkaline.
Other features: Buried A horizons commonly occur in some pedons.

Control section:

Clay content--20 to 30 percent in the upper part; 0 to 5 percent in the lower part.
 Effervescence--Slightly effervescent to violently effervescent from 10 to 20 inches. Commonly effervescent throughout the profile.

A horizons:

Value-- 4 or 5 dry, 2 or 3 moist.
 Chroma--1 or 2.
 Other features--Some pedons have a thin (less than 5 inch thick) horizon with fine sandy loam or sandy loam textures above the 2C horizons.

AC horizon:

Secondary carbonates--Absent to many.
 Redox concentration--Few or common.

2C horizons:

Value--5 through 7 dry, 4 or 5 moist.
 Chroma--1 through 3.
 Texture--Stratified loamy fine sand to gravelly coarse sand.
 Clay content--0 to 5 percent.
 Rock fragments--0 to 30 percent.
 Structure--Massive or single grained.
 Redox concentration--Absent to many in any one subhorizon.

Wylo Series

The Wylo series consists of shallow, well drained soils that formed in residuum and lesser amounts of colluvium from basalt and andesite. Wylo soils are on plateaus and hills. Slopes are 4 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees, F.

Taxonomic class: Clayey, montmorillonitic, mesic Lithic Argixerolls

Typical pedon: Wylo very stony loam, 8 to 30 percent slopes located in map unit 965. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent stones, 5 percent cobbles, and 25 percent pebbles.

A--0 to 4 inches; brown (7.5YR 5/2) very stony loam, dark brown (7.5YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine vesicular pores; 20 percent pebbles, 10 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt1--4 to 9 inches; brown (7.5YR 5/2) gravelly clay, dark brown (7.5YR 3/2) moist; moderate medium angular blocky structure; very hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine tubular pores; many thin clay films on faces of peds; 20 percent pebbles, 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.

Bt2--9 to 15 inches; brown (7.5YR 4/4) cobbly clay loam, dark brown (7.5YR 3/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine roots; common very fine tubular pores; many thin clay films on faces of peds; 20 percent cobbles, 10 percent pebbles; slightly alkaline (pH 7.4); abrupt irregular boundary.

R--15 inches; Hard volcanic bedrock.

Type location: Humboldt County, Nevada;

approximately 2 miles west of Division Peak, about 300 feet south and 250 feet west of the northeast corner of section 13, T.37 N., R.23.5 E.; (41 degrees, 06 minutes, 41 seconds north latitude and 119 degrees, 18 minutes, 02 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist winter, spring and early summer; dry July through October. Aridic bordering xeric moisture.

Soil temperature: 54 to 59 degrees, F.

Depth to bedrock: 14 to 20 inches.

Mollic epipedon thickness: 7 to 11 inches, includes upper part of argillic horizon.

Profile reaction: Neutral or slightly alkaline.

Control section:

Clay content--35 to 50 percent.

Rock fragments--15 to 35 percent.

A horizon:

Hue--7.5YR or 10YR

Chroma--2 or 3 dry or moist.

Bt horizons:

Hue--7.5YR or 10YR

Value--4 or 5 dry, 3 or 4 moist.

Chroma--Dominantly 2 or 3 in upper part, 3 or 4 in lower part, moist or dry.

Texture--Dominantly clay or clay loam in the upper part.

Clay content--Individual subhorizons range from 35 to 55 percent, average is 35 to 50 percent.

Rock fragments--Average 15 to 35 percent, individual subhorizons may have 35 to 45 percent.

Yellowhills Series

The Yellowhills series consists of very deep, well drained soils that formed in alluvium high in volcanic ash. Yellowhills soils are on inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 45 degrees, F.

Taxonomic class: Ashy, mesic Vitritorrandic

Typical pedon: Yellowhills sandy loam, 0 to 2 percent slopes, located in map unit 840. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; neutral (pH 7.2); clear smooth boundary.

A2--3 to 16 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.

Bw--16 to 34 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; 10 percent pebbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bq--34 to 60 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; few thin strata of discontinuous weak cementation; 10 percent pebbles; slightly alkaline (pH 7.4).

Type location: Humboldt County, Nevada;

approximately 4 miles northwest of Summit Lake, about 2,650 feet west and 2,250 feet south of the northeast corner of section 3, T.42 N., R.25 E.; (41 degrees, 35 minutes, 37 seconds north latitude and 119 degrees, 07 minutes, 07 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring; dry from late June through October. Aridic bordering xeric moisture.

Soil temperature: 47 to 52 degrees, F.

Mollic epipedon thickness: 10 to 20 inches.

Depth to Bq horizons: 25 to 40 inches.

Reaction: Neutral or slightly alkaline.

Control section:

Clay content--8 to 15 percent.

Rock fragments--0 to 15 percent.

Volcanic glass content--60 to 80 percent of the 0.02 to 2 mm fraction.

A horizon:

Chroma--2 or 3.

Bw horizon:

Value--3 or 4 moist.

Chroma--3 or 4.

Texture--Sandy loam or fine sandy loam.

Clay content--8 to 15 percent.

Rock fragments--0 to 15 percent.

Bq horizon:

Value--3 or 4 moist.

Chroma--3 or 4.

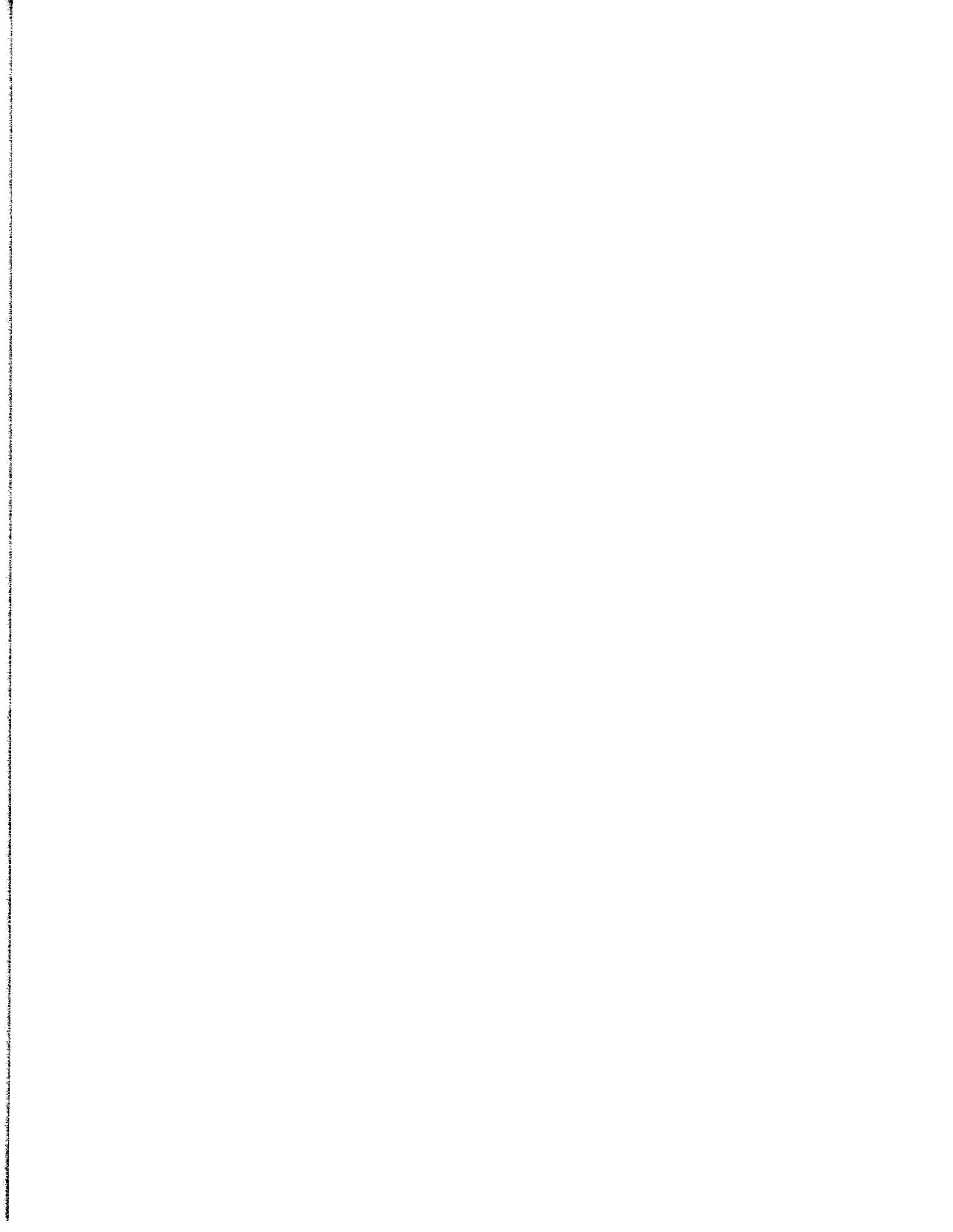
Texture--Sandy loam or fine sandy loam.

Clay content--8 to 15 percent.

Rock fragments--0 to 15 percent

Consistence--Soft or slightly hard, very friable or friable.

Other features--Has 5 to 15 percent weakly cemented durinodes or has few thin strata of discontinuous weak cementation. Some pedons have segregated lime.



Formation of the Soils

This section relates the soils in the survey area to the major factors of soil formation.

Soil is a natural body on the earth's surface in which plants grow. It is a mixture of varying proportions of rocks, minerals, organic matter, water, and air. The rocks and minerals are fragmented and are partly or wholly weathered. Soils have distinctive layers, or horizons, that are the product of environmental forces acting upon material deposited or accumulated through geologic activity.

Soils differ one from the other in different localities and within short distances. The differences are the result of the interaction of five soil-forming factors. These factors are (1) climate, mainly temperature and the kind and amount of precipitation, that has existed since accumulation of the parent material; (2) relief, mainly as it affects internal and external soil properties such as drainage, aeration, susceptibility to erosion, and exposure to the sun and wind; (3) biological forces, mainly the plant cover and the organisms living in and on the soil; (4) parent material, including the texture and structure of the material as well as its mineral and chemical composition; and (5) the length of time that the soil-forming factors have been operating.

The overall landscape of the area, the sequence of mountains and valleys, is the result of geologic, stratigraphic and structural control. The present topography and landforms, however, are the result of events during Quaternary time. The kinds of soil that formed are indicative of the stability and age of the surfaces of the landforms on which they occur.

Climate

The climate of the survey area is characterized by warm, dry summers and cool, moist winters. The average annual precipitation ranges from about 4 inches at the lowest elevation on the Black Rock Desert to about 18 inches at the highest elevation on Duffer Peak. The average annual air temperature ranges from about 53 degrees F. in the lowest valleys to as low as 38 degrees F. in the highest mountain ranges. Major climatic variations are the result of

the effects of topography and relief. The soils in the survey area reflect a general zonation with respect to elevation.

At the lower elevations, 3,800 to 5,000 feet, the average annual precipitation is about 4 to 8 inches. Weathering of parent material is slow, leaching is incomplete, and eluviation and illuviation proceed at a very slow rate. The plant cover consists mostly of a sparse stand of drought and salt tolerant shrubs. Typically, the soils are low in content of organic matter and have a thin, light colored A horizon. Soluble salts and calcium carbonate accumulate in the soil profile at a relatively shallow depth. Wendane, Boton, and Oxcorel soils are typical of soils that reflect these properties.

With increasing elevation there is an accompanying increase in precipitation, which results in deeper leaching of salts and calcium carbonate, decreased reaction, changes in the kind and density of vegetation, and a thicker and darker A horizon. Wylo, Bucklake, and Devada soils exemplify this elevational-climatic relationship.

At the highest elevations, where the precipitation is about 16 to 18 inches, leaching of salts and carbonates is more intensive, the soils are neutral or slightly acid, and the A horizon is thick and is high in content of organic matter. Hackwood, Aycab, and Tosp soils are typical of these soils.

In winter, freezing and thawing generally occur throughout the survey area, except in those areas that generally are insulated by snow cover. The effects of frost action are discernible by the heaving of plants and erosion of the surface soil resulting from solifluction.

Time

Time is required for the formation of soils. The amount of time required depends upon the other soil-forming factors. The thickness and other characteristics of the A and B horizons and other horizons reflect the relative age of soils (8). The age or strength of expression of the horizons is a reflection of the amount of weathering of parent material resulting from the interaction of moisture, temperature, and biological activity over time.

The soils in this survey area range from a few years to possibly a few hundred thousand years or more in age. This range in age is a major reason for the many kinds of soil in the area.

The interaction of time and other soil-forming factors is not well understood by soil scientists and geologists. Many soil scientists and some geologists think that weathering of parent material and development of soil profiles have been essentially continuous, with little change in rate throughout Quaternary time (12), (13), (15), (19). Recently, however, geologists concerned with differentiating Quaternary deposits have proposed that soil development has not proceeded continuously at the same rate but has taken place intermittently at rapid rates (9), (10), (11), (15).

These geologists have developed a system for mapping soil stratigraphic units that uses weathering profiles as stratigraphic markers to differentiate and correlate Quaternary deposits. This system is based on the assumption that weathering profiles formed as a result of infrequent combinations of climatic factors that induced minimal rates of erosion and deposition and greatly accelerated the rate of chemical weathering.

In spite of these disagreements concerning the relative influences of time and other soil-forming factors, the concept of intermittency of soil formation has been supported by numerous studies and provides a practical basis for discussing the age of soils in the survey area in relation to geologic and climatic units in Quaternary time.

The kinds of subsurface diagnostic horizons and other subsurface diagnostic properties (18), (17) and their strength of expression provide general clues to the age of the soils. Important subsurface diagnostic horizons in soils in the area are argillic, natric, and cambic horizons and horizons exhibiting silica cementation. In this area, prominent argillic horizons generally are only in soils that formed mainly during the Pleistocene. This has been established by studies in the Southwest (4), (5) and is further supported in Soil Taxonomy (17). As age increases and other conditions remain constant, argillic horizons become finer in texture, become somewhat thicker and tend to develop an abrupt upper boundary. Weakly expressed, thin argillic horizons may have formed during very late Pleistocene or early Holocene time.

A natric horizon is a kind of argillic horizon that formed under the influence of a high content of exchangeable sodium. The effect of sodium on the dispersion of clay may tend to accelerate the rate of formation of an argillic horizon. This factor is not believed to be significant, however, except in weakly expressed natric horizons that formed on Holocene surfaces. Following earlier development as argillic horizons, prominent natric horizons may have developed their present characteristics as a result of sodium supplied in eolian deposits. Transportation and deposition of sodium salts in eolian material are

believed to be important present day processes that affect the physical and chemical properties of soils in the area.

The strength of expression of diagnostic subsurface horizons in the soils in the area indicates a sequence of soils that range in age from present day to early-late Pleistocene or possibly older.

The youngest soils in the area are those that formed in recently aggraded material or in material recently exposed by erosion. Included among these soils are Bluewing soils which formed in recent alluvium, Skedaddle soils which formed in material weathered from igneous rocks on upland slopes where erosion has been active, and Isolde soils which formed on stabilized sand dunes.

Somewhat older than the youngest soils are soils that formed in alluvium of wet flood plains and soils on mountain slopes that have relatively recently eroded. These soils have been stable long enough to have accumulated organic matter and formed a dark colored A horizon. They do not have an argillic, natric, or cambic horizon, a duripan or durinodes. They are probably less than 1,000 years old. Humboldt soils are an example of soils that formed on wet floodplains. Ola soils are an example of soils that formed on steep mountain slopes.

Soils that formed in lacustrine sediments and have either subsurface horizons containing durinodes or horizons with very weak silica cementation are also older than the youngest soils and possibly are slightly older than the soils that have a dark colored A horizon as their only major diagnostic feature. These soils are on lake plain terraces and formed in parent material containing a considerable amount of volcanic ash. Boton soils are examples of soils that have incipient silica cementation as a major diagnostic feature.

Soils with cambic horizons formed on stable Holocene land surfaces less than about 10,000 years old and more than about 2,000 years old. This age has been determined mostly as a result of soil mapping in areas located below the last high stage of Pleistocene Lake Lahontan (7), (9), (10), (11). Investigations in southern New Mexico indicate that cambic horizons in that region are less than about 5,000 years old (3), (6). McConnel soils have a cambic horizon and formed on fan skirts and fan aprons. Toulon soils, formed on offshore bars and barrier bars of Pleistocene Lake Lahontan, also have a cambic horizon.

Many of the soils in this survey area have a relict argillic horizon and are believed to be of late-Pleistocene age. These soils are extensive on mountains, foothills, and piedmont slopes. Softscrabble, Hoot, and Tumtum soils are examples of soils with relict argillic horizons. The existence of extensive areas of these kinds of soils is evidence that major erosional and depositional events have not occurred or have been minor in extent since late Pleistocene time.

Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in the survey area. Although animals, such as badgers and ground squirrels, and insects, such as cicadas, have had some effect on soil development, plants appear to have had the major biological influence on the soils in this survey area.

The vegetation in the area has been a particularly important factor in reducing erosion. This factor has helped to maintain the stability of the land surfaces so that normal soil formation could take place.

Because of climatic differences, plants vary considerably in kinds and amounts as elevation increases. On fan skirts and basin floors at low elevations, the main plants are drought and salt tolerant shrubs. Because of the scarcity of available moisture, plants cover only a small part of the surface. They add little organic matter to the soils and provide little protection from the wind and sun. Salt tolerant shrubs also tend to recycle salts from the deeper layers to the surface soil.

On floodplains, where drainage is restricted, the dense growth of vegetation has supplied the organic matter that gives Humboldt and Welch soils a dark colored A horizon.

Alluvial fans and foothills at higher elevations support a plant cover of shrubs and grass that is transitional from desert shrubs to mountain shrubs and grasses. The density of plants in these areas is somewhat greater, soluble salts are deeper in the soil profile, and more organic matter has accumulated in the A horizon.

The mountainous areas support denser stands of shrubs, grasses, and in some places, trees. Because of the more abundant vegetation, the A horizon of the soils in these areas are thick, is high in organic matter, and is dark colored.

Relief

Relief, through its effects on drainage, runoff, erosion, and exposure to the sun and wind, has had an important effect on soil formation in the survey area. The mountain ranges, valleys, and flood plains reflect the gross variations in relief within the area.

The mountain ranges are mainly characterized by steep relief. Runoff is rapid or very rapid, and the hazard of erosion is high. The removal of material by erosion inhibits or prevents soil development. Development of soils on mountain surfaces that are subject to a high rate geologic erosion is primarily limited to accumulation of organic matter to form a dark colored A horizon. A cambic or an argillic horizon has formed in the soils on more stable mountain surfaces, where the rate of geologic erosion has

been slower. Rocconda, Ninemile, and Sumine soils are examples of soils that formed on the more stable mountain slopes and have an argillic horizon. Skedaddle and Singatse soils are examples of soils on less stable mountain slopes where soil formation has been unable to act on parent material long enough for these horizons to have developed.

Soils on concave and north-facing mountain slopes, because of the greater effectiveness of temperature and moisture, support a dense stand of shrubs, grasses, and in some places, aspen trees. The soils in these areas have developed a thick, dark-colored A horizon with a high content of organic matter. Hackwood soils, which have neither a cambic nor an argillic horizon, and Softscrabble soils, which have an argillic horizon, are examples of these soils.

The valleys are either semi-bolsons or bolsons that receive drainage water from the surrounding mountain ranges (14). The semi-bolson type, characterized by Craine Creek Valley, consists of deeply dissected erosional fan remnants and inset fans with narrow axial stream floodplains crossing the valley floors. Deppy soils, which have a loamy argillic horizon and Tumtum soils, which have a clayey argillic horizon, are examples of soils on stable erosional fan remnants. Orovada soils, which have a coarse-loamy control section, are examples of soils on inset fans. Wendane soils, which have a fine-silty control section, are examples of soils on axial stream floodplains.

The bolson valley-type is characterized by the Black Rock Desert basin. It consists of several levels of beach terraces cut by Pleistocene Lake Lahontan. These shoreline features have been covered at many locations by recent alluvial fans. Toulon soils are examples of soils on beach terraces. Bluewing soils are examples of soils on alluvial fans.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soils form. The hardness, grain size, and porosity of the parent material and its mineral and chemical composition greatly influence soil formation.

The main sources of parent material in the survey area are intrusive and extrusive igneous rocks, metamorphic rocks, colluvium, alluvium, and eolian material, including volcanic ash and sand. Of the intrusive igneous rocks, granodiorite is the most abundant. These rocks are mainly in the Pine Forest Range, Bilk Creek Mountains and on Bartlett Peak. The intrusive rocks contain minerals that weather to clay. Soils formed in materials derived from these kinds of rocks have an argillic horizon if the surfaces

of the landforms have been stable for a sufficiently long period of time. Acrelane and Siscab soils are examples of these soils. Soils that formed in material from granitic rocks that are on steeper slopes and receive more precipitation generally are eroding. Consequently, they lack soil development except for some accumulation of organic matter in the A horizon. Aycab soils are examples of these soils.

The extrusive igneous rocks include tuff, rhyolite, andesite, and basalt. Because extrusive rocks contain appreciable quantities of minerals that weather to clay, most soils that formed in these materials on stable slopes of mountains and foothills have an argillic horizon. The argillic horizon is generally quite clayey. Bucklake, Wylo, and Ninemile soils are examples of these soils.

Metamorphic rocks are the source of the parent material in a limited area, mainly on the south end of the Jackson Mountains. These soils are on unstable surfaces and are eroding and lack soil development. Wesfil and Sojur soils are examples of soils that formed in material derived from metamorphic rocks.

Alluvial deposits on fan remnants, fan skirts, fan aprons, and inset fans consist of sandy, loamy, and clayey material of generally mixed minerology that has been eroded from surrounding mountains. Alluvium from mixed rock sources on fan remnants is mostly loamy and contains variable amounts of pebbles, cobbles, and stones. It contains

minerals that weathered to produce clay and soluble silica for cementation of duripans. Deppy and Tumtum soils are examples of soils with argillic horizons and duripans that formed in alluvium on stable fan remnants.

Alluvium from mixed rock sources deposited as fan skirts, fan aprons, and inset fans are not old enough to exhibit significant soil development. McConnel and Orovada soils are typical examples.

Pluvial Lake Lahontan built prominent barrier bars and numerous offshore bars during the recessional periods. The lake bottom was veneered and leveled with fine textured, nongravelly, stratified sediments. Toulon and Sondoia soils are examples of soils that formed in pluvial lake sediments.

Loess, an eolian material consisting mainly of silt, was deposited over some of the survey area during the Pleistocene and Holocene. This material contains a considerable amount of volcanic glass. Yellowhills and Saraph soils are examples of soils that formed in materials that contain high amounts of volcanic glass.

Sandy eolian materials are mainly along the outer margins of pluvial Lake Lahontan, where large quantities of sand were available from lake beaches. Isolde and Hawsley soils are typical examples of soils that formed in sandy eolian materials on semi-stabilized dunes and sand sheets.

References

- (1) American Association of State Highway and Transportation Officials. 1986. Standard specifications for highway materials and methods of sampling and testing. Ed. 14, 2 vols.
- (2) American Society for Testing and Materials. 1993. Standard classification of soils for engineering purposes. ASTM Stand. D 2487.
- (3) Gile, L. H. 1966. Cambic and certain noncambic horizons in desert soils of southern New Mexico. *Soil Sci. Soc. Of Am. Proc.*, vol 30: 773-781.
- (4) Gile, L. H. and R. B. Grossman. 1968. Morphology of the argillic horizon in desert soils of southern New Mexico. *Soil Sci. Vol.* 106, no. 1: 6-15.
- (5) Gile, L. H. and J. W. Hawley. 1966. Periodic sedimentation and soil formation on an alluvial fan piedmont in southern New Mexico. *Soil Sci. Soc. Of Am. Proc.*, vol 30: 261-268.
- (6) Gile, L. H., F. F. Peterson, and R. B. Grossman. 1966. Morphological and genetic sequences of carbonate accumulation in desert soils. *Soil Sci.*, vol. 101: 347-360.
- (7) Hawley, J. W. 1962. The late Pleistocene and recent geology of the Winnemucca segment of the Humboldt River Valley, Nevada. Ph.D. thesis, University of Illinois.
- (8) Hawley, J. W. and L. H. Gile. 1966. Landscape Evolution and Soil Genesis in the Rio Grande Region, Southern New Mexico. Guidebook; 11th Annual Field Conference, Rocky Mountain Section, Friends of the Pleistocene, Aug 26-28, 1966.
- (9) Morrison, R. B. 1964. Lake Lahontan: Geology of the Carson Desert, Nevada. U.S. Geol. Surv. Prof. Pap. 401.
- (10) Morrison, R. B. 1964. Soil stratigraphy: Principles, applications to differentiation and correlation of Quaternary deposits and landforms, and applications to soil science. Ph.D. thesis, University of Nevada.
- (11) Morrison, R. B. 1965. Principles of Quaternary soil stratigraphy. In *Quaternary soils, INQA. Proc.*, vol. 9, VII Congress: 1-69.
- (12) Nikiforoff, C. C. 1942. Fundamental formula of soil formation. *Am. J. of Sci.*, vol. 240: 847-866.
- (13) Nikiforoff, C. C. 1949. Weathering and soil evolution. *Soil Sci.*, vol. 67: 219-223.
- (14) Peterson, Frederick F. 1981. Landforms of the Basin and Range province defined for soil survey. Nevada Agricultural Experiment Station, Max C. Fleischmann College of Agriculture, University of Nevada, Reno. *Tech. Bul.* 28: 52 pp., illus.
- (15) Richmond, G. M. 1962. Quaternary geology of the La Sal Mountains, Utah. U. S. Geol. Surv. Prof. Pap. 324.
- (16) United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210.
- (17) United States Department of Agriculture, Soil Conservation Service. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. U.S. Dep. Agric. Handb. 436.
- (18) United States Department of Agriculture, Soil Conservation Service. 1993. Soil survey manual. U.S. Dep. Agric. Handb. 18.
- (19) Ward, W. T. 1965. Soils of the Adelaide Area, South Australia, in relation to time. In *Quaternary Soils, INQA. Proc.*, vol. 9, VII Congress: 293-306

Glossary

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.

Albic horizon. A subsurface horizon from which silicate clay and/or free iron oxides have been removed or the oxides segregated to the extent that the color of the horizon is largely determined by the color of the primary sand and silt particles.

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 cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fanlike deposit of a stream where it issues from a narrow valley upon a plain, or of a tributary stream near or at its junction with its main stream.

Alluvial flat. A nearly level, graded, alluvial surface in bolsons and semi-bolsons. Commonly, an alluvial flat does not manifest terraces or floodplain levels.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

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.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses.

Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Argillite. Weakly metamorphosed mudstone or shale.

Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

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 3.5
Low.....	3.5 to 5
Moderate.....	5 to 7.5
High.....	more than 7.5

Avalanche chute. The track or path formed by an avalanche.

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Backswamp. A floodplain landform of extensive, marshy, or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland. Steep or very steep, commonly non-stony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

- Ballena.** A fan remnant having a distinctively-rounded surface of fan alluvium. The ballena's broadly rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave, short pediments which form smoothly-rounded drainageways between adjacent ballenas. A partial ballena is a fan remnant large enough to retain some relict fan surface on a remnant summit.
- Barrier beach.** A wide gently sloping portion of a bolson floor comprising numerous, parallel, relict longshore-bars and lagoons built by a receding pluvial lake.
- 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, K), expressed as a percentage of the total cation-exchange capacity.
- Basin floor.** A general term for the nearly level, lower-most part of intermontane basins (i.e., bolson, semi-bolsos). The basin floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope.
- Beach terrace.** The relict shorelines from pluvial lakes, generally restricted to valley sides.
- Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
- Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts, the water table is exposed.
- Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing.
- Bolson.** A landscape term for an internally drained intermontane basin into which drainages from surrounding mountains converge inward toward a central depression.
- 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.
- Calcic horizon.** A subsoil horizon characterized by an illuvial accumulation of secondary calcium carbonate. Calcic horizons are not cemented or indurated to a degree which would be limiting to root growth.
- Caldera.** A large, more or less circular depression, formed by explosion and/or collapse, which surrounds a volcanic vent or vents, and whose diameter is much greater than that of the included vent, or vents.
- Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, sub-humid 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.
- California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16

supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Cambic horizon. A subsoil horizon characterized by loamy texture, soil structure rather than rock structure, and some evidence of alteration such as illuviation of clay or removal and redistribution of calcium carbonate. A cambic horizon can include subhorizons that are part of an ochric epipedon or an albic horizon.

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.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

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.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Channery soil material. Soil material that is, 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 depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clayey soil. Silty clay, sandy clay, or clay.

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.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

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.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded, partly rounded, or angular fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

Colluvium. Unconsolidated, unsorted earth material moved and deposited by mass movement on sideslopes and at the base of slopes.

Commercial forest. Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

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.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane that typically takes 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 to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

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.

Cropping system. Growing crops according to a planned system of rotation and management practices.

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.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped, deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

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.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

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.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

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.

Dune. A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

Ecological Site. A distinctive kind of rangeland or grazed forestland that has a unique historic potential native plant community. Ecological sites are the products of all the environmental factors that affect their development. An ecological site is capable of supporting a native plant community that has a unique kind and/or proportion of species or total vegetative production. Ecological sites in grazed forestland include both overstory and understory vegetation.

Effervescence. The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCL) are added to the soil. The ratings are as follows:

Very slightly effervescentfew bubbles
Slightly effervescent.....bubbles readily
Strongly effervescent bubbles form low foam
Violently effervescent..... bubbles form thick foam quickly

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of 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.
- Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.
- Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.
- Even aged.** Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.
- Excess alkali** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.
- Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.
- Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.
- Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess sulfur** (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.
- Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.
- 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 apron.** A sheet-like mantle of relatively young alluvium covering part of an older fan piedmont surface. It somewhere buries a soil that can be traced to the edge of the fan apron.
- Fan piedmont.** The most extensive landform on piedmont slopes, formed by the coalescence of alluvial fans or accretions of fan aprons into one generally smooth slope.
- Fan remnant.** A general term for landforms that are remaining parts of older fan-landforms, that either have been dissected or partially buried.
- Fan skirt.** The zone of smooth, laterally-coalescing, small alluvial fans that issue from gullies cut into the fan piedmont or that are the coalescing extensions of inset fans of the fan piedmont, and that merge with the basin floor.
- Fast intake** (in tables). The rapid movement of water into the soil.
- 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.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- 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*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flaggy soil material.** Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is 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.
- Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.
- Foot slope.** The inclined surface at the base of a hill.
- 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.
- Fragile** (in tables). A soil that is easily damaged by use or disturbance.
- 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.
- Gilgai.** The microrelief of clayey soils that shrink and swell considerably with changes in moisture content. Usually manifested as a succession of micro-basins and micro-knolls in nearly level areas or of micro-valleys and micro-ridges parallel with the slope.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- 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 is 15 to 50 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.
- Ground water.** Water filling all the unblocked pores of underlying material below the water table.
- 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.
- Gypsic horizon.** A subsoil horizon characterized by an illuvial accumulation of secondary gypsum. Gypsic horizons are not cemented or indurated to a degree which would be limiting to root growth.
- Gypsum.** A mineral consisting of hydrous calcium sulfate.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Heavy metal.** Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.
- Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- 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.
- Histic epipedon.** A surface horizon composed of organic soil material (peat or muck). Histic epipedons have aquic conditions for some time in most years unless they have been artificially drained.
- Holocene.** The epoch of the Quaternary Period of geologic time, extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present.
- Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons 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 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 capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

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.

Inset fan. A special case of the flood plain of an ephemeral stream that is confined between fan remnants, basin-floor remnants, ballenas, or closely opposed fan toeslopes.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives groundwater discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intermontane basin. A generic term for wide structural depressions between mountain ranges that are partly filled with alluvium. They may be drained internally (bolsons) or externally (semi-bolsons).

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.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lagoon. The nearly level, filled depression behind the longshore bar on a barrier beach.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

Lake terrace. The narrow shelf produced along a lake shore and later exposed when the water recedes.

Lamella. A thin, generally horizontal layer of fine material illuviated within a very much thicker, coarser, eluviated layer.

Landform. Any recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes that provide an empirical description of similar portions of the earth's surface.

Landscape. A collection of related, natural landforms.

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.

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.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Longshore bar. A narrow, elongate, coarse-textured ridge, built by the wave action of a pluvial lake, that extends parallel to the shore and separated it from a lagoon; both the bar and lagoon are now relict features.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

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.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

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 deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

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.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables--hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

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 between 6.6 and 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.

Observed rooting depth. Depth to which roots have been observed to penetrate.

Ochric epipedon. A surface horizon that is generally thin, dry, light in color, high in value or chroma, and/or low in organic matter. Ochric epipedons include eluvial horizons (such as albic horizons) that are at or near the soil surface.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parna dune. An eolian dune built of sand size aggregates of clayey material that commonly occurs leeward of a playa.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pediment. A gently sloping erosional surface developed at the foot of a receding hill or mountain slope.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs 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	0.00 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

Petrocalcic horizon. A subsoil horizon characterized by an illuvial accumulation of secondary calcium carbonate. In a petrocalcic horizon, the carbonates have accumulated to the extent that the horizon is cemented or indurated and is limiting to root growth.

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.)

Piedmont slope. The dominant slope at the foot of a mountain. Main components of the piedmont slope include pediments, alluvial fans, fan piedmonts, fan skirts and inset fans.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Pleistocene. The epoch of the Quaternary Period of geologic time preceding the Holocene (from approximately 2 million to 10 thousand years ago).

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Pluvial. Relating to former periods of abundant rains.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water

can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

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.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quaternary. The period of geologic time, extending from about 2 million years ago to the present and comprising two epochs, the Pleistocene (Ice Age) and Holocene (Recent).

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike

plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

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 (mildly alkaline).....	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline.....	8.5 to 9.0
Very strongly alkaline.....	9.1 and higher

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.

Regeneration. The new growth of a natural plant community, developing from seed.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

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.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

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 groundwater runoff or seepage flow from ground water.

Salic horizon. A mineral soil horizon characterized by an accumulation of salts which are more soluble than gypsum in cold water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

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

Salty water (in tables). Water that is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand sheet. A large, irregularly shaped, surficial mantle of eolian sand.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

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.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

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.

Semi-bolson. An intermontane basin that is drained externally by an intermittent stream.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

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.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shelterwood system. A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune. A small dune that forms around shrubs or small trees.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or

dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

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.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slickens. Accumulations of fine-textured material, such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

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.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 4 percent
Moderately sloping	4 to 8 percent

Strongly sloping	8 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 to 75 percent
Extremely steep	75 percent and higher

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.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, a ratio used to express the relative activity of sodium ions in exchange reactions with soil. The classes of sodicity and their Sodium Adsorption Ratios are:

Very slight.....	5-12
Slight	13-30
Moderate	31-45
Strong.....	46-90
Very strong	more than 90

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand.....	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand.....	0.25 to 0.10
Very fine sand.....	0.10 to 0.05
Silt	0.05 to 0.002

Clay.....less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

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.

Strath terrace. A surface cut formed by the erosion of hard or semi-consolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing 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 grain* (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 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.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

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. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

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.

Tailwater. The water directly downstream of a structure.

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. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). A step-like surface, ordinarily flat or undulating, bordering a river, a lake, or the sea representing a former flood plain.

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 too thin for the specified use.
- Till plain**. An extensive area of nearly level to undulating soils underlain by glacial till.
- Tilth, soil**. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toe slope**. The outermost inclined surface at the base of a hill; part of a foot slope.
- 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.
- Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.
- Trace elements**. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Trafficability**. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.
- Tread**. The relatively flat terrace surface that was cut or built by stream or wave action.
- Tuff**. A compacted deposit that is 50 percent or more volcanic ash and dust.
- Understory**. Any plants in a forest community that grow to a height of less than 5 feet.
- Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.
- Upland** (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
- Valley**. An elongated depressional area primarily developed by stream action.

- Valley fill**. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.
- Variation**. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Very deep soil**. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Very shallow soil**. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Water bars**. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.
- Waterspreading**. Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.
- Water supplying capacity**. The total amount of water available in the soil for plant growth in a normal year from precipitation and from runoff from higher areas. Runoff and water lost to deep percolation are not included.
- 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.

USDA United States
Department of
Agriculture

Natural
Resources
Conservation
Service

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

Soil Survey of Humboldt County, Nevada, West Part

Part II

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Soil Survey of Humboldt County, Nevada, West Part

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Interpretative ratings help engineers, planners, and others to understand how soil properties influence important nonagricultural uses, such as building site development and construction materials. The ratings

indicate the most restrictive soil features affecting the suitability of the soils for these uses.

Soils are rated in their natural state. No unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most of the limitations. Many of these practices, however, are costly. The final decision in selecting a site for a particular use generally involves weighing the costs of site preparation and maintenance.

Planners and others using soil survey information can evaluate the effect of specific 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, trees, and shrubs.



Crops and Pasture

General management needed for crops and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained. The estimated yields of the main crops and pasture plants are listed for each soil in table 5 at the back of this publication.

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" in Part I of this Publication and in the "Soil Properties" portion of Part II. Specific information can be obtained from the local office of the Natural Resources Conservation Service or Cooperative Extension.

Yields per Acre

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in table 5, "Land Capability and Yields per Acre of Crops." In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

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 are also considered.

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 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 residue, barnyard manure,

and green manure crops; and harvesting that ensures the smallest possible loss.

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 the table 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 Cooperative Extension can provide information about the management and productivity of the soils for those crops.

Pasture and Hayland Interpretations

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often provided in animal unit months (AUM), the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Information about forage yields other than those shown in table 5, "Land Capability and Yields per Acre of Crops" can be provided by the local office of the Natural Resources Conservation Service or Cooperative Extension.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land-

forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, as described in "Land Capability Classification" (16), soils generally are grouped at three levels: capability class, subclass, and unit. These levels indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, cotton, hay, and field-grown vegetables. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes I, II, III, and IV are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class I to class IV. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes V, VI, and VII are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class V to class VII. The local office of the Cooperative Extension or Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class VIII are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses indicate the dominant limitations in the class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless a 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* shows that the chief limitation is a climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion. They have other

limitations that restrict their use mainly to pasture, rangeland, woodland, wildlife habitat, or recreation.

The irrigated capability classification of each farmland map unit is given in table 5, "Land Capability and Yields per Acre of Crops."

Erosion Factors

Soil erodibility factors Kw and Kf quantify the susceptibility of soil to detachment by water. A wind erodibility group (WEG) is a grouping of soils that have similar properties affecting their resistance to soil blowing. The Wind Erodibility Index (I) is based on the WEG and is used in the wind erosion equation. Soil erodibility factors Kw and Kf are used in the Revised Universal Soil Loss Equation. The procedure for predicting soil loss is useful in guiding the selection of soil and water conservation practices.

Soil Erodibility Factors Kw and Kf

Factor Kw shows the erodibility of the whole soil, and factor Kf shows the erodibility of only the fine-earth fraction, the material less than 2.0 millimeters in diameter. The soil erodibility factor indicates the susceptibility of a soil to sheet and rill erosion by water. The soil properties that influence erodibility are those that affect the infiltration rate, the movement of water through the soil, and the water storage capacity of the soil and those that allow the soil to resist dispersion, splashing, abrasion, and the transporting forces of rainfall and runoff. The most important soil properties are the content of silt plus very fine sand, the content of sand coarser than very fine sand, the content of organic matter, soil structure, and permeability.

Wind Erodibility Groups

Soils are assigned wind erodibility groups on the basis of the properties of the surface layer. The properties that are most important with respect to soil blowing are soil texture, content of organic matter, calcium carbonate, reaction, content of rock fragments, and aggregate stability. Wind erodibility is inversely related to the percentage of dry surface soil aggregates larger than 0.84 millimeter in diameter. From this percentage, the wind erodibility index factor (I) is determined.

Soil Loss Tolerance (T) Factor

The annual Soil Loss Tolerance (T) is an estimate of the maximum rate of erosion that can occur without affecting

crop productivity. The T factor is expressed in tons of soil loss per acre per year. Values of 1 to 5 are used. T values are assigned according to properties of limiting subsurface soil layers. The designation of a limiting layer implies that the material above the layer has more favorable properties for crop production. The criteria for assigning T are based on the severity of physical or chemical properties of subsurface layers, the climatically influenced properties of

soil moisture and temperature, the economic feasibility of utilizing management practices to overcome limiting layers or conditions, and the depth to the limiting layer.

Additional information about wind erodibility groups and I, Kw, Kf, and T factors can be obtained from local offices of the Natural Resources Conservation Service or Cooperative Extension.



Rangeland And Grazeable Woodland Resource Management

In this soil survey report, the term "rangeland" refers to a kind of land rather than a land use. Areas of rangeland provide many important resource values. They act as vast watersheds and provide habitat for wildlife, livestock forage, and opportunities for recreation. The resource values of rangeland are intricately related to each other and are often directly affected by rangeland management. Because of the interrelationships among rangeland resources, rangeland managers should consider all resource values when planning range improvements.

About 98 percent of the acreage in this survey area is rangeland. Livestock grazing is the principal agricultural use of the rangeland. Livestock operations are mostly cow-calf or cow-calf-sheep enterprises. Ranches range from a few hundred to several thousands acres in size. They rely heavily on permitted use of public lands. Most of the rangeland within the survey area is administered by the Bureau of Land Management. The Bureau of Indian Affairs has management responsibility for the rangeland within Indian reservations.

Soil-Site Correlation

During the course of this soil survey, ecological sites were correlated with the soils identified within the survey area. These correlations are based on the current understanding of soil-plant-climate relationships in the survey area. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, content of salts or lime, and topographic position are also important. The relationship of climate to vegetation and soils is considered in the classification of soils and in soil mapping criteria. In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Ecological sites can generally be determined from soil maps and map unit legends developed for the survey area.

Range Condition

Mining is the major industrial use of rangeland in the survey area and has played an important role in the history of the area. During the mining booms of the 1870's, herds of cattle, sheep, oxen, horses, and burros were brought to Humboldt County to be used as a source of power and feed for the developing mining communities. Heavy grazing pressure during these boom periods depleted native stands of forage throughout much of the survey area.

The early devastation of rangeland plant communities through uncontrolled livestock grazing ended long ago, but severely depleted areas still reflect the abuses of early settlement. In the most severely disturbed areas, palatable shrubs generally have been replaced by less desirable shrubs and many native perennial grasses and forbs have been replaced by alien or introduced annual grasses and forbs. Recovery of the plant community has been most evident where previous abuses were limited. The greater the level of deterioration, the longer the period of recovery. Although present-day rangeland production and plant diversity in the survey area are generally less than optimal, the overall condition of the rangeland is much improved from what was common in the early 1900's.

Range condition is determined by a comparison of the present plant community with the natural potential plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential plant community, the higher the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community for a given use. Ratings of range condition alone do not indicate whether the present plant community is improving or deteriorating in relation to its potential. The trend in range condition is a measure of the direction of change in the condition. It is an expression of the effects of current use. The present range condition is a reflection of

the accumulated effects of past use. Once the potential plant communities have been identified and the present range condition has been determined, monitoring the trend in range condition over time can indicate whether management objectives are being met.

Rangeland Management

Range management requires knowledge of the kinds of soil and of the natural potential plant communities the soils in a given area can support. It also requires an evaluation of the present range condition. For most rangeland plant communities, good management can improve the present condition and productivity of the range and can help to prevent accelerated erosion. Proper management of rangeland depends on many factors. The season of grazing use, the kind of grazing animal, the intensity and distribution of grazing, and the range resource potential are important management considerations. Multiple-use management that meets present and future needs requires extensive knowledge of the capabilities and limitations of the range resources. An understanding of the soil properties and dynamics of native plant communities is fundamental in applying ecological principles to the evaluation and management of rangeland.

Generally, the objective of range management is to manage grazing so that the plants growing on a site are about the same in kind and amount as the natural potential plant community for that site. Such management generally results in the optimum production of vegetation, conservation of water, and control of erosion. To meet a special need or a specific use, however, it may be desirable to manage for a plant community other than the potential plant community for the site. Care must always be taken not to increase the susceptibility to erosion. Future uses and the relative ability of given sites to respond to management should be considered if the management objective is to establish a plant community other than the potential plant community.

Desirable forage plants of many plant communities within the survey area have been greatly depleted or even eliminated by excessive and untimely grazing. Generally, perennial grasses have decreased in abundance and woody plants have increased. The productivity of forage plants is below the production potential on many sites. Uneven livestock distribution has resulted in both overuse and underuse of the native forage.

An increase in the abundance and size of shrubs and an extensive invasion of cheatgrass (an introduced annual grass) have reduced the amount of soil moisture and nutrients available to perennial grasses and forbs. In areas

where the range condition has not excessively deteriorated and an adequate population of desirable perennial grasses and forbs is available to respond to a release from plant competition, brush management can be effective in reversing the trend toward an increasing dominance of woody vegetation.

Abusive grazing of riparian vegetation by livestock can reduce water quality, eliminate streamside shrubs, cause soil compaction, accelerate erosion, and break down streambanks. Proper management of the rangeland in the survey area requires that special attention be given to riparian zones. Fortunately, riparian communities often respond to improved livestock management more rapidly than upland plant communities. Grazing treatments in riparian areas vary with the stability of the riparian plant community and the condition of the adjacent upland plant communities.

Rangeland Seeding

Rangeland seeding may be required following the removal of woody vegetation in areas where desirable understory plants are scarce or are not included in the present plant community. Revegetation also may be necessary for critical area treatment following a wildfire or other major disturbance. Maximum grazing capacity can be achieved in seeded stands where the objective of management is uniform grazing of the stands and prevention of the concentration of livestock. Additional water developments and fencing may be required to meet management objectives.

The success of range seeding depends on the amount of moisture available during the growing season. Even in areas where adapted species are planted and improved seeding and land treatment techniques are applied, the success of range seeding is strongly influenced by rainfall. The distribution and amount of precipitation in the survey area fluctuate widely from one year to the next. Years of below normal precipitation are relatively frequent, and the risk of seeding failure caused by the unpredictability of climate should be acknowledged in addition to critical soil properties that affect seeding success.

Each soil in the survey area is rated in table 6, "Suitability for Rangeland Seeding." The criteria used in the development of these ratings are available from the local Nevada office of the Natural Resources Conservation Service. Where critical area treatment is necessary, providing a plant cover that helps to prevent accelerated erosion may be advantageous on soils that are poorly suited to range seeding. The plants that are suited to the soils in the area to be treated should be selected for seeding.

More specific management concerns are addressed under the heading "Plant Communities in Humboldt County, Nevada, West Part" later in this section. Additional information about rangeland management can be obtained from local offices of the Natural Resources Conservation Service or Cooperative Extension.

Wildlife Considerations

Reducing the extent of brush cover can benefit many game and non-game wildlife species where the habitat needs of those animals are properly identified and planned for in the manipulation of vegetation. For instance, extensive areas dominated by big sagebrush provide marginal habitat for pronghorn antelope. The habitat can be improved by measures that decrease the density and height of the sagebrush. The habitat for mule deer can be improved by removing big sagebrush and thus enhancing the diversity of understory grasses and forbs or increasing the production of green forage on transitional range that has an excessive cover of shrubs.

For other species, however, brush removal may be detrimental. Sage grouse is a habitat-specific bird, relying primarily on sagebrush to meet its life requirements. Plans for the manipulation of sagebrush stands on range inhabited by sage grouse should provide for the maintenance of suitable grouse habitat, especially nesting habitat near strutting grounds. The optimum nesting habitat for sage grouse is one in which the crown cover of sagebrush that is less than 30 inches high is 20 to 40 percent. Treatment of the sagebrush that reduces the cover from 40 to 20 percent may not seriously degrade the nesting habitat and commonly improves the quality of forage for sage grouse.

In an assessment of how the manipulation of vegetation affects wildlife, "edge" habitat is an important consideration. The structure and dominance of plants that remain after manipulation differ with the method of treatment. Fire removes all of the vegetation, including the skeletons or woody portions of shrubs, and thus eliminates the structure of woody vegetation from the treated area. Prescribed burning may enhance the habitat for a number of wildlife species. Mule deer and many non-game species select recently burned areas for feeding. Brush treatment with herbicides leaves the dead skeletons of shrubs and retains the shrub structure. Herbicides may kill broad-leaved forbs in the shrub understory, which are staples in the diet of many game and non-game species. Chaining and, to a lesser degree, brush beating change the vegetative structure from tree/shrub or shrub to grassland, and the residue they leave on the ground creates habitat for small mammals.

Many wildlife species in the survey area depend on riparian plant communities during much of the year. These plant communities support wildlife not common to desert ecosystems, such as short-eared owls, Pacific tree frogs, and long-tailed weasels. Riparian communities also provide islands of habitat in desert environments for migrating birds. Nuthatches, warblers, and other species that nest in forest ecosystems migrate to desert riparian zones in spring and fall.

Livestock water developments can be beneficial to wildlife if the water is available when the wildlife species occupy the area. Forage for wildlife can be enhanced if adapted forbs are included in a rangeland seeding.

More specific wildlife management concerns are addressed under the heading "Plant Communities in Humboldt County, Nevada, West Part." Additional information about wildlife management can be obtained from local offices of the Natural Resources Conservation Service, Cooperative Extension, or Nevada Division of Wildlife.

Plant Communities in Humboldt County, Nevada, West Part

A rangeland ecological site is a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. An ecological site is the product of all environmental factors responsible for its development. It can support a native plant community typified by an association of species that differs from the potential plant community of other ecological sites in the kind or proportion of species or in total production. Disturbances, such as drought, fire, and grazing by native fauna, and the damage caused by insects and disease are recognized as natural factors in the development of native plant communities.

The appendix section, "Rangeland Plants and Woodland Understory" shows the rangeland plants and woodland understory for each soil and contrasting inclusion in the detailed soil map units; the rangeland or woodland ecological site; the common plant name and scientific plant symbol for the characteristic vegetation; the average percent composition for each species in the potential plant community; the rangeland or woodland ecological site, and the total annual production of vegetation in favorable, normal, and unfavorable years. The characteristic vegetation, which consists of the grasses, forbs, shrubs, and immature trees that make up most of the potential plant community for each soil, is listed by common name. For rangeland, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as

forage depends on the kinds of grazing animals, the grazing season, and the availability of forage. Many plants, trees, and shrubs are inaccessible to foraging animals. For woodland, the percentage of the total annual production is not given because of a wide variation of production under different tree canopies. The presence of a plant species in the understory vegetation is shown by an "X" in the composition section of the table.

Total potential production is the amount of vegetation that can be expected to grow annually on well managed rangeland or woodland that supports the potential natural community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's production 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, above average amounts and optimum timing of precipitation during periods of warm 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.

Riparian areas or meadows are interspersed throughout the survey area. Riparian vegetation grows on the flood plains along perennial streams. Stringer meadows are along spring-fed stream channels where moisture is available to plants throughout most of the growing season. Meadow vegetation also grows on the periphery of seeps and springs. Although they make up a small acreage in the survey area, the riparian zones are important because they provide free water, which improves the productivity of the riparian vegetation and lengthens the growing season of the vegetation. The zones are characterized by diverse plant species and a structural diversity of vegetation. The zones along stream channels are typically linear. The linear nature of the zones maximizes the edge effect between the zones and the adjacent uplands. An "edge," or ecotone, is a transition between plant communities or a joining of different vegetative structures within plant communities. It commonly is richer in wildlife than either of the adjoining communities.

Humboldt County is in the northwestern part of the Basin and Range Physiographic Province. The major plant associations in the survey area typify the general zonation of vegetation common in the Great Basin Region. Valley floors and the lower piedmont slopes are dominated by salt-desert shrub plant communities. Above the salt-desert shrub zone, sagebrush-grass plant communities are prevalent in areas where the mean annual precipitation is 8 inches or more.

Salt-desert shrub communities normally reflect either a climatically dry environment where the mean annual precipitation is less than 8 inches or physiologically dry soil

conditions. High concentrations of salts that interfere with the uptake of water by plants can create physiologically dry soil conditions. Representative shrubs of the salt-desert shrub communities are shadscale, bud sagebrush, winterfat, and Douglas rabbitbrush. The common grasses include Indian ricegrass, bottlebrush squirreltail, Sandberg bluegrass, and desert needlegrass.

The salt-desert shrub plant communities in the survey area include stands dominated by a single shrub species and stands that support relatively heterogeneous mixtures of shrubs and grasses. The vegetation is generally sparse, normally covering less than 20 percent of the surface. Wind erosion and water erosion are hazards because of the naturally sparse plant cover in most areas. The interspaces between plants in salt-desert shrub communities commonly are stabilized by surface pavements of rock fragments, by a puddled and crusted soil surface, or by microphytic (algae) surface crusts. These protective features can be damaged by livestock or off-road vehicle traffic.

Salt-desert shrub plant communities are most valuable as winter range for livestock. They can produce high-quality winter forage and are usually subject to only light snowfall. Most of the desirable forage species in these communities are adversely affected by grazing in late winter (March and April), heavy use, or both. Where native rangeland communities are grazed in winter, an emergency supply of feed should be readily available to carry livestock through periods of unusually severe weather.

Properly regulated grazing management can enhance the long-term productivity of salt-desert shrub plant communities. This management includes deferred grazing during critical growth periods in late winter, rotational grazing, and control of the intensity and season of use. Fencing, herding, water hauling, and controlling livestock access to watering facilities can achieve a better distribution of grazing. Because of the harsh environment of the salt-desert shrub zone, manipulation of vegetation and revegetation projects generally are not advisable.

Salt-desert shrub communities provide habitat for a wide variety of non-game species, including whiptail lizards, antelope ground squirrels, loggerhead shrikes, and Pacific rattlesnakes. Plant communities that are dominated by shadscale or winterfat and associated forbs and grasses provide important winter range for pronghorn antelope. Fencing can deter the migration of pronghorn antelope because these animals commonly do not jump. As a result, the lower wire of the fences should be high enough for antelope to crawl under. Where feasible, the fence lines should be routed so that they cause the least disruption to antelope travel. Livestock water developments are beneficial to antelope and other wildlife if the water is available when the animals occupy the area. Few mule deer use salt-desert shrub communities, which generally

are unimportant in deer management. Feral horses use these communities in winter.

Within the salt-desert shrub zone are low areas that commonly receive extra moisture as runoff from higher landscape positions and as shallow, low-velocity overflow during periods of runoff. Black greasewood, basin big sagebrush, and basin wildrye are important plants on these sites. When in good condition, these plant communities can produce more than 2,000 pounds of basin wildrye per acre. When in poor condition, however, they typically produce less than 500 pounds per acre. The potential for increasing the production of basin wildrye is good on many sites in poor or fair condition in the survey area. Basin wildrye provides standing dried forage during its fall and winter dormancy and can provide calving areas in late winter. Mule deer, pygmy rabbits, and northern harriers inhabit basin wildrye communities throughout the year.

Other plant communities that reflect extra moisture conditions are adjacent to valley floor playas. These areas may have a high water table during periods of runoff. Black greasewood, shadscale, inland saltgrass, and basin wildrye are the characteristic plants on these sites.

Plant communities that are dominated by black greasewood provide thermal cover for many species of wildlife but have limited value for big game. Because of its spines and coarse structure, black greasewood provides protective cover to nesting birds and small mammals. Although this species is not a preferred forage plant for livestock, cattle and sheep eat the succulent spring growth. On late fall and winter ranges, the fruit of black greasewood and shadscale provides nutritious and palatable feed. The soluble oxalates in black greasewood may be harmful to livestock, especially sheep, if the new growth is excessively grazed in spring.

As snow melts in spring, runoff commonly drains into valley floor basins. It remains for short periods, providing nesting and feeding habitat for some waterfowl. Playas containing water in spring are important resting places for migrating waterfowl. Sand dunes formed through the deposition of windblown sediment are commonly on the leeward side of the playas in this survey area. Although of limited extent, partially stabilized sand dunes provide important habitat for both predator and prey vertebrate wildlife. Kangaroo rats, kit foxes, and bobcats inhabit the sand dunes.

Sagebrush-grass plant communities are at the lower elevations (about 4,500 to 6,000 feet) in the survey area. The average annual precipitation at these elevations is between 8 and 10 inches.

Wyoming big sagebrush, Lahontan sagebrush (a newly recognized subspecies of low sagebrush), and, to a lesser extent, basin big sagebrush are the dominant woody sagebrush plants at the lower elevations in the survey

area. Cool-season perennial grasses are potentially the dominant herbaceous plants in the sagebrush-grass plant communities. Thurber needlegrass, Indian ricegrass, bottlebrush squirreltail, and Sandberg bluegrass are important cool-season bunch grasses. Grazing pressure has been severe on the sagebrush-grass plant communities at the lower elevations. These plant communities are the first to begin growth, or "greenup," during the warming periods of early spring and have traditionally been used for spring grazing by livestock. Close grazing spring after spring will eventually eliminate the perennial understory of grasses and forbs.

Grazing management practices can enhance the long-term productivity of sagebrush-grass communities. These practices include deferred grazing during critical growth periods in spring, rotational grazing, and control of the intensity and season of use. Fencing, herding, water hauling, and controlling livestock access to watering facilities can achieve a better distribution of grazing and facilitate grazing management.

Very few sources of perennial water are available in the sagebrush-grass zone at the lower elevations. Therefore, water developments and watering facilities are key elements in grazing management. Also, they can be of significant value to wildlife. Where the range condition has not deteriorated excessively and an adequate population of desirable perennial grasses and forbs is available to respond to a release from plant competition, brush management can greatly enhance the production of forage for livestock and wildlife.

The selection of plants available for rangeland seeding in the 8- to 10-inch precipitation zone is limited. Suitable species that are tolerant of early spring grazing, however, can be seeded. These species can play a key role in the management of grazing on the adjacent native sagebrush-grass and salt-desert shrub plant communities. Years of below normal precipitation are relatively frequent in this zone. Thus, the factors to be considered in managing rangeland seeding include the risk of seeding failure caused by climate.

Although the sagebrush-grass communities at the lower elevations may provide transitional spring range to pronghorn antelope moving from winter to summer ranges, plant communities that are dominated by big sagebrush are not heavily used by the antelope. Fencing can deter migration of the antelope because these animals commonly do not jump. As a result, the lower wire of the fences should be high enough for the antelope to crawl under. Where feasible, the fence lines should be routed so that they cause the least disruption to antelope travel. Livestock water developments are beneficial to wildlife, especially deer and antelope, if the water is available when the animals are in the area.

During severe winters in areas of the sagebrush-grass communities at the lower elevations, sage grouse may feed on sagebrush that has not been covered by snow. Heavy snow at the higher elevations forces chukar partridge to move into these areas in search of food. The sagebrush-grass communities at the lower elevations are used primarily by mule deer and feral horses as winter range or as transitional range in spring. Spring grazing by livestock in areas used by deer as winter range should be managed so that the turn out of livestock is delayed until after spring "greenup" and the migration of most of the deer.

Sagebrush-grass communities are also at intermediate elevations (about 4,500 to 6,000 feet) in the survey area. The average annual precipitation at these elevations is between 10 and 14 inches.

Wyoming big sagebrush dominates the shrub canopy of the mid-elevation plant communities on the warmer, drier exposures. Basin big sagebrush is most common on the deeper soils at the lower elevations in this precipitation zone. Mountain big sagebrush is prevalent on the north aspects at the lower elevations of the zone and grows on all aspects at the higher elevations. Low sagebrush is the dominant dwarf sagebrush at the mid- and upper elevations in the survey area. Bluebunch wheatgrass, Thurber needlegrass, Canby bluegrass, Sandberg bluegrass, and basin wildrye are the major perennial grasses associated with these mid-elevation sagebrush-grass communities. Antelope bitterbrush is an important shrub in many plant communities at these elevations.

The mid-elevation sagebrush-grass communities are suitable for grazing by livestock in summer and fall. Deferred grazing during critical growth periods in spring and early summer, rotational grazing, and control of the intensity and season of use can enhance the long-term productivity of these communities. Fencing, herding, and strategically locating livestock watering facilities help to achieve a better distribution of grazing and facilitate grazing management. Relatively few sources of perennial water are available in areas of the mid-elevation sagebrush-grass zone. As a result, water developments and watering facilities are key elements in grazing management and can be of significant value to wildlife.

Wyoming big sagebrush communities at mid elevations are used primarily as winter range by mule deer. They commonly provide habitat for Brewer's sparrow, black-tailed jackrabbits, and sagebrush lizards. They provide wintering areas for sage grouse. Low sagebrush communities provide important summer range for pronghorn antelope and brood-rearing habitat for sage grouse. Livestock water developments can be beneficial to wildlife, especially deer and antelope, if the water is available when the animals are in the area. Mountain big

sagebrush and low sagebrush communities provide spring, summer, and fall range for mule deer and feral horses.

Seasonal grazing by livestock removes old grass residue and exposes the re-growth of succulent green stems and leaves that provide food for mule deer. The steep rock-faced cliffs common to these mid-elevations have ledges, joints, cracks, and occasional caves and thus provide safe sites for birds and small mammals to nest and rear their young. The common non-game species are sage thrasher, the Great Basin gopher snake, and desert mouse. Areas of exposed lava flow rock, natural breaks in the cliffs, and the associated talus commonly are used as travel lanes by wildlife, including mule deer.

Brush management practices can be very effective in increasing the production of native forage in the mid-elevation sagebrush-grass zone. They can be beneficial to wildlife as well as livestock. Opening up large, homogeneous stands of sagebrush commonly improves the habitat for wildlife, such as mule deer and pronghorn antelope. Rangeland seeding may be required following the removal of woody vegetation where desirable understory plants are scarce or are not included in the present plant community. A number of forbs and grasses are suitable for dryland seeding in the 10-to 14-inch precipitation zone. Including suitable forbs in the seeding mixture helps to provide additional forage for wildlife, such as pronghorn antelope, mule deer, and sage grouse.

Juniper plant communities are at mid-elevations in the survey area. Local expansion of pinyon or juniper from woodland sites to the adjacent rangeland is common. The invasion of juniper and pinyon into sagebrush-grass communities has been attributed to overgrazing, a scarcity of naturally recurring fires, and climatic conditions. Young trees are readily killed by fire. The loss of fine fuel to carry fire and, to a lesser extent, fire control, have limited the frequency and extent of natural fires in the sagebrush-grass zone. This reduction in the frequency of fires has allowed seedlings to become established in increasing numbers on sites that at one time supported virtually no trees.

Livestock commonly concentrate on the woodland sites, taking advantage of the shade and shelter provided by the tree overstory. These sites also provide habitat for non-game wildlife species, including the bushy-tailed woodrat, the blue-grey gnat-catcher, and the American kestrel; thermal cover for mule deer; and habitat for small mammals and birds.

Areas that have a heterogeneous mixture of vegetative types, including grassland, low shrub, tall shrub, and tree-shrub communities, generally provide an optimum diversity of wildlife habitat. These types of vegetative complexes are common in the sagebrush-grass zones at the intermediate and upper elevations. Moderate browsing by cattle on antelope bitterbrush in fall can enhance the vigor and

growth of the bitterbrush, which is later available for grazing by mule deer and antelope.

Stringer meadows are along spring-fed stream channels in the sagebrush-grass zones at the intermediate and upper elevations. Meadow vegetation also grows on the periphery of seeps and springs. Wet meadows adjacent to sagebrush stands are important as brood-rearing areas for sage grouse. During the first weeks after leaving the nest, sage grouse chicks eat mainly insects (ants and beetles) and the succulent forbs that are common in wet meadows. Grazing of the meadows by cattle can improve the quality of feed for sage grouse if a period of re-growth is provided for the key forb species. Grazing increases the succulence of the forbs by interrupting the maturation of the plant tissues. The succulent or young leaf tissue is higher in protein and lower in fiber than mature tissue. As they seek sources of succulent forbs, sage grouse select meadows that have been grazed by cattle. Sage grouse chicks find food and cover in properly grazed meadows, which appear patchy because of different stubble heights remaining after livestock have grazed the meadows.

Improper grazing of riparian vegetation by livestock can cause gully erosion. This erosion, in turn, can result in lower water tables, the drying out of meadows, and the loss of valuable wildlife and livestock forage. Grazing management strategies that are sensitive to the development and maintenance of healthy riparian areas are needed.

The uppermost elevations of the survey area (about 7,500 feet and higher) typically support high-elevation sagebrush-grass plant communities. The average annual precipitation ranges from 14 to more than 18 inches. Mountain big sagebrush and low sagebrush dominate the shrub canopy of these plant communities. The shrub understory grasses include Idaho fescue, western needlegrass, mountain brome, Columbia needlegrass, Letterman needlegrass, basin wildrye, slender wheatgrass, and bluebunch wheatgrass. Mountain browse species, such as snowberry, serviceberry, and antelope bitterbrush, are common in the shrub overstory. Curlleaf mountainmahogany stands are at the highest elevations, on mountain summits, and the upper side slopes. Areas of aspen woodland are common in concave pockets and along riparian zones.

Plant communities on the high-elevation sites are potentially very productive and normally respond rapidly to management. These sites remain cold and wet through spring and into early summer. They are used as summer range for livestock. Grazing should be delayed until the surface layer has dried sufficiently for compaction to be

limited. Snow often blankets these sites by late fall, further restricting the period of livestock grazing. Steeply sloping areas are common throughout the high-elevation sagebrush-grass zone. Livestock tend to overuse the less sloping areas unless grazing is managed for an even distribution of grazing. Fencing, properly locating watering facilities, and herding force livestock to use areas that otherwise might remain ungrazed. Salt and mineral blocks should be placed away from water.

Mule deer use the high-elevation plant communities for summer range. North-facing slopes that have a patchwork of dense stands consisting of mountain browse are important deer-fawning areas. These dense stands should be maintained because they provide cover for wildlife. Areas of aspen woodland provide important cover for wildlife and are a source of shade for livestock and wildlife.

Seeps and springs are common at the high elevations. Water for livestock generally is readily available. Additional water developments may be needed, however, to distribute livestock evenly. Developed springs, pipelines, and storage tanks are dependable means of supplying water. Seeps and springs developed to provide livestock water can also be beneficial to wildlife. Excluding livestock by fencing the meadow around a seep or spring and piping the water to troughs or other storage facilities outside the enclosure help to protect the meadow vegetation grazed by wildlife. Enough water must be retained in the fenced seep or spring area to maintain the meadow vegetation. Small meadows can be developed and maintained by piping overflow water from livestock troughs into fenced areas.

Many naturally occurring meadows in the sagebrush-grass zones at the mid- and higher elevations have been heavily invaded by big sagebrush. The sagebrush depletes moisture from the meadows. If the sagebrush is removed, the quantity of water and the duration of waterflow increase as grasses return to the meadows. Prescribed burning of dense sagebrush stands can be an economical means of brush management in the high-elevation sagebrush-grass zone. Brush management practices should be designed so that enough of the shrub canopy remains near meadows to provide cover for wildlife.

Rangeland seeding of the high-elevation plant communities is usually not necessary. In most areas, the remnant population of desirable forbs and grasses is sufficient to respond to grazing management and a release from shrub competition. Where rangeland seeding is needed, a wide variety of suitable species can be planted because of the relatively high annual precipitation in this zone.



Forest Land

Table 7, "Woodland Management and Productivity" can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Woodland Ordination System

Table 7, "Woodland Management and Productivity" lists the ordination (woodland suitability) symbol for each soil. The ordination system is a nationwide uniform system of labeling soils or groups of soils that are similar in use and management. The primary factors evaluated in the woodland ordination system are productivity of the forest overstory tree species and the principal soil properties resulting in hazards and limitations that affect forest management. There are three parts of the ordination system: class, subclass, and group. The class and subclass are referred to as the ordination symbol.

Ordination Class Symbol

The first element of the ordination symbol is a number that denotes potential productivity in terms of cubic meters of wood per hectare per year for the indicator tree species. The larger the number, the greater the potential productivity. Potential productivity is based on site index and the corresponding culmination of mean annual increment. For example, the number 1 indicates a potential production of 1 cubic meter of wood per hectare per year (14.3 cubic feet per acre per year) and 10 indicates a potential production of 10 cubic meters of wood per hectare per year (143 cubic feet per acre per year).

Indicator species is a species that is common in the area and is generally, but not necessarily, the most productive on the soil. It is the species that determines the ordination class. It is the first species listed for a particular map unit in table 7, "Woodland Management and Productivity." This table shows the productivity for all species where data have been collected.

Site index is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet,

that the trees attain in a specified number of years. This index applies to fully-stocked, even-aged, unmanaged stands. The site indexes shown in table 7, "Woodland Management and Productivity" are averages based on measurements made at sites that are representative of the soil series. When the site index and forest land productivity of different soils are compared, the values for the same tree species should be compared. The higher the site index number, the more productive the soil for that species. Site index values are used in conjunction with yield tables to determine average annual yields. Indirectly, they are used to determine the productivity class in the ordination class symbol.

Ordination Subclass Symbol

The second element of the ordination symbol, or subclass, is a capital letter that indicates certain soil or physiographic characteristics that contribute to important hazards or limitations to be considered in management. The subclasses are defined as follows:

Subclass X indicates that forest land use and management are limited by stones or rocks.

Subclass W indicates that forest land use and management are significantly limited by excess water, either seasonally or throughout the year. Restricted drainage, a high water table, or flooding can adversely affect either stand development or management.

Subclass T indicates that the root zone has toxic substances. Excessive alkalinity, acidity, sodium salts, or other toxic substances impede the development of desirable species.

Subclass D indicates that forest land use and management are limited by a restricted rooting depth. The rooting depth is restricted by hard bedrock, a hardpan, or other restrictive layers in the soil.

Subclass C indicates that forest land use and management are limited by the kind or amount of clay in the upper part of the soil.

Subclass S indicates that the soil is sandy, has a low available water capacity, and normally has a low content of available plant nutrients. The use of equipment is limited during dry periods.

Subclass F indicates that forest land use and management are limited by a high content of rock fragments that are larger than 2 millimeters and smaller than 10 inches. This subclass includes flaggy soils.

Subclass R indicates that forest land use and management are limited by excessive slope.

Subclass A indicates that no significant limitations affect forest land use and management.

Woodland Management and Productivity

Information about the productivity and management of the forested map units in the survey area is given in table 7, "Woodland Management and Productivity."

Management Concerns

In table 7, "Woodland Management and Productivity," the soils are rated for the erosion hazard, the equipment limitation, seedling mortality, the windthrow hazard, and plant competition.

The *erosion hazard* is *slight* if the expected soil loss is small; *moderate* if some measures are needed to control erosion during logging and road construction; and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

The *equipment limitation* is *slight* if the use of equipment is not limited to a particular kind of equipment or time of year; *moderate* if there is a short seasonal limitation or a need for some modification in the management of

equipment; and *severe* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings are for seedlings that are from a good planting stock and that are properly planted during a period of average rainfall. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Windthrow hazard is *slight* if trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate* if some trees are blown down during periods of excessive soil wetness and strong winds; and *severe* if many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

Plant competition is *slight* if there is little or no competition from other plants; *moderate* if plant competition is expected to hinder the development of a fully stocked stand of desirable trees; and *severe* if plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

Potential Productivity

The potential productivity of merchantable or *common trees* is expressed as a site index, which is described under the heading "Ordination Class Symbol." Commonly grown trees are those that forest land managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for 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 within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for

roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the 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."

Construction Materials

Table 8, "Construction Materials," gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair, or poor* as a source of roadfill and topsoil. They are rated as a *probable or improbable* source of sand and gravel.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In table 8, "Construction Materials," the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of

excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have one or more of the following characteristics: a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

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 8, "Construction Materials," only the probability of finding material in suitable quantity in or below the soil is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is as much

as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey; have less than 20 inches of suitable material; have a large amount of gravel, stones, or soluble salts; have slopes of more than 15 percent; or have a seasonal high water table at or near the surface.

The surface layer of most soils generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features listed in tables are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 9, "Engineering Index Properties" gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52

percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

Classification of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials (1) and the Unified soil classification system (2).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

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 grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 10, "Physical Properties of the Soils," and table 11, "Chemical Properties of the Soils," show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine 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 earth-moving 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-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In table 10, "Physical Properties of the Soils," the estimated moist bulk density of each major 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. A bulk density of more than 1.6 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 refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 10, "Physical Properties of Soils," 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 or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Erosion factor Kf 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 rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility of soil to soil blowing. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible and vegetation is difficult to establish.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams that have more than 5 percent finely divided calcium carbonate. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if ordinary measures to control soil blowing are used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.

8. Soils that are not subject to soil blowing because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to soil blowing, or the tons per acre per year that can be expected to be lost to soil blowing. There is a close correlation between soil blowing and the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence soil blowing.

In table 11, "Chemical Properties of the Soils", *Cation-exchange capacity* is 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. 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. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the soil. 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 given as the percent, by weight, of hydrated calcium sulfates in the soil. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum (more than 10 percent) 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 the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio is the measure of sodium relative to calcium and magnesium in the water extract from saturated soil paste. Soils having a sodium adsorption ratio 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 12, "Water Features" gives estimates of several important water features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Hydrologic soil groups are groups of soils that when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a seasonal high water table, the intake rate, permeability after prolonged wetting, and the depth to a very slowly permeable layer. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

In the definitions of the hydrologic soil groups, the infiltration rate is the rate at which water enters the soil at the surface and is controlled by surface conditions. The transmission rate is the rate at which water moves through the soil and is controlled by properties of the soil layers.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of very 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 or well drained soils that have a moderately fine 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 that have a moderately fine 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 clayey soils that have a high shrink-swell

potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

Table 12, "Water Features," gives the frequency and duration of flooding and the time of year when flooding is most likely to occur. Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as none, rare, occasional, or frequent. *None* means flooding is not probable; *rare* that it is unlikely but is possible under unusual weather conditions (the chance of flooding is nearly 0 percent 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); and *frequent* that it occurs often under normal weather conditions (the chance of flooding is 50 percent in any year). The term *common* includes both frequent and occasional flooding.

Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 to 30 days), and *very long* (more than 30 days). The time of year that flooding is most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is a zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the surface. Indicated in table 12, "Water Features," are the depth to the seasonal high water table, the kind of water table, and the months of the year when the water table usually is highest.

An *apparent* water table is indicated by the level at which water stands in a freshly dug, unlined borehole after adequate time for adjustments in the surrounding soil.

A *perched* water table is one that is above an unsaturated zone in the soil. The basis for determining that a water

table is perched may be general knowledge of the area. The water table is proven to be perched if the water level in a borehole is observed to fall when the borehole is extended.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation.

Soil Features

In table 13, "Soil Features," *depth to bedrock* is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

A *cemented pan* is a cemented or indurated subsurface layer within a depth of 5 feet. Such a pan causes difficulty in excavation. Pans are classified as thin or thick. A thin pan is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A thick pan is more than 3 inches thick if continuously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

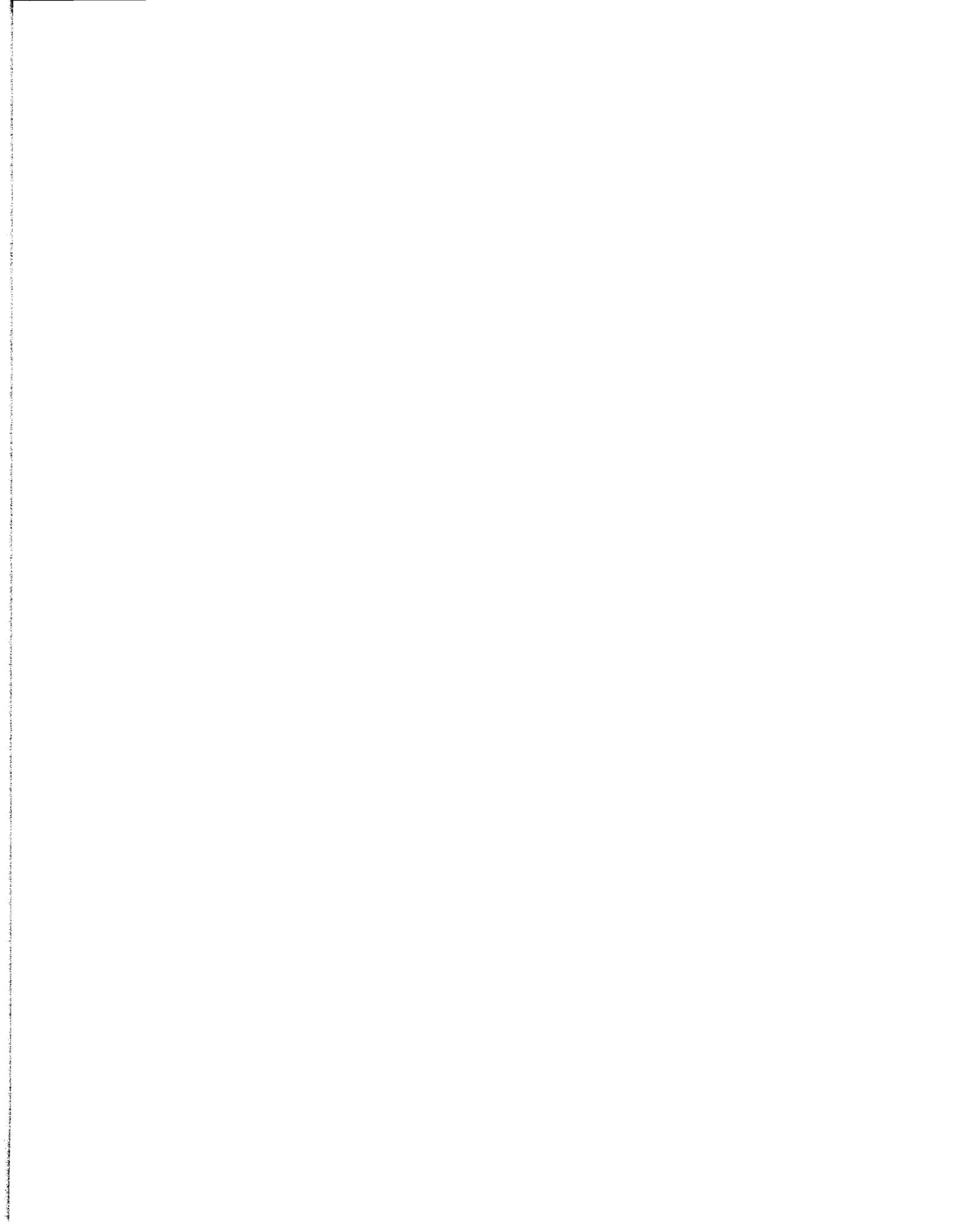
For uncoated steel, the risk of corrosion, expressed as *low, moderate, or high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate, or high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.



References

- (1) American Association of State Highway and Transportation Officials. 1986. Standard specifications for highway materials and methods of sampling and testing. Ed. 14, 2 vols.
- (2) American Society for Testing and Materials. 1993. Standard classification of soils for engineering purposes. ASTM Stand. D 2487.
- (3) Gile, L. H. 1966. Cambic and certain noncambic horizons in desert soils of southern New Mexico. *Soil Sci. Soc. Of Am. Proc.*, vol 30: 773-781.
- (4) Gile, L. H. and R. B. Grossman. 1968. Morphology of the argillic horizon in desert soils of southern New Mexico. *Soil Sci. Vol.* 106, no. 1: 6-15.
- (5) Gile, L. H. and J. W. Hawley. 1966. Periodic sedimentation and soil formation on an alluvial fan piedmont in southern New Mexico. *Soil Sci. Soc. Of Am. Proc.*, vol 30: 261-268.
- (6) Gile, L. H., F. F. Peterson, and R. B. Grossman. 1966. Morphological and genetic sequences of carbonate accumulation in desert soils. *Soil Sci.*, vol. 101: 347-360.
- (7) Hawley, J. W. 1962. The late Pleistocene and recent geology of the Winnemucca segment of the Humboldt River Valley, Nevada. Ph.D. thesis, University of Illinois.
- (8) Hawley, J. W. and L. H. Gile. 1966. Landscape Evolution and Soil Genesis in the Rio Grande Region, Southern New Mexico. Guidebook; 11th Annual Field Conference, Rocky Mountain Section, Friends of the Pleistocene, Aug 26-28, 1966.
- (9) Morrison, R. B. 1964. Lake Lahontan: Geology of the Carson Desert, Nevada. *U.S. Geol. Surv. Prof. Pap.* 401.
- (10) Morrison, R. B. 1964. Soil stratigraphy: Principles, applications to differentiation and correlation of Quaternary deposits and landforms, and applications to soil science. Ph.D. thesis, University of Nevada.
- (11) Morrison, R. B. 1965. Principles of Quaternary soil stratigraphy. In *Quaternary soils, INQA. Proc.*, vol. 9, VII Congress: 1-69.
- (12) Nikiforoff, C. C. 1942. Fundamental formula of soil formation. *Am. J. of Sci.*, vol. 240: 847-866.
- (13) Nikiforoff, C. C. 1949. Weathering and soil evolution. *Soil Sci.*, vol. 67: 219-223.
- (14) Peterson, Frederick F. 1981. Landforms of the Basin and Range province defined for soil survey. Nevada Agricultural Experiment Station, Max C. Fleischmann College of Agriculture, University of Nevada, Reno. *Tech. Bul.* 28: 52 pp., illus.
- (15) Richmond, G. M. 1962. Quaternary geology of the La Sal Mountains, Utah. *U. S. Geol. Surv. Prof. Pap.* 324.
- (16) United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. *U.S. Dep. Agric. Handb.* 210.
- (17) United States Department of Agriculture, Soil Conservation Service. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. *U.S. Dep. Agric. Handb.* 436.
- (18) United States Department of Agriculture, Soil Conservation Service. 1993. Soil survey manual. *U.S. Dep. Agric. Handb.* 18.
- (19) Ward, W. T. 1965. Soils of the Adelaide Area, South Australia, in relation to time. In *Quaternary Soils, INQA. Proc.*, vol. 9, VII Congress: 293-306



Glossary

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.

Albic horizon. A subsurface horizon from which silicate clay and/or free iron oxides have been removed or the oxides segregated to the extent that the color of the horizon is largely determined by the color of the primary sand and silt particles.

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 cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fanlike deposit of a stream where it issues from a narrow valley upon a plain, or of a tributary stream near or at its junction with its main stream.

Alluvial flat. A nearly level, graded, alluvial surface in bolsons and semi-bolsons. Commonly, an alluvial flat does not manifest terraces or floodplain levels.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

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.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses.

Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Argillite. Weakly metamorphosed mudstone or shale.

Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

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 3.5
Low.....	3.5 to 5
Moderate	5 to 7.5
High	more than 7.5

Avalanche chute. The track or path formed by an avalanche.

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Backswamp. A floodplain landform of extensive, marshy, or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland. Steep or very steep, commonly non-stony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

- Ballena.** A fan remnant having a distinctively-rounded surface of fan alluvium. The ballena's broadly rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave, short pediments which form smoothly-rounded drainageways between adjacent ballenas. A partial ballena is a fan remnant large enough to retain some relict fan surface on a remnant summit.
- Barrier beach.** A wide gently sloping portion of a bolson floor comprising numerous, parallel, relict longshore-bars and lagoons built by a receding pluvial lake.
- 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, K), expressed as a percentage of the total cation-exchange capacity.
- Basin floor.** A general term for the nearly level, lower-most part of intermontane basins (i.e., bolson, semi-bolsos). The basin floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope.
- Beach terrace.** The relict shorelines from pluvial lakes, generally restricted to valley sides.
- Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
- Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts, the water table is exposed.
- Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing.
- Bolson.** A landscape term for an internally drained intermontane basin into which drainages from surrounding mountains converge inward toward a central depression.
- 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.
- Calcic horizon.** A subsoil horizon characterized by an illuvial accumulation of secondary calcium carbonate. Calcic horizons are not cemented or indurated to a degree which would be limiting to root growth.
- Caldera.** A large, more or less circular depression, formed by explosion and/or collapse, which surrounds a volcanic vent or vents, and whose diameter is much greater than that of the included vent, or vents.
- Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, sub-humid 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.
- California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16

supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Cambic horizon. A subsoil horizon characterized by loamy texture, soil structure rather than rock structure, and some evidence of alteration such as illuviation of clay or removal and redistribution of calcium carbonate. A cambic horizon can include subhorizons that are part of an ochric epipedon or an albic horizon.

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.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

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.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Channery soil material. Soil material that is, 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 depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clayey soil. Silty clay, sandy clay, or clay.

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.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

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.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded, partly rounded, or angular fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

Colluvium. Unconsolidated, unsorted earth material moved and deposited by mass movement on sideslopes and at the base of slopes.

Commercial forest. Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

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.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane that typically takes 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 to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

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.

Cropping system. Growing crops according to a planned system of rotation and management practices.

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.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped, deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

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.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

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.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

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.

Dune. A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

Ecological Site. A distinctive kind of rangeland or grazed forestland that has a unique historic potential native plant community. Ecological sites are the products of all the environmental factors that affect their development. An ecological site is capable of supporting a native plant community that has a unique kind and/or proportion of species or total vegetative production. Ecological sites in grazed forestland include both overstory and understory vegetation.

Effervescence. The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCL) are added to the soil. The ratings are as follows:

Very slightly effervescent.....few bubbles
Slightly effervescent.....bubbles readily
Strongly effervescent.....bubbles form low foam
Violently effervescent.....bubbles form thick foam quickly

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of 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.
- Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.
- Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.
- Even aged.** Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.
- Excess alkali** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.
- Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.
- Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.
- Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess sulfur** (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.
- Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.
- 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 apron.** A sheet-like mantle of relatively young alluvium covering part of an older fan piedmont surface. It somewhere buries a soil that can be traced to the edge of the fan apron.
- Fan piedmont.** The most extensive landform on piedmont slopes, formed by the coalescence of alluvial fans or accretions of fan aprons into one generally smooth slope.
- Fan remnant.** A general term for landforms that are remaining parts of older fan-landforms, that either have been dissected or partially buried.
- Fan skirt.** The zone of smooth, laterally-coalescing, small alluvial fans that issue from gullies cut into the fan piedmont or that are the coalescing extensions of inset fans of the fan piedmont, and that merge with the basin floor.
- Fast intake** (in tables). The rapid movement of water into the soil.
- 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.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- 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*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flaggy soil material.** Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is 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.
- Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.
- Foot slope.** The inclined surface at the base of a hill.
- 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.
- Fragile** (in tables). A soil that is easily damaged by use or disturbance.
- 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.
- Gilgai.** The microrelief of clayey soils that shrink and swell markedly with changes in moisture content. Usually manifested as a succession of micro-basins and micro-knolls in nearly level areas or of micro-valleys and micro-ridges parallel with the slope.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- 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 is 15 to 50 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.
- Ground water.** Water filling all the unblocked pores of underlying material below the water table.
- 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.
- Gypsic horizon.** A subsoil horizon characterized by an illuvial accumulation of secondary gypsum. Gypsic horizons are not cemented or indurated to a degree which would be limiting to root growth.
- Gypsum.** A mineral consisting of hydrous calcium sulfate.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment not commonly used in construction.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Heavy metal.** Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.
- Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- 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.
- Histic epipedon.** A surface horizon of organic soil material (peat or muck). Histic epipedons have aquic conditions for some time in most years unless they have been artificially drained.
- Holocene.** The epoch of the Quaternary Period of geologic time, extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present.
- Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons 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 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 capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

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.

Inset fan. A special case of the flood plain of an ephemeral stream that is confined between fan remnants, basin-floor remnants, ballenas, or closely opposed fan toeslopes.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives groundwater discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intermontane basin. A generic term for wide structural depressions between mountain ranges that are partly filled with alluvium. They may be drained internally (bolsons) or externally (semi-bolsons).

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.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lagoon. The nearly level, filled depression behind the longshore bar on a barrier beach.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

Lake terrace. The narrow shelf produced along a lake shore and later exposed when the water recedes.

Lamella. A thin, generally horizontal layer of fine material illuviated within a very much thicker, coarser, eluviated layer.

Landform. Any recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes that provide an empirical description of similar portions of the earth's surface.

Landscape. A collection of related, natural landforms.

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.

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.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Longshore bar. A narrow, elongate, coarse-textured ridge, built by the wave action of a pluvial lake, that extends parallel to the shore and separated it from a lagoon; both the bar and lagoon are now relict features.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

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.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

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 deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

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.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables--hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

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 between 6.6 and 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.

Observed rooting depth. Depth to which roots have been observed to penetrate.

Ochric epipedon. A surface horizon that is generally thin, dry, light in color, high in value or chroma, and/or low in organic matter. Ochric epipedons include eluvial horizons (such as albic horizons) that are at or near the soil surface.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parna dune. An eolian dune built of sand size aggregates of clayey material that commonly occurs leeward of a playa.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pediment. A gently sloping erosional surface developed at the foot of a receding hill or mountain slope.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs 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.....	0.00 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

Petrocalcic horizon. A subsoil horizon characterized by an illuvial accumulation of secondary calcium carbonate. In a petrocalcic horizon, the carbonates have accumulated to the extent that the horizon is cemented or indurated and is limiting to root growth.

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.)

Piedmont slope. The dominant slope at the foot of a mountain. Main components of the piedmont slope include pediments, alluvial fans, fan piedmonts, fan skirts and inset fans.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Pleistocene. The epoch of the Quaternary Period of geologic time preceding the Holocene (from approximately 2 million to 10 thousand years ago).

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Pluvial. Relating to former periods of abundant rains.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water

can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

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.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quaternary. The period of geologic time, extending from about 2 million years ago to the present and comprising two epochs, the Pleistocene (Ice Age) and Holocene (Recent).

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike

plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

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 (mildly alkaline).	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline.....	8.5 to 9.0
Very strongly alkaline	9.1 and higher

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.

Regeneration. The new growth of a natural plant community, developing from seed.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

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.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

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 groundwater runoff or seepage flow from ground water.

Salic horizon. A mineral soil horizon characterized by an accumulation of salts which are more soluble than gypsum in cold water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

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

Salty water (in tables). Water that is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand sheet. A large, irregularly shaped, surficial mantle of eolian sand.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

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.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

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.

Semi-bolson. An intermontane basin that is drained externally by an intermittent stream.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

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.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shelterwood system. A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune. A small dune that forms around shrubs or small trees.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or

dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

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.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slickens. Accumulations of fine-textured material, such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

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.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 4 percent
Moderately sloping	4 to 8 percent

Strongly sloping	8 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 to 75 percent
Extremely steep	75 percent and higher

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.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, a ratio used to express the relative activity of sodium ions in exchange reactions with soil. The classes of sodicity and their Sodium Adsorption Ratios are:

Very slight.....	5-12
Slight	13-30
Moderate	31-45
Strong.....	46-90
Very strong	more than 90

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

Clayless than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

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.

Strath terrace. A surface cut formed by the erosion of hard or semi-consolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing 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 grain* (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 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.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

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. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

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.

Tailwater. The water directly downstream of a structure.

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. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). A step-like surface, ordinarily flat or undulating, bordering a river, a lake, or the sea representing a former flood plain.

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 too thin for the specified use.
- Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toe slope.** The outermost inclined surface at the base of a hill; part of a foot slope.
- 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.
- Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Trafficability.** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.
- Tread.** The relatively flat terrace surface that was cut or built by stream or wave action.
- Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.
- Understory.** Any plants in a forest community that grow to a height of less than 5 feet.
- Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.
- Upland** (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
- Valley.** An elongated depressional area primarily developed by stream action.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

- Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.
- Waterspreading.** Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.
- Water supplying capacity.** The total amount of water available in the soil for plant growth in a normal year from precipitation and from runoff from higher areas. Runoff and water lost to deep percolation are not included.
- 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

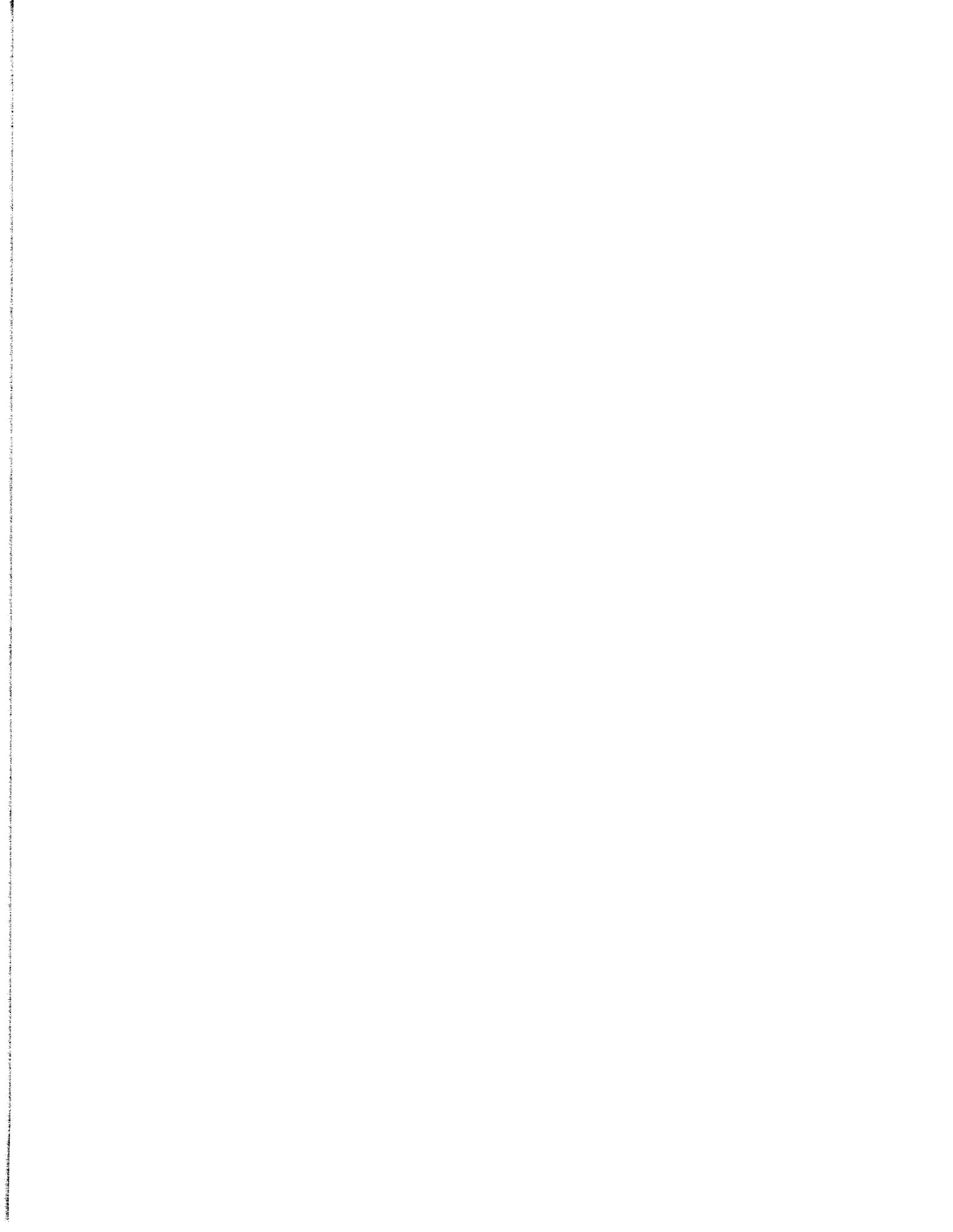


TABLE 1.--TEMPERATURE AND PRECIPITATION
(Recorded in the period 1961-90 at Denio Junction)

Month	Temperature (Degrees F.)					Precipitation (Inches)					
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.1 inch or more	Average total snow fall
				Maximum temperature higher than--	Minimum temperature lower than--			less than	more than		
January---	41.5	19.6	30.6	59	-11	14	0.80	0.46	1.16	2	5.1
February--	48.1	24.7	36.4	66	-3	41	0.79	0.31	1.19	2	3.1
March-----	53.8	27.0	40.4	72	8	89	1.06	0.47	1.57	3	2.9
April-----	62.2	30.5	46.3	83	13	212	0.89	0.35	1.34	2	0.6
May-----	72.4	37.7	55.1	93	20	465	0.86	0.21	1.44	2	0.2
June-----	81.8	45.9	63.9	100	29	708	0.90	0.31	1.59	2	0.2
July-----	91.8	52.1	71.9	103	35	972	0.27	0.12	0.53	0	0.0
August----	89.7	51.0	70.3	103	35	941	0.48	0.16	1.13	1	0.0
September-	79.0	41.1	60.0	97	23	590	0.59	0.33	1.13	1	0.0
October---	66.9	32.5	49.7	87	12	310	0.56	0.23	0.97	1	0.3
November--	51.7	25.8	38.7	72	2	74	1.11	0.39	1.71	4	4.1
December--	42.2	20.1	31.2	59	-11	15	0.78	0.33	1.27	3	6.0
Yearly:											
Average---	65.1	34.0	49.5	---	---	---	---	---	---	---	---
Extreme---	107	-25	---	108	-15	---	---	---	---	---	---
Total---	---	---	---	---	---	4,431	9.10	5.07	10.83	23	22.5

Average number of days per year with at least 1 inch of snow on the ground: 12

*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 degree F).

TABLE 1.--TEMPERATURE AND PRECIPITATION
(Recorded in the period 1961-90 at Leonard Creek Ranch)

Month	Temperature (Degrees F.)					Precipitation (Inches)					
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.1 inch or more	Average total snow fall
				Maximum temperature higher than--	Minimum temperature lower than--			less than	more than		
January---	39.5	19.7	29.6	57	-4	9	1.02	0.44	1.51	3	6.6
February--	47.1	25.8	36.4	65	3	40	0.83	0.32	1.31	3	2.6
March-----	54.2	29.6	41.9	74	13	120	0.80	0.24	1.26	2	1.9
April-----	63.3	34.2	48.8	85	19	275	0.69	0.24	1.06	2	1.1
May-----	73.1	42.0	57.6	93	25	540	0.69	0.17	1.15	2	0.3
June-----	82.6	49.6	66.1	100	33	771	0.71	0.19	1.17	2	0.1
July-----	92.3	55.8	74.0	103	41	1,036	0.30	0.09	0.55	0	0.0
August-----	89.6	54.7	72.1	103	40	990	0.50	0.11	0.94	1	0.0
September--	79.7	46.2	63.0	96	29	684	0.46	0.15	0.87	1	0.0
October---	67.3	37.4	52.4	86	19	390	0.48	0.21	0.89	1	0.8
November--	50.6	28.6	39.6	70	9	85	1.05	0.33	1.63	3	2.1
December--	40.4	21.0	30.7	58	-3	13	1.00	0.32	1.62	3	6.9
Yearly:											
Average---	65.0	37.1	51.0	---	---	---	---	---	---	---	---
Extreme---	107	-19	---	104	-9	---	---	---	---	---	---
Total---	---	---	---	---	---	4,954	8.53	6.64	10.20	23	22.4

Average number of days per year with at least 1 inch of snow on the ground: 20

*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 Denio Junction, Nevada. During this time 1 year had missing data.)

Probability	Temperature		
	24 degrees F. or lower	28 degrees F. or lower	32 degrees F. or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 20	June 5	June 28
2 years in 10 later than--	May 14	May 29	June 22
5 years in 10 later than--	May 4	May 17	June 9
First freezing temperature in fall:			
1 year in 10 earlier than--	September 21	September 11	August 30
2 years in 10 earlier than--	September 27	September 17	September 4
5 years in 10 earlier than--	October 8	September 28	September 13

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1961-90 at Leonard Creek Ranch, Nevada)

Probability	Temperature		
	24 degrees F. or lower	28 degrees F. or lower	32 degrees F. or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 12	May 16	June 7
2 years in 10 later than--	May 4	May 12	June 1
5 years in 10 later than--	April 17	May 2	May 19
First freezing temperature in fall:			
1 year in 10 earlier than--	October 12	September 22	September 15
2 years in 10 earlier than--	October 19	September 29	September 20
5 years in 10 earlier than--	November 2	October 14	September 30

TABLE 3.--GROWING SEASON

(Recorded in the period 1961-90 at Denio Junction, Nevada)

Probability	Daily Minimum Temperature during growing season		
	Higher than 24 degrees F.	Higher than 28 degrees F.	Higher than 32 degrees F.
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	133	113	71
8 years in 10	141	120	80
5 years in 10	156	133	98
2 years in 10	172	146	115
1 year in 10	180	153	124

TABLE 3.--GROWING SEASON

(Recorded in the period 1961-90 at Leonard Creek Ranch, Nevada)

Probability	Daily Minimum Temperature during growing season		
	Higher than 24 degrees F.	Higher than 28 degrees F.	Higher than 32 degrees F.
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	164	133	109
8 years in 10	176	143	118
5 years in 10	198	164	133
2 years in 10	219	184	149
1 year in 10	231	195	158

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
102	Cleaver very stony sandy loam, 2 to 8 percent slopes-----	8,312	0.4
104	Anawalt-Devada-Tuffo complex-----	8,556	0.4
105	Goldrun-Alvodest complex-----	5,263	0.3
106	Goldrun fine sand, 4 to 15 percent slopes-----	232	*
108	Anawalt-Oreneva complex-----	199	*
110	Aycab-Tosp-Welch association-----	675	*
111	Aycab-Alta-Tosp association-----	5,930	0.3
116	Acrelane-Rock outcrop complex-----	18,990	1.0
117	Acrelane-Poisoncreek complex-----	2,158	0.1
120	Arclay-Acrelane complex-----	2,704	0.1
130	Tenabo-Gvena-Fulstone association-----	29,459	1.5
140	Tenabo-Oxcorel association-----	998	*
145	Boulder Lake silty clay, 0 to 2 percent slopes-----	261	*
149	Boton-Slawha complex 1/-----	8,903	0.5
150	Boton complex, occasionally flooded-----	69,101	3.6
151	Boton complex, overblown-----	13,180	0.7
155	Bearbutte-Badgercamp association-----	2,440	0.1
156	Bearbutte-Ninemile complex-----	10,985	0.6
158	Blackhawk-Trocken association-----	4,359	0.2
160	Bluewing gravelly sandy loam, 2 to 8 percent slopes-----	24,272	1.3
161	Bluewing-Trocken association-----	4,276	0.2
163	Dune land-----	1,352	*
164	Soughe-Bucklake complex-----	13,345	0.7
168	Boton-Playas association-----	39,134	2.0
173	Deppy very cobbly loam, 2 to 8 percent slopes-----	9,718	0.5
175	Wendane silt loam, 0 to 2 percent slopes, rarely flooded-----	3,823	0.2
176	Bullump-Westbutte-Harcany association-----	2,753	0.1
177	Bullump-Sumine-Cleavage association-----	35,989	1.9
180	Devada-Bucklake complex-----	29,440	1.5
181	Westbutte stony loam, 15 to 50 percent slopes-----	1,491	*
182	Devada-Ninemile-Tuffo association-----	1,365	*
185	Puett-Soughe complex-----	6,335	0.3
188	Cleavage-Softscrabble-Hackwood association-----	9,090	0.5
189	Cleavage-Softscrabble-Sumine complex-----	17,400	0.9
190	Cleavage-Westbutte-Softscrabble complex-----	620	*
202	Cresal silt loam, 0 to 2 percent slopes 1/-----	5,745	0.3
218	Davey loamy fine sand, 2 to 8 percent slopes 1/-----	3,253	0.2
231	Devada-Ninemile-Softscrabble complex-----	25,059	1.3
232	Devada extremely cobbly loam, 4 to 15 percent slopes-----	3,780	0.2
240	Deppy-Tumtum complex-----	16,969	0.9
252	Dun Glen very fine sandy loam, 0 to 2 percent slopes 1/-----	4,058	0.2
276	Orovada fine sandy loam, 2 to 4 percent slopes 1/-----	4,996	0.3
296	Longcreek-Cleavage association-----	564	*
335	Ola-Poisoncreek complex-----	10,460	0.5
338	Ola-Poisoncreek-Tosp association-----	3,294	0.2
340	Ola-Aycab-Rock outcrop complex-----	1,523	*
345	Genegraf-Toulon association-----	13,850	0.7

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
350	Fulstone gravelly loam, 2 to 8 percent slopes-----	9,512	0.5
357	Granshaw-Shawave complex-----	4,557	0.2
360	Grumbler-Pickup association-----	38,021	2.0
374	Hoot-Rock outcrop association-----	3,863	0.2
378	Hawsley fine sand, 2 to 4 percent slopes-----	6,791	0.4
381	Hart Camp-Devada-Rock outcrop complex-----	20,758	1.1
382	Hart Camp-Badgercamp association-----	1,500	*
388	Humboldt silty clay loam, 0 to 2 percent slopes 1/-----	1,352	*
402	Tuntum very cobbly loam, 4 to 15 percent slopes-----	32,075	1.7
410	Shawave-Deadyon association-----	31,204	1.6
411	Shawave-Orovada complex 1/-----	9,563	0.5
413	Isolde-Typic Torriorthents-Dune land complex-----	5,880	0.3
414	Isolde-Mazuma-Jerval association-----	11,061	0.6
420	Jesse Camp very fine sandy loam, 0 to 2 percent slopes-----	4,456	0.2
430	Woofus loam, 0 to 2 percent slopes-----	461	*
431	Woofus-Welch complex-----	1,373	*
432	Isolde-Ragtown association-----	32,022	1.7
433	Wetvit association-----	105	*
442	Rodock-Fax-Holbrook complex-----	3,591	0.2
452	Roccoonda-Copperoid-Soughe complex-----	47,270	2.4
463	Jerval-Dorper association-----	24,219	1.3
464	Jerval-Dorper association, stony-----	3,700	0.2
467	Ninemile-Sumine-Softscrabble association-----	54,258	2.8
468	Bucklake-Ninemile-Frentera association-----	11,821	0.6
470	Frentera-Wylo-Tuffo association-----	2,610	0.1
475	Juva loam, 0 to 2 percent slopes-----	751	*
480	Tuffo-Wylo-Frentera association-----	2,169	0.1
531	Longcreek-Rock outcrop complex-----	5,319	0.3
535	Locane very cobbly loam, 4 to 30 percent slopes-----	1,832	*
550	Welch loam, 0 to 4 percent slopes-----	290	*
563	Sondoa-Isolde association-----	79,374	4.1
574	Mazuma fine sandy loam, 0 to 2 percent slopes-----	5,856	0.3
575	Mazuma association-----	21,395	1.1
576	Mazuma very fine sandy loam, 2 to 8 percent slopes-----	9,025	0.5
577	Mazuma-Isolde-Typic Torriorthents association-----	7,041	0.4
578	Mazuma-Toulon-Isolde association-----	26,775	1.4
580	McConnel very stony sandy loam, 2 to 8 percent slopes-----	15,071	0.8
581	McConnel very gravelly fine sandy loam, 0 to 2 percent slopes 1/-----	2,558	0.1
620	Croesus-Rock outcrop complex-----	47	*
630	Ninemile very stony loam, 4 to 15 percent slopes-----	163	*
647	Wendane-Humboldt complex 1/-----	5,015	0.3
648	Wendane silt loam, 0 to 2 percent slopes 1/-----	12,155	0.6
660	Soughe-Hoot association-----	22,400	1.2
662	Jaybee-Soughe-Hoot complex-----	28,288	1.5

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
663	Soughe-Rock outcrop complex-----	13,002	0.7
664	Soughe very cobbly loam, 15 to 50 percent slopes-----	3,506	0.2
670	Denio gravelly sandy loam, 0 to 4 percent slopes 1/-----	7,995	0.4
679	Outerkirk sandy loam, 1 to 2 percent slopes 1/-----	9,139	0.5
683	Oxcorel very stony loam, 2 to 8 percent slopes-----	8,922	0.5
703	Pickup-Grumbler-Rock outcrop association-----	2,492	0.1
715	Wholan silt loam, 0 to 2 percent slopes-----	2,926	0.2
716	Wholan silt loam, rarely flooded, 0 to 2 percent slopes 1/-----	2,225	0.1
720	Pickup-Bucklake-Puett complex-----	26,457	1.4
758	Longcreek-Softscrabble-Anawalt association-----	3,458	0.2
775	Rednik-Jungo-Aboten association-----	4,718	0.2
781	Pickup-Bucklake-complex-----	11,306	0.6
782	Skedaddle-Rock outcrop association-----	1,955	0.1
783	Rocconda association-----	52,775	2.7
785	Rodell-Rubble land complex-----	1,535	*
790	Valmy very fine sandy loam, 0 to 2 percent slopes 1/-----	4,288	0.2
803	Ninemile-Rock outcrop complex-----	788	*
804	Singatse-Rock outcrop complex-----	17,610	0.9
805	Singatse-Jaybee association-----	23,273	1.2
806	Singatse-Rocconda-Badland association-----	29,250	1.5
818	Siscab-Aycab-Ola association-----	447	*
819	Siscab-Ola-Rock outcrop complex-----	10,020	0.5
820	Siscab-Poisoncreek-Ola complex-----	20,720	1.1
821	Siscab-Poisoncreek-Alta association-----	6,363	0.3
823	Softscrabble-Cleavage-Harcany association-----	6,919	0.4
824	Simon loam, 4 to 15 percent slopes-----	3,980	0.2
825	Sojur extremely channery silt loam, 15 to 50 percent slopes-----	4,694	0.2
826	Simon-Fulstone complex-----	3,561	0.2
829	Skedaddle-Softscrabble-Cleavage association-----	6,919	0.4
830	Skedaddle-Rock outcrop-Sumya complex-----	33,750	1.7
835	Ola-Aycab-Tosp complex-----	7,646	0.4
840	Saraph-Yellowhills association-----	5,138	0.3
841	Saraph-Tuffo-Yellowhills association-----	9,805	0.5
842	Deppy-Tuntum-Puett complex-----	12,476	0.6
843	Deppy-Puett-Orovada association-----	23,920	1.2
847	Toulon-Badland-Typic Torriorthents complex-----	16,178	0.8
850	Playas-----	174,750	9.0
875	Pumper-Dun Glen-Davey association-----	13,119	0.7
876	Pumper-Weso association-----	21,237	1.1
878	Croesus-Rock outcrop complex, very steep-----	1,199	*
907	Bucklake very cobbly loam, 8 to 50 percent slopes-----	25,321	1.3
909	Bucklake-Softscrabble-Rubble land association-----	13,896	0.7
935	Wesfil-Sojur association-----	20,530	1.1
938	Weso very fine sandy loam, moderately saline, 0 to 2 percent slopes-----	4,363	0.2
940	Westbutte-Rock outcrop association-----	351	*
965	Wylo-Bucklake-Rock outcrop association-----	110,970	5.7

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
1000	Broyles fine sandy loam, 0 to 2 percent slopes 1/-----	14,445	0.7
1010	Bubus very fine sandy loam, 0 to 2 percent slopes 1/-----	7,742	0.4
1030	Rio King loam 1/-----	4,512	0.2
1032	Raglan clay loam, 0 to 2 percent slopes 1/-----	2,227	0.1
1060	Raglan silt loam, 0 to 2 percent slopes 1/-----	1,928	*
1080	Argenta complex 1/-----	1,505	*
1081	Argenta-Clementine-Outerkirk complex 1/-----	4,579	0.2
1150	Saraph-Hangrock-Tuffo association-----	6,566	0.3
1164	Devada-Ashcamp association-----	8,217	0.4
1400	Bombadil-Ceejay association-----	1,516	*
1460	Weezweed loam, 0 to 2 percent slopes-----	280	*
2080	Water-----	1,965	0.1
	Total-----	1,935,580	100.0

* Less than 0.1 percent.

✓ 1/ Unit mapped at high intensity for detailed planning for farming, ranching, or urban development.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS

(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		Alfalfa hay		Pasture	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
106: Goldrun-----	7s	4s	---	3.50	---	8.00
149: Boton-----	7s	4s	---	4.00	---	---
Slawha-----	7s	3s	---	---	---	---
202: Cresal-----	7s	3s	---	4.50	---	---
218: Davey-----	7s	3e	---	5.00	---	---
252: Dun Glen-----	7c	2c	---	6.50	---	---
276: Orovada-----	6c	2e	---	6.50	---	15.00
388: Humboldt-----	5w	5w	---	---	---	6.00
411: Shawave-----	6c	3e	---	5.50	---	---
Orovada-----	6c	2e	---	6.50	---	15.00
581: McConnel-----	7s	4s	---	4.50	---	---
670: Denio-----	7s	4s	---	4.50	---	---
679: Outerkirk-----	7c	2s	---	6.00	---	---
Davey-----	7s	3e	---	5.00	---	---
Goldrun-----	7s	4s	---	3.50	---	8.00
Raglan-----	7s	6s	---	3.50	---	---
790: Valmy-----	6w	2w	---	5.00	---	---
Wesc-----	7s	3s	---	5.00	---	---
Wendane-----	7w	6w	---	---	---	---
938: Wesc-----	7s	3s	---	5.00	---	---
Boton-----	7s	---	---	---	---	---
Dun Glen-----	7c	2c	---	---	---	---
Typic Torrifluvents	---	---	---	---	---	---

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING

Soil name and map symbol	Limitation rating	Restrictive features
102: Cleaver-----	Poorly suited-----	Too arid, droughty, small stones.
104: Anawalt-----	Poorly suited-----	Too arid, droughty, small stones.
Devada-----	Poorly suited-----	Rooting depth.
Tuffo-----	Poorly suited-----	Droughty, depth to rock.
105: Goldrun-----	Poorly suited-----	Too sandy, soil blowing.
Alvodest-----	Poorly suited-----	Too arid, droughty, rooting depth.
106: Goldrun-----	Poorly suited-----	Too sandy, soil blowing.
108: Anawalt-----	Poorly suited-----	Too arid, droughty, small stones.
Oreneva-----	Suited-----	Too arid, droughty.
110: Aycab-----	Suited-----	Too arid, droughty.
Tosp-----	Well suited-----	
Welch-----	Well suited-----	
111: Aycab-----	Suited-----	Too arid, droughty, erodes easily.
Alta-----	Poorly suited-----	Large stones.
Tosp-----	Well suited-----	
116: Acrelane-----	Poorly suited-----	Droughty.
Rock Outcrop-----	Not rated-----	
117: Acrelane-----	Poorly suited-----	Droughty.
Poisoncreek-----	Poorly suited-----	Too arid, droughty, small stones.
120: Arclay-----	Poorly suited-----	Droughty, rooting depth, erodes easily.
Acrelane-----	Poorly suited-----	Droughty.
130: Tenabo-----	Poorly suited-----	Too arid, rooting depth, excess sodium.
Gwena-----	Poorly suited-----	Droughty, rooting depth, excess salt.
Fulstone-----	Poorly suited-----	Too arid, rooting depth.
140: Tenabo-----	Poorly suited-----	Too arid, rooting depth, excess sodium.
Oxcorel-----	Poorly suited-----	Too arid, rooting depth, excess sodium.
145: Boulder Lake-----	Suited-----	Too clayey.
149: Boton-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Slawha-----	Poorly suited-----	Too arid, excess salt.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
150: Boton-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Boton-----	Poorly suited-----	Too arid, excess salt, excess sodium.
151: Boton-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Boton-----	Poorly suited-----	Too arid, excess salt, excess sodium.
155: Bearbutte-----	Well suited-----	
Badgercamp-----	Poorly suited-----	Droughty.
156: Bearbutte-----	Well suited-----	
Ninemile-----	Poorly suited-----	Droughty, rooting depth.
158: Blackhawk-----	Poorly suited-----	Too arid.
Trocken-----	Poorly suited-----	Too arid, droughty, small stones.
160: Bluewing-----	Poorly suited-----	Too arid, droughty.
161: Bluewing-----	Poorly suited-----	Too arid, droughty, too sandy.
Trocken-----	Poorly suited-----	Too arid, droughty, small stones.
163: Dune Land-----	Poorly suited-----	Too arid, excess salt, excess sodium.
164: Soughe-----	Poorly suited-----	Droughty, small stones.
Bucklake-----	Poorly suited-----	Droughty, small stones.
168: Boton-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Playas-----	Poorly suited-----	Too arid, droughty, excess salt.
173: Deppy-----	Poorly suited-----	Too arid, droughty, rooting depth.
175: Wendane-----	Poorly suited-----	Too arid, excess salt, excess sodium.
176: Bullump-----	Poorly suited-----	Small stones.
Westbutte-----	Suited-----	Droughty, large stones.
Harcany-----	Poorly suited-----	Small stones.
177: Bullump-----	Suited-----	Erodes easily.
Sumine-----	Suited-----	Too arid, droughty.
Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
180: Devada-----	Poorly suited-----	Rooting depth.
Bucklake-----	Poorly suited-----	Droughty, small stones.
181: Westbutte-----	Suited-----	Droughty, large stones, erodes easily.
182: Devada-----	Poorly suited-----	Rooting depth.
Ninemile-----	Poorly suited-----	Droughty, rooting depth.
Tuffo-----	Poorly suited-----	Too arid, droughty, depth to rock.
185: Puettt-----	Poorly suited-----	Too arid, droughty.
Soughe-----	Poorly suited-----	Droughty, small stones.
188: Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.
Softscrabble-----	Poorly suited-----	Small stones.
Hackwood-----	Well suited-----	
189: Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.
Softscrabble-----	Poorly suited-----	Small stones.
Sumine-----	Suited-----	Too arid, droughty.
190: Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.
Westbutte-----	Poorly suited-----	Small stones.
Softscrabble-----	Poorly suited-----	Small stones.
202: Cresal-----	Poorly suited-----	Too arid, excess salt, excess sodium.
218: Davey-----	Suited-----	Too arid, too sandy.
231: Devada-----	Poorly suited-----	Rooting depth.
Ninemile-----	Poorly suited-----	Droughty, rooting depth.
Softscrabble-----	Suited-----	Droughty.
232: Devada-----	Poorly suited-----	Droughty, small stones, rooting depth.
240: Deppy-----	Poorly suited-----	Too arid, droughty, rooting depth.
Tumtum-----	Poorly suited-----	Too arid, droughty, rooting depth.
252: Dun Glen-----	Poorly suited-----	Too arid, excess sodium.
276: Orovada-----	Poorly suited-----	Too arid, excess salt.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
296: Longcreek-----	Poorly suited-----	Droughty, small stones.
Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.
335: Ola-----	Suited-----	Droughty, large stones, erodes easily.
Poisoncreek-----	Poorly suited-----	Too arid, droughty, small stones.
338: Ola-----	Suited-----	Droughty, large stones, erodes easily.
Poisoncreek-----	Poorly suited-----	Too arid, droughty, small stones.
Tosp-----	Well suited-----	
340: Ola-----	Poorly suited-----	Erodes easily.
Aycab-----	Suited-----	Too arid, droughty.
Rock Outcrop-----	Not rated-----	
345: Genegraf-----	Poorly suited-----	Too arid, small stones, rooting depth.
Toulon-----	Poorly suited-----	Too arid, small stones.
350: Fulstone-----	Poorly suited-----	Too arid, rooting depth.
357: Granshaw-----	Poorly suited-----	Too arid.
Shawave-----	Suited-----	Too arid, excess sodium.
360: Grumblen-----	Poorly suited-----	Too arid, droughty, small stones.
Pickup-----	Poorly suited-----	Droughty, rooting depth.
374: Hoot-----	Poorly suited-----	Too arid, droughty, small stones.
Rock Outcrop-----	Not rated-----	
378: Hawsley-----	Poorly suited-----	Too arid, droughty, too sandy.
381: Hart Camp-----	Suited-----	Too arid, droughty, large stones.
Devada-----	Poorly suited-----	Rooting depth.
Rock Outcrop-----	Not rated-----	
382: Hart Camp-----	Suited-----	Too arid, droughty, depth to rock.
Badgercamp-----	Poorly suited-----	Droughty.
388: Humboldt-----	Suited-----	Too arid, excess salt, excess sodium.
402: Tumtum-----	Poorly suited-----	Too arid, droughty, rooting depth.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
410: Shawave-----	Suited-----	Too arid, excess sodium.
Deadyon-----	Suited-----	Too arid, droughty.
Shawave-----	Suited-----	Too arid, excess sodium.
411: Shawave-----	Suited-----	Too arid, excess sodium.
Orovada-----	Poorly suited-----	Too arid, excess salt.
413: Isolde-----	Poorly suited-----	Too arid, soil blowing.
Typic Torriorthents-----	Poorly suited-----	Too arid, droughty, small stones.
Dune Land-----	Poorly suited-----	Too arid, excess salt, excess sodium.
414: Isolde-----	Poorly suited-----	Too arid, soil blowing.
Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Jerval-----	Poorly suited-----	Too arid, rooting depth, excess salt.
420: Jesse Camp-----	Suited-----	Too arid, excess salt, excess sodium.
430: Woofus-----	Suited-----	Too arid.
431: Woofus-----	Suited-----	Too arid.
Welch-----	Well suited-----	
432: Isolde-----	Poorly suited-----	Too arid, soil blowing.
Ragtown-----	Poorly suited-----	Too arid, excess salt.
433: Wetvit-----	Suited-----	Too arid.
Wetvit-----	Suited-----	Too arid.
442: Rodock-----	Suited-----	Too arid, excess salt.
Fax-----	Poorly suited-----	Droughty.
Holbrook-----	Suited-----	Too arid, droughty.
452: Roccoonda-----	Poorly suited-----	Too arid, droughty, small stones.
Coppersid-----	Poorly suited-----	Too arid, droughty, depth to rock.
Soughe-----	Poorly suited-----	Droughty, small stones.
463: Jerval-----	Poorly suited-----	Too arid, rooting depth, excess salt.
Dorper-----	Poorly suited-----	Too arid, rooting depth, excess salt.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
464: Jerval-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Dorper-----	Poorly suited-----	Too arid, rooting depth, excess salt.
467: Ninemile-----	Poorly suited-----	Droughty, rooting depth.
Sumine-----	Suited-----	Too arid, droughty.
Softscrabble-----	Poorly suited-----	Small stones.
468: Bucklake-----	Poorly suited-----	Droughty, small stones.
Ninemile-----	Poorly suited-----	Droughty, rooting depth.
Frentera-----	Well suited-----	
470: Frentera-----	Poorly suited-----	Erodes easily.
Wylo-----	Poorly suited-----	Droughty, rooting depth.
Tuffo-----	Poorly suited-----	Too arid, droughty, depth to rock.
475: Juva-----	Poorly suited-----	Too arid, excess sodium.
480: Tuffo-----	Poorly suited-----	Too arid, droughty, depth to rock.
Wylo-----	Poorly suited-----	Droughty, rooting depth.
Frentera-----	Well suited-----	
531: Longcreek-----	Poorly suited-----	Droughty, small stones, erodes easily.
Rock Outcrop-----	Not rated-----	
535: Locane-----	Poorly suited-----	Droughty, small stones, rooting depth.
550: Welch-----	Well suited-----	
563: Sondoa-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Isolde-----	Poorly suited-----	Too arid.
574: Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.
575: Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.
576: Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
577:		
Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Isolde-----	Poorly suited-----	Too arid.
Typic Torriorthents-----	Poorly suited-----	Too arid, droughty, excess sodium.
578:		
Mazuma-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Toulon-----	Poorly suited-----	Too arid, small stones.
Isolde-----	Poorly suited-----	Too arid.
580:		
McConnell-----	Poorly suited-----	Small stones, excess salt.
581:		
McConnell-----	Poorly suited-----	Small stones.
620:		
Croesus-----	Poorly suited-----	Droughty, large stones.
Rock Outcrop-----	Not rated-----	
630:		
Ninemile-----	Poorly suited-----	Droughty, rooting depth.
647:		
Wendane-----	Poorly suited-----	Excess salt, excess sodium, too crusty.
Humboldt-----	Suited-----	Too arid, excess salt, excess sodium.
648:		
Wendane-----	Poorly suited-----	Excess salt, excess sodium, too crusty.
660:		
Soughe-----	Poorly suited-----	Droughty, small stones, rooting depth.
Hoot-----	Poorly suited-----	Too arid, droughty, small stones.
662:		
Jaybee-----	Poorly suited-----	Too arid, droughty, small stones.
Soughe-----	Poorly suited-----	Droughty, small stones.
Hoot-----	Poorly suited-----	Too arid, droughty, small stones.
663:		
Soughe-----	Poorly suited-----	Droughty, small stones.
Rock Outcrop-----	Not rated-----	
664:		
Soughe-----	Poorly suited-----	Droughty, small stones.
670:		
Denio-----	Poorly suited-----	Too arid.
679:		
Outerkirk-----	Suited-----	Too arid, droughty.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
683: Oxcore1-----	Poorly suited-----	Too arid, rooting depth, excess sodium.
703: Pickup-----	Poorly suited-----	Droughty, small stones, rooting depth.
Grumblen-----	Poorly suited-----	Too arid, droughty, small stones.
Rock Outcrop-----	Not rated-----	
715: Wholan-----	Poorly suited-----	Too arid, excess salt.
716: Wholan-----	Poorly suited-----	Too arid, excess salt.
720: Pickup-----	Poorly suited-----	Droughty, small stones, rooting depth.
Bucklake-----	Poorly suited-----	Droughty, small stones.
Puett-----	Poorly suited-----	Too arid, droughty.
758: Longcreek-----	Poorly suited-----	Droughty, small stones.
Softscrabble-----	Poorly suited-----	Small stones.
Anawalt-----	Poorly suited-----	Too arid, droughty, small stones.
775: Rednik-----	Poorly suited-----	Too arid, droughty, small stones.
Jungo-----	Poorly suited-----	Too arid, small stones.
Aboten-----	Poorly suited-----	Too arid, droughty, rooting depth.
781: Pickup-----	Poorly suited-----	Droughty, small stones, rooting depth.
Bucklake-----	Poorly suited-----	Droughty, small stones.
782: Skedaddle-----	Poorly suited-----	Droughty, small stones, depth to rock.
Rock Outcrop-----	Not rated-----	
783: Rocconda-----	Poorly suited-----	Too arid, droughty, small stones.
Rocconda-----	Poorly suited-----	Too arid, droughty, small stones.
785: Rodell-----	Poorly suited-----	Too arid, droughty, small stones.
Rubble Land-----	Poorly suited-----	Too arid, droughty, large stones.
790: Valmy-----	Poorly suited-----	Too arid, excess salt, excess sodium.
803: Ninemile-----	Poorly suited-----	Droughty, rooting depth.
Rock Outcrop-----	Not rated-----	
804: Singatse-----	Poorly suited-----	Too arid, droughty, small stones.
Rock Outcrop-----	Not rated-----	

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
805: Singatse-----	Poorly suited-----	Too arid, droughty, small stones.
Jaybee-----	Poorly suited-----	Too arid, droughty, small stones.
806: Singatse-----	Poorly suited-----	Too arid, droughty, small stones.
Rocconda-----	Poorly suited-----	Too arid, droughty, small stones.
Badland-----	Poorly suited-----	Too arid, droughty, depth to rock.
818: Siscab-----	Poorly suited-----	Droughty, rooting depth.
Aycab-----	Suited-----	Too arid, droughty.
Ola-----	Suited-----	Droughty, large stones.
819: Siscab-----	Poorly suited-----	Droughty, rooting depth.
Ola-----	Suited-----	Droughty, large stones.
Rock Outcrop-----	Not rated-----	
820: Siscab-----	Poorly suited-----	Droughty, rooting depth, erodes easily.
Poisoncreek-----	Poorly suited-----	Too arid, droughty, small stones.
Ola-----	Suited-----	Droughty, large stones.
821: Siscab-----	Poorly suited-----	Droughty, rooting depth, erodes easily.
Poisoncreek-----	Poorly suited-----	Too arid, droughty, small stones.
Alta-----	Poorly suited-----	Large stones.
823: Softscrabble-----	Well suited-----	
Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.
Harcany-----	Poorly suited-----	Small stones.
824: Simon-----	Suited-----	Too arid.
825: Sojur-----	Poorly suited-----	Too arid, droughty, small stones.
826: Simon-----	Suited-----	Too arid.
Fulstone-----	Poorly suited-----	Too arid, rooting depth.
829: Skedaddle-----	Poorly suited-----	Droughty, small stones, depth to rock.
Softscrabble-----	Poorly suited-----	Small stones.
Cleavage-----	Poorly suited-----	Too arid, droughty, small stones.
830: Skedaddle-----	Poorly suited-----	Droughty, small stones, depth to rock.
Rock Outcrop-----	Not rated-----	
Sumya-----	Poorly suited-----	Too arid, droughty, small stones.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
835: Ola-----	Suited-----	Droughty, large stones, erodes easily.
Aycab-----	Suited-----	Too arid, droughty.
Tosp-----	Well suited-----	
840: Saraph-----	Poorly suited-----	Too arid, droughty.
Yellowhills-----	Well suited-----	
841: Saraph-----	Poorly suited-----	Droughty.
Tuffo-----	Poorly suited-----	Too arid, droughty, depth to rock.
Yellowhills-----	Well suited-----	
842: Deppy-----	Poorly suited-----	Too arid, droughty, rooting depth.
Tumtum-----	Poorly suited-----	Too arid, droughty, rooting depth.
Puett-----	Poorly suited-----	Too arid, droughty.
843: Deppy-----	Poorly suited-----	Too arid, droughty, rooting depth.
Puett-----	Poorly suited-----	Too arid, droughty.
Orovada-----	Poorly suited-----	Excess salt, excess sodium.
847: Toulon-----	Poorly suited-----	Too arid, small stones.
Badland-----	Poorly suited-----	Too arid, droughty, depth to rock.
Typic Torriorthents-----	Poorly suited-----	Too arid, droughty.
850: Playas-----	Poorly suited-----	Too arid, droughty, excess salt.
875: Pumper-----	Poorly suited-----	Too arid.
Dun Glen-----	Poorly suited-----	Too arid, excess sodium.
Davey-----	Suited-----	Too arid, too sandy.
876: Pumper-----	Poorly suited-----	Too arid, excess salt.
Weso-----	Poorly suited-----	Too arid, excess salt.
878: Croesus-----	Poorly suited-----	Droughty, large stones.
Rock Outcrop-----	Not rated-----	
907: Bucklake-----	Poorly suited-----	Droughty, small stones.
909: Bucklake-----	Poorly suited-----	Droughty, small stones.
Softscrabble-----	Poorly suited-----	Small stones.
Rubble Land-----	Poorly suited-----	Too arid, droughty, large stones.
935: Wesfil-----	Poorly suited-----	Too arid, droughty, small stones.
Sojur-----	Poorly suited-----	Too arid, droughty, small stones.

TABLE 6.--SUITABILITY FOR RANGELAND SEEDING--Continued

Soil name and map symbol	Limitation rating	Restrictive features
938: Weso-----	Poorly suited-----	Too arid, excess salt, excess sodium.
940: Westbutte-----	Poorly suited-----	Large stones.
Rock Outcrop-----	Not rated-----	
965: Wylo-----	Poorly suited-----	Droughty, rooting depth.
Bucklake-----	Poorly suited-----	Droughty, large stones.
Rock Outcrop-----	Not rated-----	
1000: Broyles-----	Poorly suited-----	Too arid, excess salt, excess sodium.
1010: Bubus-----	Poorly suited-----	Too arid, excess salt, excess sodium.
1030: Rio King-----	Suited-----	Too arid.
1032: Raglan-----	Poorly suited-----	Too arid, excess salt, excess sodium.
1060: Raglan-----	Poorly suited-----	Too arid, excess salt, excess sodium.
1080: Argenta-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Argenta-----	Poorly suited-----	Excess salt, excess sodium, too crusty.
1081: Argenta-----	Poorly suited-----	Too arid, excess salt, excess sodium.
Clementine-----	Poorly suited-----	Excess salt.
Outerkirk-----	Poorly suited-----	Too arid.
1150: Saraph-----	Poorly suited-----	Droughty.
Hangrock-----	Suited-----	Too arid, droughty, cemented pan.
Tuffo-----	Poorly suited-----	Too arid, droughty, depth to rock.
1164: Devada-----	Poorly suited-----	Droughty, small stones, rooting depth.
Ashcamp-----	Poorly suited-----	Droughty.
1400: Bombadil-----	Poorly suited-----	Droughty.
Ceejay-----	Poorly suited-----	Droughty, rooting depth.
1460: Weezweed-----	Suited-----	

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
110: Aycab-----	---	---	---	---
Tosp-----	quaking aspen-----	40	18	quaking aspen
Welch-----	---	---	---	---
111: Aycab-----	---	---	---	---
Alta-----	---	---	---	---
Tosp-----	quaking aspen-----	40	18	quaking aspen
188: Cleavage-----	---	---	---	---
Softscrabble-----	---	---	---	---
Hackwood-----	quaking aspen-----	40	14	---
338: Ola-----	---	---	---	---
Poisoncreek-----	---	---	---	---
Tosp-----	quaking aspen-----	40	18	quaking aspen
452: Roccoonda-----	---	---	---	---
Coppereid-----	Utah juniper-----	15	---	---
Soughe-----	---	---	---	---
785: Rode11 -----	whitebark pine	---	1.2	---
Rubble Land-----	---	---	---	---
830: Skedaddle-----	---	---	---	---
Rock Outcrop-----	---	---	---	---
Sumya-----	Utah juniper-----	20	---	---
835: Ola-----	---	---	---	---
Aycab-----	---	---	---	---
Tosp-----	quaking aspen-----	40	18	quaking aspen

TABLE 8.--CONSTRUCTION MATERIALS

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
102: Cleaver-----	Poor: cemented pan	Improbable: excess fines	Improbable: excess fines	Poor: cemented pan small stones
104: Anawalt-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Tuffo-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
105: Goldrun-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: too sandy
Alvodest-----	Poor: low strength shrink-swell wetness	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too clayey wetness
106: Goldrun-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: too sandy
108: Anawalt-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Oreneva-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
110: Aycab-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Tosp-----	Fair: slope thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Welch-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
111: Aycab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Alta-----	Poor: slope	Improbable: thin layer	Improbable: too sandy	Poor: slope small stones
Tosp-----	Fair: slope thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
116: Acrelane-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop----	---	---	---	---

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
117: Acrelane-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Poisoncreek-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
120: Arclay-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Acrelane-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
130: Tenabo-----	Poor: cemented pan	Probable	Probable	Poor: area reclaim cemented pan small stones
Gwena-----	Poor: cemented pan	Probable	Probable	Poor: area reclaim cemented pan small stones
Fulstone-----	Poor: cemented pan low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: cemented pan small stones too clayey
140: Tenabo-----	Poor: cemented pan	Probable	Probable	Poor: area reclaim cemented pan small stones
Oxcorel-----	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim excess sodium small stones
145: Boulder Lake----	Poor: low strength shrink-swell wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey wetness
149: Boton-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
Slawha-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
150: Boton-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
Boton-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
151: Boton-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
Boton-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
155: Bearbutte-----	Fair: slope thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Badgercamp-----	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones depth to rock
156: Bearbutte-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
158: Blackhawk-----	Good	Probable	Probable	Poor: area reclaim cemented pan small stones
Trocken-----	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
160: Bluewing-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
161: Bluewing-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
Trocken-----	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
163: Dune land-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt slope too clayey
164: Soughe-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
168: Boton-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
Playas-----	Poor: low strength shrink-swell wetness	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too clayey wetness
173: Deppy-----	Good	Probable	Probable	Poor: area reclaim cemented pan small stones

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
175: Wendane-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
176: Bullump-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Westbutte-----	Poor: large stones slope depth to rock	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: large stones slope
Harcany-----	Poor: slope	Improbable: small stones	Probable	Poor: area reclaim slope small stones
177: Bullump-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Sumine-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Cleavage-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
180: Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
181: Westbutte-----	Poor: large stones slope depth to rock	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: large stones slope
182: Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Tuffo-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
185: Puett-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Soughe-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
188: Cleavage-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Softscrabble---	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Hackwood-----	Fair: shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
189: Cleavage-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Softscrabble---	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Sumine-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
190: Cleavage-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Westbutte-----	Poor: large stones slope depth to rock	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: large stones slope
Softscrabble---	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
202: Cresal-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
218: Davey-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: too sandy
231: Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Softscrabble---	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
232: Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
240: Deppy-----	Good	Probable	Probable	Poor: area reclaim cemented pan small stones
Tuntum-----	Poor: cemented pan	Probable	Probable	Poor: area reclaim cemented pan small stones
252: Dun Glen-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
276: Orovada-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
296: Longcreek-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope depth to rock
Cleavage-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
335: Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Poisoncreek----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
338: Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Poisoncreek----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Tosp-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
340: Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Aycab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Rock outcrop---	---	---	---	---
345: Genegraf-----	Good	Probable	Probable	Poor: area reclaim excess sodium small stones
Toulon-----	Fair: large stones	Probable	Probable	Poor: area reclaim small stones too sandy

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
350: Fulstone-----	Poor: cemented pan low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: cemented pan small stones too clayey
357: Granshaw-----	Good	Probable	Improbable: too sandy	Poor: small stones
Shawave-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
360: Grumblen-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Pickup-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
374: Hoot-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Rock outcrop---	---	---	---	---
378: Hawsley-----	Good	Probable	Improbable: too sandy	Poor: too sandy
381: Hart Camp-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Rock outcrop---	---	---	---	---
382: Hart Camp-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Badgercamp-----	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones depth to rock
388: Humboldt-----	Poor: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey wetness
402: Tumtum-----	Poor: cemented pan	Probable	Probable	Poor: area reclaim cemented pan small stones
410: Shawave-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Deadyon-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Shawave-----	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
411: Shawave-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Orovada-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
413: Isolde-----	Good	Probable	Improbable: too sandy	Poor: too sandy
Typic Torriorthents--	Poor: thin layer	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Dune land-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt slope too clayey
414: Isolde-----	Good	Probable	Improbable: too sandy	Poor: too sandy
Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too sandy
Jerval-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim excess salt small stones
420: Jesse Camp-----	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: excess salt
430: Woofus-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
431: Woofus-----	Fair: wetness	Probable	Probable	Poor: area reclaim small stones too sandy
Welch-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
432: Isolde-----	Good	Probable	Improbable: too sandy	Poor: too sandy
Ragtown-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too clayey
433: Wetvit-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Wetvit-----	Fair: shrink-swell wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
442: Rodock-----	Good	Probable	Probable	Poor: area reclaim small stones
Fax-----	Poor: cemented pan	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Holbrook-----	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too sandy

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
452: Rocconda-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Coppereid-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Soughe-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
463: Jerval-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim excess salt small stones
Dorper-----	Good	Improbable: small stones	Probable	Poor: area reclaim excess salt small stones
464: Jerval-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim excess salt small stones
Dorper-----	Good	Improbable: small stones	Probable	Poor: area reclaim excess salt small stones
467: Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Sumine-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Softscrabble---	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
468: Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Frentera-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
470: Frentera-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Wylo-----	Poor: shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Tuffo-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
475: Juva-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones too sandy
480: Tuffo-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Wylo-----	Poor: shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Freintera-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
531: Longcreek-----	Poor: low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope depth to rock
Rock outcrop---	---	---	---	---
535: Locane-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
550: Welch-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
563: Sondoa-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
Isolde-----	Good	Probable	Improbable: too sandy	Poor: too sandy
574: Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
575: Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too sandy
Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
576: Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too sandy
577: Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
Isolde-----	Fair: slope	Probable	Improbable: too sandy	Poor: slope too sandy
Typic Torriorthents--	Poor: slope thin layer	Improbable: excess fines	Improbable: excess fines	Poor: slope thin layer
578: Mazuma-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Toulon-----	Fair: large stones	Probable	Probable	Poor: area reclaim small stones too sandy
Isolde-----	Good	Probable	Improbable: too sandy	Poor: too sandy
580: McConnel-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
581: McConnel-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
620: Croesus-----	Poor: slope depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones
Rock outcrop---	---	---	---	---
630: Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
647: Wendane-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
Humboldt-----	Poor: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey wetness
648: Wendane-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
660: Soughe-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Hoot-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
662: Jaybee-----	Poor: shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Soughe-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Hoot-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
663: Soughe-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop---	---	---	---	---

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
664: Soughe-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
670: Denio-----	Good	Probable	Improbable: too sandy	Poor: area reclaim small stones too sandy
679: Outerkirk-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
683: Oxcocrel-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim excess sodium small stones
703: Pickup-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Grumblen-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Rock outcrop----	---	---	---	---
715: Wholan-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
716: Wholan-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
720: Pickup-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Puett-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
758: Longcreek-----	Poor: low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope depth to rock
Softscrabble----	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Anawalt-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
775: Rednik-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Jungo-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Aboten-----	Good	Improbable: small stones	Probable	Poor: area reclaim cemented pan small stones
781: Pickup-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
782: Skedaddle-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop---	---	---	---	---
783: Rocconda-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Rocconda-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
785: Rodell-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rubble land----	Poor: large stones slope	Improbable: large stones small stones	Improbable: large stones	Poor: area reclaim slope small stones
790: Valmy-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
803: Ninemile-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Rock outcrop---	---	---	---	---
804: Singatse-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop---	---	---	---	---

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
805: Singatse-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Jaybee-----	Poor: shrink-swell slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
806: Singatse-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rocconda-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Badland-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: excess salt small stones depth to rock
818: Siscab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Aycab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
819: Siscab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Rock outcrop---	---	---	---	---
820: Siscab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Poisoncreek----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
821: Siscab-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
821 cont: Poisoncreek-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Alta-----	Poor: slope	Improbable: thin layer	Improbable: too sandy	Poor: slope small stones
823: Softscrabble----	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Cleavage-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Harcany-----	Poor: slope	Improbable: small stones	Probable	Poor: area reclaim slope small stones
824: Simon-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
825: Sojur-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
826: Simon-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Fulstone-----	Poor: cemented pan low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: cemented pan small stones too clayey
829: Skedaddle-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Softscrabble----	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Cleavage-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
830: Skedaddle-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop----	---	---	---	---
Sumya-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
835: Ola-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Aycab-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Tosp-----	Fair: slope thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
840: Saraph-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Yellowhills-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
841: Saraph-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Tuffo-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Yellowhills-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
842: Deppy-----	Good	Probable	Probable	Poor: area reclaim cemented pan small stones
Tumtum-----	Poor: cemented pan	Probable	Probable	Poor: area reclaim cemented pan small stones
Puett-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
843: Deppy-----	Good	Probable	Probable	Poor: area reclaim cemented pan small stones
Puett-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Orovada-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
847: Toulon-----	Fair: large stones	Probable	Probable	Poor: area reclaim small stones too sandy
Badland-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: excess salt small stones depth to rock
Typic Torriorthents--	Good	Probable	Probable	Poor: area reclaim small stones too sandy

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
850: Playas-----	Poor: low strength shrink-swell wetness	Improbable: excess fines	Improbable: excess fines	Poor: excess salt too clayey wetness
875: Pumper-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
Dun Glen-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Davey-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: too sandy
876: Pumper-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
Weso-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
878: Croesus-----	Poor: slope depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones
Rock outcrop---	---	---	---	---
907: Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
909: Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Softscrabble---	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Rubble land---	Poor: large stones slope	Improbable: large stones small stones	Improbable: large stones	Poor: area reclaim slope small stones
935: Wesfil-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Sojur-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
938: Weso-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim excess salt small stones
940: Westbutte-----	Poor: large stones slope depth to rock	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: large stones slope
Rock outcrop---	---	---	---	---

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
965: Wylo-----	Poor: shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Bucklake-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Rock outcrop---	---	---	---	---
1000: Broyles-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt small stones
1010: Bubus-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
1030: Rio King-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
1032: Raglan-----	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
1060: Raglan-----	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
1080: Argenta-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
Argenta-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
1081: Argenta-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
Clementine-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: excess salt
Outerkirk-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
1150: Saraph-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Hangrock-----	Poor: thin layer	Improbable: excess fines	Improbable: excess fines	Poor: cemented pan small stones
Tuffo-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
1164: Devada-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Ashcamp-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1400: Bombadil-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Ceejay-----	Poor: shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
1460: Weezweed-----	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey too sandy
2080: Water-----	---	---	---	---

TABLE 9.--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	
117: Acrelane-----	0-7	Very bouldery coarse sandy loam	SM	A-1	5-20	0-25	90-100	60-75	30-45	10-20	---	NP
	7-16	Very gravelly sandy clay loam, very gravelly sandy loam, very gravelly coarse sandy loam	SC, SC-SM	A-2	0	0-10	60-80	30-50	25-40	15-30	20-30	5-15
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
Poisoncreek-----	0-5	Very gravelly coarse sandy loam	SM	A-1	0	0-5	75-85	40-50	10-40	10-30	15-20	NP-5
	5-13	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC	A-2, A-6	0	15-45	50-65	45-60	35-55	25-40	30-40	10-20
	13-15	Weathered bedrock			---	---	---	---	---	---	---	---
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
120: Arclay-----	0-4	Very bouldery coarse sandy loam	SM	A-1	5-20	0-25	90-100	60-75	30-45	10-20	---	NP
	4-18	Gravelly clay loam, gravelly sandy clay loam, gravelly loam	SC, SM	A-2, A-6	0	0-5	70-90	55-75	35-55	20-40	35-40	10-15
	18-46	Weathered bedrock			---	---	---	---	---	---	---	---
	46-56	Unweathered bedrock			---	---	---	---	---	---	---	---
Acrelane-----	0-7	Very bouldery coarse sandy loam	SM	A-1	5-20	0-25	90-100	60-75	30-45	10-20	---	NP
	7-16	Very gravelly sandy clay loam, very gravelly sandy loam, very gravelly coarse sandy loam	SC, SC-SM	A-2	0	0-10	60-80	30-50	25-40	15-30	20-30	5-15
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
130: Tenabo-----	0-9	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-95	60-80	20-30	NP-5
	9-16	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	95-100	70-95	60-90	50-85	30-40	15-25
	16-32	Indurated			---	---	---	---	---	---	---	---
	32-60	Stratified extremely gravelly coarse sand to very gravelly sandy loam	GM, GP-GM	A-1	0	5-25	40-60	35-55	25-35	5-20	0-14	NP

TABLE 9.--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						
	In				Pct	Pct					Pct	
130 cont: Gwena-----	0-6	Very fine sandy loam	ML	A-4	0	0-5	85-100	80-100	75-95	55-75	---	NP
	6-15	Clay loam, loam	CL	A-6, A-7	0	0-10	75-100	75-100	65-85	50-70	30-45	10-20
	15-31	Indurated			---	---	---	---	---	---	---	---
	31-49	Extremely gravelly sandy loam	GM, GP, GP-GM	A-1	0	0-15	15-30	10-25	5-20	0-15	---	NP
	49-60	Very gravelly loamy coarse sand	GM, GP-GM	A-1	0	0-15	35-55	30-50	10-30	5-15	---	NP
Fulstone-----	0-3	Gravelly loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0	75-95	65-75	45-60	40-55	25-35	5-15
	3-18	Clay, gravelly clay	CH, MH	A-7	0	0-5	70-100	65-100	60-100	50-85	50-65	20-35
	18-29	Indurated			---	---	---	---	---	---	---	---
140: Tenabo-----	0-9	Cobbly very fine sandy loam	ML	A-4	0	25-40	80-95	75-90	65-85	50-70	15-20	NP-5
	9-16	Clay loam, silty clay loam	CL, ML	A-6	0	0	75-100	70-95	60-90	50-70	35-40	10-15
	16-32	Indurated			---	---	---	---	---	---	---	---
	32-60	Stratified extremely gravelly coarse sand to very gravelly sandy loam	GM, GP-GM	A-1	0	5-25	40-60	35-55	15-35	5-20	15-20	NP-5
Oxcorel-----	0-5	Very stony loam	ML	A-4	5-15	5-10	70-100	65-90	60-80	50-70	20-25	NP-5
	5-18	Clay, clay loam	CH, CL	A-7	0	0	85-95	80-90	65-85	60-80	40-55	20-30
	18-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
145: Boulder Lake---	0-9	Silty clay	CH	A-7	0	0	100	100	90-100	80-95	60-70	45-55
	9-60	Clay, silty clay	CH	A-7	0	0	100	100	90-100	80-95	60-70	45-55
149: Boton-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-5
	10-28	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	28-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
Slawha-----	0-13	Silt loam	CL-ML	A-4	0	0	100	100	95-100	80-90	15-25	5-10
	13-60	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-95	30-50	10-25
150: Boton-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-5
	10-28	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	28-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
Boton-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-5
	10-28	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	28-60	Stratified very fine sandy loam to silty clay loam	CL, ML	A-4, A-6	0	0	100	100	90-100	80-95	30-40	5-15

TABLE 9.--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						
	In				Pct	Pct					Pct	
151:												
Boton-----	0-10	Loamy fine sand	SM	A-4	0	0	100	100	80-100	35-45	0-14	NP
	10-28	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	28-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
Boton-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-5
	10-28	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	28-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
155:												
Bearbutte-----	0-9	Stony loam	SM	A-2, A-4	2-5	0	90-95	85-90	50-70	30-50	---	NP
	9-24	Sandy loam, gravelly sandy loam, loam	SM	A-2, A-4	0	0	65-95	55-90	35-75	25-50	25-30	NP-5
	24-30	Extremely stony sandy loam	SM	A-2, A-4	60-75	0-10	90-100	85-90	50-70	25-50	---	NP
	30-53	Gravelly sandy loam	SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-65	15-50	---	NP
	53-57	Weathered bedrock			---	---	---	---	---	---	---	---
Badgercamp-----	0-6	Bouldery loam	ML, SM	A-4	2-5	0-5	75-95	70-90	40-70	35-65	---	NP
	6-15	Extremely gravelly loam, very gravelly loam	GC-GM, GP-GM, GM, GP-GC	A-1, A-2	2-4	5-10	15-50	10-45	5-35	5-30	20-30	NP-10
	15-25	Weathered bedrock			---	---	---	---	---	---	---	---
156:												
Bearbutte-----	0-9	Stony loam	SM	A-2, A-4	2-5	0	90-95	85-90	50-70	30-50	---	NP
	9-24	Sandy loam, gravelly sandy loam, loam	SM	A-2, A-4	0	0	65-95	55-90	35-75	25-50	25-30	NP-5
	24-30	Extremely stony sandy loam	SM	A-2, A-4	60-75	0-10	90-100	85-90	50-70	25-50	---	NP
	30-53	Gravelly sandy loam	SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-65	15-50	---	NP
	53-57	Weathered bedrock			---	---	---	---	---	---	---	---
Ninemile-----	0-3	Very stony loam	CL-ML	A-4	5-25	15-40	70-90	70-85	60-75	50-60	25-30	5-10
	3-14	Clay, gravelly clay	CH	A-7	0	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
158:												
Blackhawk-----	0-3	Very gravelly fine sandy loam	GM	A-1, A-2	0	0-5	40-55	35-50	30-50	15-35	---	NP
	3-18	Gravelly loam, gravelly silt loam, gravelly very fine sandy loam	GM, SM	A-4	0	0	60-80	55-75	50-70	35-50	20-25	NP-5
	18-34	Cemented			---	---	---	---	---	---	---	---
	34-60	Stratified extremely gravelly coarse sand to very gravelly sandy loam	GM, GP-GM	A-1	0	0-5	25-55	20-45	10-30	5-15	---	NP
Trocken-----	0-4	Very gravelly very fine sandy loam	GC-GM, GM	A-1, A-2	0	0-25	40-55	35-50	30-50	10-35	15-30	NP-10
	4-60	Stratified extremely gravelly loamy coarse sand to very cobbly loam	GC-GM, GP-GC	A-2	0	5-40	20-60	15-40	10-35	5-25	20-30	5-10

TABLE 9.--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						
	In				Pct	Pct					Pct	
160: Bluewing-----	0-6	Gravelly sandy loam	SM	A-1, A-2	0	0-10	60-80	55-75	30-60	20-35	---	NP
	6-60	Stratified very gravelly sand to extremely gravelly loamy coarse sand	GP-GM	A-1	0	5-25	30-40	25-35	15-25	5-10	---	NP
161: Bluewing-----	0-6	Very gravelly loamy sand	SP-SM	A-1	0	10-25	70-85	35-45	15-30	5-10	---	NP
	6-60	Stratified very gravelly sand to extremely gravelly loamy coarse sand	GP, GP-GM	A-1	0-5	0-25	40-50	20-35	10-15	0-10	---	NP
Trocken-----	0-4	Gravelly sandy loam	GM, SM	A-2	0	0-5	60-80	55-75	40-50	25-35	20-25	NP-5
	4-60	Stratified extremely gravelly loamy coarse sand to very cobbly loam	GC-GM, GP-GC	A-2	0-10	5-40	20-60	15-40	10-35	5-25	20-30	5-10
163: Dune Land-----	0-6	Silty clay	CH, CL, MH	A-7	0	0	100	100	95-100	80-100	45-80	20-40
	6-60	Clay, silty clay	CH, MH, CL	A-7	0	0	100	100	95-100	80-100	45-80	20-40
164: Soughe-----	0-4	Very cobbly loam	GC-GM, GM	A-4	0-1	20-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, SC	A-2	0	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Bucklake-----	0-6	Very cobbly loam	CL-ML, SC, CL, SC-SM	A-4, A-6	0	35-60	70-85	65-80	55-70	40-55	25-35	5-15
	6-10	Gravelly clay loam	CL, GC	A-6	0	0-10	55-75	50-70	45-65	40-55	30-40	10-20
	10-21	Gravelly clay, gravelly clay loam	CL, CH, GC	A-7	0	0-10	55-75	50-70	45-65	40-60	40-60	20-35
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
168: Boton-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-5
	10-28	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	28-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
Playas-----	0-6	Silty clay	MH	A-7	0	0	100	100	100	90-100	50-80	20-40
	6-60	Silty clay loam, clay, silty clay	CH, MH, CL	A-7	0	0	100	100	100	90-100	45-75	20-40

TABLE 9.--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						
					Pct	Pct					Pct	
185: Puett-----	In											
	0-3	Very gravelly loam	GM	A-1, A-2	0	0-10	50-60	40-50	35-45	20-35	15-20	NP-5
	3-15	Coarse sandy loam, gravelly loam, sandy loam	GM, ML, SM	A-1, A-4, A-2	0	0	55-95	50-90	30-80	15-55	---	NP
	15-25	Weathered bedrock			---	---	---	---	---	---	---	---
Soughe-----	0-4	Very cobbly loam	GC-GM, GM	A-4	0-1	20-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, SC	A-2	0	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
188: Cleavage-----	0-7	Extremely gravelly loam	GC-GM	A-2	0	0-10	25-35	15-25	10-25	10-20	25-30	5-10
	7-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam	GC	A-2	0-5	0-45	40-55	30-45	25-45	20-35	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Softscrabble----	0-12	Very stony loam	GC-GM	A-2, A-4	10-15	20-35	40-60	35-55	25-50	20-40	20-30	5-10
	12-36	Very cobbly clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6	0-5	25-70	50-80	40-70	35-60	30-55	35-40	15-20
	36-61	Clay loam, gravelly clay loam, loam	CL	A-7	0-5	0-10	75-100	60-90	60-80	50-70	40-50	15-25
	61-71	Weathered bedrock			---	---	---	---	---	---	---	---
Hackwood-----	0-18	Silt loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	70-90	60-80	20-35	5-15
	18-30	Gravelly loam, gravelly silt loam	CL-ML, CL, GC-GM, SC-SM	A-4, A-6	0	0	60-80	50-75	40-70	35-65	25-35	5-15
	30-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam	GC	A-2, A-6	0	0	40-60	35-50	30-45	25-40	35-40	15-20

TABLE 9.--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						
	In				Pct	Pct					Pct	
202: Cresal-----	0-5	Silt loam	ML	A-4	0	0	100	95-100	90-100	65-85	15-20	NP-5
	5-23	Stratified very fine sandy loam to silt loam	ML	A-4	0	0	100	100	95-100	75-90	20-25	NP-5
	23-60	Stratified loamy very fine sand to silt loam	ML	A-4	0	0	100	95-100	95-100	75-90	20-25	NP-5
218: Davey-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	80-95	25-35	---	NP
	4-16	Fine sandy loam, sandy loam	SM	A-2, A-4	0	0	100	100	80-90	30-40	20-25	NP-5
	16-60	Fine sand, loamy fine sand	SM	A-2	0	0	85-100	85-100	70-80	10-20	---	NP
231: Devada-----	0-5	Very stony loam	CL-ML, SC, CL, SC-SM	A-4, A-6	5-25	10-45	75-100	70-100	50-75	40-60	25-35	5-15
	5-19	Gravelly clay, clay	CH, GC	A-7	0	0-5	65-100	55-100	50-90	35-70	50-65	25-35
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile-----	0-3	Very stony loam	CL-ML	A-4	5-25	15-40	70-90	70-85	60-75	50-60	25-30	5-10
	3-14	Clay, gravelly clay	CH	A-7	0	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Softscrabble----	0-20	Stony loam	CL-ML, SC-SM	A-4	1-5	5-15	80-90	75-85	60-70	45-55	20-30	5-10
	20-32	Very cobbly clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6	0-5	25-70	50-80	40-70	35-60	30-55	35-40	15-20
	32-61	Clay loam, gravelly clay loam, loam	CL	A-7	0-5	0-10	75-100	60-90	60-80	50-70	40-50	15-25
	61-65	Weathered bedrock			---	---	---	---	---	---	---	---
232: Devada-----	0-5	Extremely cobbly loam	GC, GC-GM	A-2	0-5	45-55	25-40	20-35	15-30	10-20	25-35	5-15
	5-19	Gravelly clay, clay	CH, GC	A-7	0	0-5	65-100	55-100	50-90	35-70	50-65	25-35
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
240: Deppy-----	0-3	Very cobbly loam	GM, ML, SM	A-4	0-5	30-50	50-75	45-70	40-65	35-60	15-25	NP-5
	3-9	Clay loam	CL, ML	A-6	0	0	95-100	85-100	70-90	55-85	35-40	10-15
	9-21	Cemented			---	---	---	---	---	---	---	---
	21-60	Very gravelly sandy loam, gravelly sandy loam	GM, GP-GM, SP-SM, SM	A-1, A-2	0	0-5	40-70	30-60	20-50	10-35	0-14	NP
Tuntum-----	0-2	Very cobbly loam	ML, GM, SM	A-4	0	30-50	50-75	45-70	40-65	35-60	30-35	5-10
	2-10	Clay, clay loam	CL	A-7	0	0	85-95	75-85	65-85	60-85	40-50	15-25
	10-18	Indurated			---	---	---	---	---	---	---	---
	18-60	Gravelly sandy loam, very gravelly sandy loam	GP-GM, GM, SM, SP-SM	A-1, A-2	0	0-15	35-65	25-55	20-45	10-35	15-25	NP-5

TABLE 9.--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	
345:												
Genegraf-----	0-6	Very gravelly very fine sandy loam	GM	A-1, A-2	0	0-10	30-50	25-45	25-45	15-30	15-25	NP-5
	6-14	Clay loam, sandy clay loam, gravelly clay loam	SC	A-6	0	0-5	70-90	60-85	50-70	35-50	30-40	10-20
	14-23	Very gravelly fine sandy loam, very gravelly sandy loam, gravelly fine sandy loam	GM, SM	A-1	0	0-10	45-70	35-60	25-50	10-25	15-25	NP-5
	23-60	Very gravelly loamy sand	GM, GP-GM	A-1	0	5-15	40-50	30-40	20-30	5-15	---	NP
Toulon-----	0-6	Very gravelly loam	GM, SM	A-1, A-2	0	0-10	55-70	40-50	30-45	20-35	---	NP
	6-14	Very gravelly sandy loam, very gravelly loam, very gravelly coarse sandy loam	GM	A-1, A-2	0	0-5	40-60	25-40	15-35	10-30	---	NP
	14-60	Stratified gravelly coarse sand to extremely cobble coarse sand	GP, GP-GM	A-1	0-5	25-50	40-50	25-40	5-20	0-10	---	NP
350:												
Fulstone-----	0-3	Gravelly loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0	75-95	65-75	45-60	40-55	25-35	5-15
	3-18	Clay, gravelly clay	CH, MH	A-7	0	0-5	70-100	65-100	60-100	50-85	50-65	20-35
	18-29	Indurated			---	---	---	---	---	---	---	---
357:												
Granshaw-----	0-7	Gravelly coarse sandy loam	SM	A-1, A-2	0	0	90-100	55-75	30-50	20-35	---	NP
	7-25	Sandy loam, coarse sandy loam	SM	A-2, A-4	0	0	95-100	75-100	45-65	25-45	20-25	NP-5
	25-60	Stratified very gravelly coarse sand to coarse sandy loam	SM, SP-SM	A-1, A-2	0	0	85-100	50-90	25-50	5-30	---	NP
Shawave-----	0-5	Gravelly sandy loam	SM	A-1, A-2	0	0	75-90	60-75	40-60	20-35	---	NP
	5-16	Sandy loam, sandy clay loam, loam	CL, SC	A-6	0	0	95-100	75-100	55-75	35-55	25-30	10-15
	16-46	Sandy loam, coarse sandy loam	SM	A-2, A-4	0	0	95-100	75-100	50-70	20-40	---	NP
	46-60	Loamy coarse sand, coarse sand, sand	SM	A-1, A-2	0	0	95-100	75-100	45-60	10-25	---	NP

TABLE 9.--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						
	In				Pct	Pct					Pct	
382:												
Hart Camp-----	0-7	Stony loam	ML	A-4	1-5	5-10	85-95	60-90	60-80	50-65	25-30	NP-5
	7-19	Gravelly loam, gravelly sandy clay loam, gravelly clay loam	SC	A-2, A-6	0	0-10	70-80	50-75	45-65	30-50	30-40	10-20
	19-23	Weathered bedrock			---	---	---	---	---	---	---	---
Badgercamp-----	0-6	Bouldery loam	ML, SM	A-4	2-5	0-5	75-95	70-90	40-70	35-65	---	NP
	6-15	Extremely gravelly loam, very gravelly loam	GM, GP-GC, GC-GM, GP-GM	A-1, A-2	2-4	5-10	15-50	10-45	5-35	5-30	20-30	NP-10
	15-19	Weathered bedrock			---	---	---	---	---	---	---	---
388:												
Humboldt-----	0-13	Silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	35-45	15-20
	13-60	Stratified silty clay loam to clay	MH	A-7	0	0	90-100	90-100	85-100	80-100	50-60	15-25
402:												
Tumtum-----	0-2	Very cobbly loam	GM, ML, SM	A-4	0	30-50	50-75	45-70	40-65	35-60	30-35	5-10
	2-10	Clay, clay loam	CL	A-7	0	0	85-95	75-85	65-85	60-85	40-50	15-25
	10-18	Indurated			---	---	---	---	---	---	---	---
	18-60	Gravelly sandy loam, very gravelly sandy loam	GP-GM, GM, SM, SP-SM	A-1, A-2	0	0-15	35-65	25-55	20-45	10-35	15-25	NP-5
410:												
Shawave-----	0-5	Gravelly sandy loam	SM	A-1, A-2	0	0	75-90	60-75	40-60	20-35	---	NP
	5-16	Sandy loam, sandy clay loam, loam	CL, SC	A-6	0	0	95-100	75-100	55-75	35-55	25-30	10-15
	16-46	Sandy loam, coarse sandy loam	SM	A-2, A-4	0	0	95-100	75-100	50-70	20-40	---	NP
	46-60	Loamy coarse sand, coarse sand, sand	SM	A-1, A-2	0	0	95-100	75-100	45-60	10-25	---	NP
Deadyon-----	0-5	Sandy loam	ML, SM	A-2, A-4	0	0	95-100	85-100	50-70	25-55	15-25	NP-5
	5-15	Loam, sandy loam, coarse sandy loam	ML, SM	A-1, A-2, A-4	0	0	95-100	75-90	40-70	20-55	20-25	NP-5
	15-33	Sandy loam, coarse sandy loam, loam	SM	A-2, A-1, A-4	0	0	95-100	75-90	30-70	20-50	---	NP
	33-60	Stratified very gravelly coarse sand to sandy loam	SM	A-1, A-2	0	0	95-100	50-75	10-60	10-30	---	NP
Shawave-----	0-5	Gravelly sandy loam	SM	A-1, A-2	0	0	75-90	60-75	40-60	20-35	---	NP
	5-16	Sandy loam, sandy clay loam, loam	CL, SC	A-6	0	0	95-100	75-100	55-75	35-55	25-30	10-15
	16-46	Sandy loam, coarse sandy loam	SM	A-2, A-4	0	0	95-100	75-100	50-70	20-40	---	NP
	46-60	Loamy coarse sand, coarse sand, sand	SM	A-1, A-2	0	0	95-100	75-100	45-60	10-25	---	NP

TABLE 9.--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	
411: Shawave-----	0-5	Gravelly sandy loam	SM	A-1, A-2	0	0	75-90	60-75	40-60	20-35	---	NP
	5-16	Sandy loam, sandy clay loam, loam	CL, SC	A-6	0	0	95-100	75-100	55-75	35-55	25-30	10-15
	16-46	Sandy loam, coarse sandy loam	SM	A-2, A-4	0	0	95-100	75-100	50-70	20-40	---	NP
	46-60	Loamy coarse sand, coarse sand, sand	SM	A-1, A-2	0	0	95-100	75-100	45-60	10-25	---	NP
Orovada-----	0-6	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	75-95	30-50	---	NP
	6-17	Fine sandy loam, loam	ML, SM	A-4	0	0	75-100	75-100	60-80	40-60	20-30	NP-5
	17-60	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	75-100	75-100	60-85	35-55	20-30	NP-5
413: Isolde-----	0-3	Fine sand	SP, SP-SM	A-3	0	0	100	100	75-90	0-10	---	NP
	3-60	Fine sand, sand	SP, SP-SM	A-3	0	0	100	100	50-80	0-10	---	NP
Typic Torriorthents--	0-5	Extremely gravelly sandy loam	GM, GP-GM	A-1	0	0-10	25-30	20-25	15-20	5-20	---	NP
	5-60	Variable			---	---	---	---	---	---	---	---
Dune Land-----	0-6	Silty clay	CH, CL, MH	A-7	0	0	100	100	95-100	80-100	45-80	20-40
	6-60	Clay, silty clay	CH, CL, MH	A-7	0	0	100	100	95-100	80-100	45-80	20-40
414: Isolde-----	0-3	Fine sand	SP, SP-SM	A-3	0	0	100	100	75-90	0-10	---	NP
	3-60	Fine sand, sand	SP, SP-SM	A-3	0	0	100	100	50-80	0-10	---	NP
Mazuma-----	0-5	Very fine sandy loam	ML	A-4	0	0	95-100	85-100	70-90	50-65	20-25	NP-5
	5-60	Stratified gravelly coarse sand to silt loam	SM	A-4	0	0	95-100	75-100	70-90	35-50	20-25	NP-5
Jerval-----	0-4	Gravelly very fine sandy loam	SM	A-4	0	0-10	70-85	55-75	50-75	35-50	---	NP
	4-12	Gravelly clay loam, gravelly silty clay loam	CL	A-6	0	0-5	65-85	60-75	55-75	50-65	35-40	15-20
	12-60	Very gravelly sandy loam, very gravelly fine sandy loam	GM	A-1	0	0-10	45-60	35-50	25-45	15-25	---	NP
420: Jesse Camp-----	0-4	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	90-100	50-65	20-30	NP-10
	4-12	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	70-85	25-35	NP-10
	12-60	Silt loam	ML	A-4, A-6	0	0	100	100	95-100	75-85	30-40	5-15

TABLE 9.--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	
430: Woofus-----	0-6	Loam	CL	A-6	0	0	100	100	85-100	70-90	25-35	10-15
	6-20	Stratified loam to silty clay loam	CL	A-6	0	0	100	85-100	70-90	55-85	30-40	10-20
	20-40	Stratified gravelly coarse sand to loamy fine sand	SM, SP-SM	A-1, A-3, A-2	0	0	60-100	55-100	30-70	5-25	---	NP
	40-60	Stratified very gravelly coarse sand to very gravelly loam	GM, GP-GM	A-1	0	0	30-55	25-50	15-35	5-20	---	NP
431: Woofus-----	0-6	Loam	CL	A-6	0	0	100	100	85-100	70-90	25-35	10-15
	6-20	Stratified loam to silty clay loam	CL	A-6	0	0	100	85-100	70-90	55-85	30-40	10-20
	20-40	Stratified gravelly coarse sand to loamy fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	60-100	55-100	30-70	5-25	---	NP
	40-60	Stratified very gravelly coarse sand to very gravelly loam	GM, GP-GM	A-1	0	0	30-55	25-50	15-35	5-20	---	NP
Welch-----	0-9	Loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-60	Stratified sandy loam to silty clay loam	CL	A-6	0	0	80-100	75-100	65-90	50-70	30-40	10-20
432: Isolde-----	0-3	Fine sand	SP, SP-SM	A-3	0	0	100	100	75-90	0-10	---	NP
	3-60	Fine sand, sand	SP, SP-SM	A-3	0	0	100	100	50-80	0-10	---	NP
Ragtown-----	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	75-85	20-30	NP-10
	7-17	Stratified sandy clay loam to silty clay loam	CL	A-6	0	0	100	100	80-95	50-75	35-40	15-20
	17-60	Stratified silty clay loam to clay	CH, CL	A-7	0	0	100	100	90-100	75-95	40-55	20-30
433: Wetvit-----	0-16	Loam	ML	A-4	0	0	95-100	85-100	80-90	50-60	30-40	5-10
	16-41	Stratified sandy loam to clay loam	ML	A-4	0	0	95-100	85-100	80-90	50-60	30-40	5-10
	41-60	Stratified gravelly loamy sand to clay loam	ML	A-4	0	0	90-100	80-100	75-85	50-60	30-40	5-10
Wetvit-----	0-16	Loam	ML	A-4	0	0	95-100	85-100	80-90	50-60	30-40	5-10
	16-41	Stratified sandy loam to clay loam	ML	A-4	0	0	95-100	85-100	80-90	50-60	30-40	5-10
	41-60	Stratified gravelly loamy sand to clay loam	ML	A-4	0	0	90-100	80-100	75-85	50-60	30-40	5-10

TABLE 9.--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	
463: Jerval-----	0-4	Gravelly very fine sandy loam	SM	A-4	0	0-10	70-85	55-75	50-75	35-50	---	NP
	4-20	Gravelly clay loam, gravelly silty clay loam	CL	A-6	0	0-5	65-85	60-75	55-75	50-65	35-40	15-20
	20-60	Very gravelly sandy loam, very gravelly fine sandy loam	GM	A-1	0	0-10	45-60	35-50	25-45	15-25	---	NP
Dorper-----	0-2	Stony very fine sandy loam	GM	A-2	1-5	5-10	50-65	45-60	40-60	25-35	15-25	NP-5
	2-7	Gravelly very fine sandy loam, silt loam	GM, ML, SM	A-4	0	0	65-100	60-100	55-100	35-70	15-25	NP-5
	7-17	Gravelly clay loam, clay, clay loam	CL, GC	A-7	0	0	65-95	60-90	50-80	45-70	40-50	15-25
	17-60	Very gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-15	15-50	10-45	5-40	5-25	15-25	NP-5
464: Jerval-----	0-4	Stony loam	CL-ML	A-4	1-5	5-10	95-100	85-100	70-95	50-75	25-30	5-10
	4-20	Gravelly clay loam, gravelly silty clay loam	CL	A-6	0	0-5	65-85	60-75	55-75	50-65	35-40	15-20
	20-60	Very gravelly sandy loam, very gravelly fine sandy loam	GM	A-1	0	0-10	45-60	35-50	25-45	15-25	---	NP
Dorper-----	0-2	Very stony very fine sandy loam	GM	A-1, A-2	5-15	5-20	50-65	45-60	40-60	20-35	15-25	NP-5
	2-7	Gravelly very fine sandy loam, silt loam	GM, ML, SM	A-4	0	0	65-100	60-100	55-100	35-70	15-25	NP-5
	7-17	Gravelly clay loam, clay, clay loam	CL, GC	A-7	0	0	65-95	60-90	50-80	45-70	40-50	15-25
	17-60	Very gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-15	15-50	10-45	5-40	5-25	15-25	NP-5

TABLE 9.--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	
578: Mazuma-----	0-5	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	20-25	NP-5
	5-27	Sandy loam, fine sandy loam	SM	A-2, A-4	0	0	100	100	90-100	30-50	20-25	NP-5
	27-60	Stratified gravelly coarse sand to silt loam	ML, SM	A-2, A-4	0	0	75-100	70-85	50-75	25-55	20-25	NP-5
Toulon-----	0-6	Very gravelly loam	GM, SM	A-1, A-2	0	0-10	55-70	40-50	30-45	20-35	---	NP
	6-14	Very gravelly sandy loam, very gravelly loam, very gravelly coarse sandy loam	GM	A-1, A-2	0	0-5	40-60	25-40	15-35	10-30	---	NP
	14-60	Stratified gravelly coarse sand to extremely cobble coarse sand	GP, GP-GM	A-1	0-5	25-50	40-50	25-40	5-20	0-10	---	NP
Isolde-----	0-3	Fine sand	SP, SP-SM	A-3	0	0	100	100	75-90	0-10	---	NP
	3-60	Fine sand, sand	SP, SP-SM	A-3	0	0	100	100	50-80	0-10	---	NP
580: McConnel-----	0-5	Very stony sandy loam	SM	A-1, A-2	5-20	5-15	65-75	50-65	35-45	20-35	15-25	NP-5
	5-15	Very gravelly sandy loam	GM	A-1, A-2	0	0-15	50-60	35-50	25-45	15-30	15-25	NP-5
	15-60	Stratified very gravelly coarse sand to extremely gravelly loamy sand	GP, GP-GM	A-1	0	0-15	25-40	15-35	5-15	0-10	---	NP
581: McConnel-----	0-5	Very gravelly fine sandy loam	GM	A-1	0	0	45-60	35-50	25-45	10-25	---	NP
	5-15	Gravelly loam, gravelly sandy loam	GC-GM, GM	A-1, A-2, A-4	0	0	55-75	50-70	40-65	20-50	20-30	NP-10
	15-60	Stratified extremely gravelly coarse sand to very gravelly sandy loam	GP	A-1	0	0-15	25-35	10-25	5-15	0-5	---	NP

TABLE 9.--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	
662: Jaybee-----	0-7	Very gravelly sandy loam	GC-GM	A-2	0	0-10	45-60	35-50	25-40	15-30	20-30	5-10
	7-14	Gravelly clay, gravelly clay loam	CL, GC, SC	A-7	0	0-10	65-85	55-75	45-65	40-55	40-50	20-30
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Soughe-----	0-4	Very cobbly loam	GC-GM, GM	A-4	0-1	20-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, SC	A-2	0	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Hoot-----	0-5	Very cobbly loam	GC-GM	A-4	0-5	25-45	50-70	45-65	40-55	35-50	25-30	5-10
	5-15	Extremely gravelly loam, extremely gravelly clay loam, very gravelly clay loam	GC	A-2	0	5-25	30-45	20-35	20-30	20-30	35-40	15-20
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
663: Soughe-----	0-4	Very cobbly loam	GC-GM, GM	A-4	0-1	20-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, SC	A-2	0	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock Outcrop---	---	---	---	---	---	---	---	---	---	---	---	---
664: Soughe-----	0-4	Very cobbly loam	GC-GM, GM	A-4	0-1	20-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, SC	A-2	0	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---
670: Denio-----	0-3	Gravelly sandy loam	SM	A-1, A-2	0	0	80-100	55-75	35-55	20-30	---	NP
	3-16	Gravelly sandy loam	SM	A-1, A-2	0	0	80-100	55-75	35-55	20-30	---	NP
	16-60	Stratified extremely gravelly coarse sand to very gravelly loamy coarse sand	SP-SM	A-1	0	0	90-100	20-45	10-15	5-10	---	NP

TABLE 9.--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						
	In				Pct	Pct					Pct	
720 cont: Puett-----	0-3	Very gravelly loam	GM	A-1, A-2	0	0-10	50-60	40-50	35-45	20-35	15-20	NP-5
	3-15	Coarse sandy loam, gravelly loam, sandy loam	GM, SM, ML	A-1, A-2, A-4	0	0	55-95	50-90	30-80	15-55	---	NP
	15-25	Weathered bedrock			---	---	---	---	---	---	---	---
758: Longcreek-----	0-2	Very cobbly loam	GC-GM, SM, GM, SC-SM	A-4	30-45	25-30	65-75	55-65	45-55	35-45	25-35	5-10
	2-9	Very cobbly clay loam	CL	A-6	0	30-40	70-80	60-75	55-70	50-60	30-40	15-20
	9-14	Very cobbly clay, very cobbly silty clay	CH, CL	A-7	0	30-50	70-80	60-75	55-70	50-65	45-60	25-35
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Softscrabble----	0-12	Very stony loam	GC-GM	A-2, A-4	10-15	20-35	40-60	35-55	25-50	20-40	20-30	5-10
	12-36	Very cobbly clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6	0-5	25-70	50-80	40-70	35-60	30-55	35-40	15-20
	36-61	Clay loam, gravelly clay loam	CL	A-7	0-5	0-10	75-100	60-90	60-80	50-70	40-50	15-25
	61-71	Weathered bedrock			---	---	---	---	---	---	---	---
Anawalt-----	0-6	Very gravelly loam	GC	A-2, A-6	0	0-10	35-60	30-50	25-45	20-40	25-35	10-15
	6-15	Gravelly clay, clay, gravelly silty clay loam	CL, CH, GC, SC	A-7	0	0-10	60-95	55-90	50-85	40-75	40-70	20-45
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
775: Rednik-----	0-6	Very gravelly sandy loam	GM	A-1	0	0-5	45-55	35-50	25-40	15-25	---	NP
	6-18	Very gravelly sandy loam, extremely gravelly loam, very gravelly sandy clay loam	GC	A-2	0-10	5-30	35-60	30-50	20-35	15-30	25-35	10-15
	18-60	Very gravelly sandy loam, very gravelly fine sandy loam, extremely gravelly sandy loam	GM	A-1	0-10	5-30	35-60	30-50	15-40	10-25	---	NP

TABLE 9.--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	
821: Siscab-----	0-3	Very bouldery loamy coarse sand	SM	A-1, A-2	5-25	0-10	80-95	60-80	30-50	10-30	---	NP
	3-8	Gravelly clay loam, gravelly sandy clay loam	SC	A-6, A-7	0	0-5	80-95	50-75	45-60	35-45	35-45	15-25
	8-12	Weathered bedrock			---	---	---	---	---	---	---	---
Poisoncreek----	0-5	Very gravelly coarse sandy loam	SM	A-1	0	0-5	75-85	40-50	10-40	10-30	15-20	NP-5
	5-13	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC	A-2, A-6	0	15-45	50-65	45-60	35-55	25-40	30-40	10-20
	13-15	Weathered bedrock			---	---	---	---	---	---	---	---
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Alta-----	0-17	Extremely bouldery coarse sandy loam	SM	A-1	30-50	0-5	85-90	55-75	20-45	10-20	0-14	NP
	17-50	Very stony loamy coarse sand	SP-SM	A-1	30-50	0-5	85-90	60-70	20-40	5-20	0-14	NP
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
823: Softscrabble----	0-12	Gravelly loam	SC-SM	A-4	0	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	12-36	Very cobbly clay loam	GC	A-6, A-7	0-5	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	36-61	Gravelly clay loam	CL, GC	A-6, A-7	0	5-10	65-80	55-70	50-65	40-55	35-45	15-20
Cleavage-----	0-7	Very cobbly loam	GC, GC-GM	A-4, A-2, A-6	0-5	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	7-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam	GC	A-2	5-15	10-40	40-55	30-45	25-45	20-35	30-45	10-20
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Harcany-----	0-3	Gravelly loam	GM, ML	A-4	0	0-5	55-80	50-75	45-65	35-60	20-25	NP-5
	3-14	Very gravelly silt loam	GM	A-2, A-4	0	15-25	45-55	40-50	35-45	30-40	15-20	NP-5
	14-60	Extremely gravelly sandy loam	GP-GM, GW-GM	A-1	0-5	10-25	20-30	15-25	10-20	5-10	20-25	NP-5

TABLE 9.--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	
843: Deppy-----	0-3	Very cobbly loam	ML, GM, SM	A-4	0-5	30-50	50-75	45-70	40-65	35-60	15-25	NP-5
	3-9	Clay loam	CL, ML	A-6	0	0	95-100	85-100	70-90	55-85	35-40	10-15
	9-21	Cemented			---	---	---	---	---	---	---	---
	21-60	Very gravelly sandy loam, gravelly sandy loam	GP-GM, SM, GM, SP-SM	A-1, A-2	0	0-5	40-70	30-60	20-50	10-35	0-14	NP
Puett-----	0-3	Very gravelly loam	GM	A-1, A-2	0	0-10	50-60	40-50	35-45	20-35	15-20	NP-5
	3-15	Coarse sandy loam, gravelly loam, sandy loam	GM, SM, ML	A-1, A-2, A-4	0	0	55-95	50-90	30-80	15-55	---	NP
	15-25	Weathered bedrock			---	---	---	---	---	---	---	---
Orovada-----	0-6	Loamy fine sand	SM	A-2, A-4	0	0	90-100	85-100	80-90	20-40	0-14	NP
	6-17	Fine sandy loam, loam, very fine sandy loam	ML, SM	A-4	0	0	75-100	75-95	60-85	40-70	20-30	NP-5
	17-60	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	75-100	75-95	60-85	35-55	20-30	NP-5
847: Toulon-----	0-6	Very gravelly loam	GM, SM	A-1, A-2	0	0-10	55-70	40-50	30-45	20-35	---	NP
	6-14	Very gravelly sandy loam, very gravelly loam, very gravelly coarse sandy loam	GM	A-1, A-2	0	0-5	40-60	25-40	15-35	10-30	---	NP
	14-60	Stratified gravelly coarse sand to extremely cobble coarse sand	GP, GP-GM	A-1	0-5	25-50	40-50	25-40	5-20	0-10	---	NP
Badland-----	0-2	Variable	CH, MH, CL, GC	A-6, A-7	0-5	0-10	65-100	50-100	40-100	35-100	20-75	10-35
	2-60	Weathered bedrock			---	---	---	---	---	---	---	---
Typic Torriorthents--	0-5	Extremely gravelly sandy loam	GP, GM, SM, SP	A-1, A-2, A-3	0-10	0-15	40-100	25-100	5-80	0-25	---	NP
	5-60	Stratified extremely gravelly coarse sand to loamy fine sand	GP, GM, SM, SP	A-1, A-3, A-2	0-10	0-15	15-100	10-100	0-70	0-25	---	NP
850: Playas-----	0-6	Silty clay	MH	A-7	0	0	100	100	100	90-100	50-80	20-40
	6-60	Silty clay loam, clay, silty clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40

TABLE 9.--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	
907: Bucklake-----	0-6	Very cobbly loam	CL, SC-SM, CL-ML, SC	A-4, A-6	0	35-60	70-85	65-80	55-70	40-55	25-35	5-15
	6-10	Gravelly clay loam	CL, GC	A-6	0	0-10	55-75	50-70	45-65	40-55	30-40	10-20
	10-21	Gravelly clay, gravelly clay loam	CH, CL, GC	A-7	0	0-10	55-75	50-70	45-65	40-60	40-60	20-35
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
909: Bucklake-----	0-6	Very cobbly loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	35-60	70-85	65-80	55-70	40-55	25-35	5-15
	6-10	Gravelly clay loam	CL, GC	A-6	0	0-10	55-75	50-70	45-65	40-55	30-40	10-20
	10-21	Gravelly clay, gravelly clay loam	CH, CL, GC	A-7	0	0-10	55-75	50-70	45-65	40-60	40-60	20-35
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
Softscrabble----	0-12	Very stony loam	GC-GM	A-2, A-4	10-15	20-35	40-60	35-55	25-50	20-40	20-30	5-10
	12-36	Very cobbly clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6	0-5	25-70	50-80	40-70	35-60	30-55	35-40	15-20
	36-61	Clay loam, gravelly clay loam, loam	CL	A-7	0-5	0-10	75-100	60-90	60-80	50-70	40-50	15-25
	61-71	Weathered bedrock			---	---	---	---	---	---	---	---
Rubble Land----	0-60	Fragmental material	GP	A-1	30-65	30-65	0-10	0-5	0-5	0	0-14	NP
935: Wesfil-----	0-8	Very channery loam	GC-GM	A-2	0	10-25	50-65	35-50	25-45	20-35	20-25	5-10
	8-13	Weathered bedrock			---	---	---	---	---	---	---	---
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Sojur-----	0-6	Extremely channery silt loam	GC-GM	A-2	0	15-30	40-50	20-30	15-25	10-20	25-30	5-10
	6-16	Unweathered bedrock			---	---	---	---	---	---	---	---
938: Weso-----	0-3	Very fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	95-100	90-100	75-90	45-65	20-30	NP-10
	3-29	Sandy loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0	80-100	75-95	65-80	40-60	15-25	NP-5
	29-60	Stratified very gravelly loamy sand to fine sandy loam	GM, SM	A-1, A-2	0	0-5	45-90	40-85	35-55	20-30	15-25	NP-5

TABLE 9.--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						
					Pct	Pct					Pct	
940: Westbutte-----	In											
	0-6	Extremely stony loam	GC-GM, GM	A-2, A-4	25-35	25-40	45-55	40-50	35-45	25-40	25-35	5-10
	6-15	Very cobbly loam	GC-GM, GM, SM, SC-SM	A-2, A-4	0-5	30-65	50-75	45-70	40-60	30-50	25-35	5-10
	15-28	Extremely cobbly clay loam, extremely cobbly loam, very cobbly clay loam	GC-GM, SC, GC, SC-SM	A-2, A-4, A-6	0-5	30-65	50-75	45-70	40-60	30-50	25-40	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock Outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
965: Wylo-----	0-4	Very stony loam	GM, GC-GM, SC-SM, SM	A-2, A-4	5-25	0-15	60-85	50-80	40-60	30-50	25-35	5-10
	4-15	Gravelly clay, gravelly clay loam, cobbly clay	GC, SC	A-7	0-5	10-30	60-90	55-85	50-70	35-50	40-50	15-25
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Bucklake-----	0-6	Extremely stony loam	CL, SC-SM, CL-ML, SC	A-4, A-6	25-50	10-35	70-85	65-80	55-70	40-55	25-35	5-15
	6-10	Gravelly clay loam	CL, GC	A-6	0	0-10	55-75	50-70	45-65	40-55	30-40	10-20
	10-21	Gravelly clay, gravelly clay loam	CH, GC, CL	A-7	0	0-10	55-75	50-70	45-65	40-60	40-60	20-35
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock Outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
1000: Broyles-----	0-10	Fine sandy loam	SM	A-4	0	0	100	95-100	65-75	40-50	---	NP
	10-60	Stratified gravelly loamy sand to loam	SM	A-2	0	0	70-100	60-95	30-40	25-35	---	NP
1010: Bubus-----	0-2	Very fine sandy loam	ML	A-4	0	0	85-100	75-100	70-80	50-60	25-30	NP-5
	2-60	Stratified sandy loam to silt loam	ML	A-4	0	0	95-100	90-100	80-90	50-60	25-30	NP-5
1030: Rio King-----	0-6	Loam	ML, SM	A-4	0	0	90-100	90-100	60-80	45-65	15-25	NP-5
	6-60	Stratified coarse sandy loam to silt loam	ML, SM	A-4	0	0	90-100	90-100	50-75	35-65	15-25	NP-5

TABLE 10--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					
117: Acrelane-----	0-7 7-16 16-26	6-12 18-30 ---	1.25-1.45 1.30-1.50 ---	2-6 0.6-2 0.06-20	0.06-0.09 0.07-0.10 ---	0.0-2.9 0.0-2.9 ---	1.0-2.0 0.5-2.0 ---	.17 .20 ---	.20 .37 ---	2	5	56
Poisoncreek-----	0-5 5-13 13-15 15-25	5-10 24-34 --- ---	1.35-1.55 1.30-1.50 --- ---	2-6 0.6-2 0.001-0.2 0.001-0.2	0.06-0.08 0.08-0.13 --- ---	0.0-2.9 3.0-5.9 --- ---	2.0-4.0 1.0-2.0 --- ---	.05 .10 --- ---	.15 .37 --- ---	1	5	56
120: Arclay-----	0-4 4-18 18-46 46-56	5-12 25-35 --- ---	1.25-1.45 1.30-1.50 --- ---	2-6 0.2-0.6 0.06-20 0.000-0.001	0.06-0.09 0.11-0.13 --- ---	0.0-2.9 3.0-5.9 --- ---	1.0-2.0 1.0-2.0 --- ---	.17 .24 --- ---	.20 .43 --- ---	2	5	56
Acrelane-----	0-7 7-16 16-26	6-12 18-30 ---	1.25-1.45 1.30-1.50 ---	2-6 0.6-2 0.06-20	0.06-0.09 0.07-0.10 ---	0.0-2.9 0.0-2.9 ---	1.0-2.0 0.5-2.0 ---	.17 .20 ---	.20 .37 ---	2	5	56
130: Tenabo-----	0-9 9-16 16-32 32-60	5-15 28-35 --- 5-10	1.35-1.55 1.30-1.50 --- 1.45-1.65	0.6-2 0.2-0.6 0.000-0.001 2-20	0.16-0.18 0.19-0.21 --- 0.03-0.07	0.0-2.9 3.0-5.9 --- 0.0-2.9	0.0-0.5 0.0-0.5 --- 0.0-0.5	.55 .37 --- .17	.55 .49 --- .32	1	3	86
Gwena-----	0-6 6-15 15-31 31-49 49-60	5-15 20-35 --- 5-10 0-5	1.20-1.35 1.35-1.50 --- 1.55-1.75 1.50-1.70	0.6-2 0.06-0.2 0.000-0.001 2-6 20-101	0.13-0.15 0.14-0.16 --- 0.03-0.05 0.03-0.05	0.0-2.9 3.0-5.9 --- 0.0-2.9 0.0-2.9	1.0-2.0 0.0-0.5 --- 0.0-0.5 0.0-0.5	.49 .28 --- .05 .17	.55 .37 --- .32 .17	1	3	86
Fulstone-----	0-3 3-18 18-29	18-25 45-60 ---	1.35-1.50 1.20-1.35 ---	0.6-2 0.06-0.2 0.000-0.001	0.13-0.15 0.12-0.16 ---	3.0-5.9 6.0-8.9 ---	1.0-2.0 0.5-1.0 ---	.20 .17 ---	.32 .37 ---	1	6	48
140: Tenabo-----	0-9 9-16 16-32 32-60	5-10 28-35 --- 5-10	1.35-1.55 1.30-1.50 --- 1.45-1.65	0.6-2 0.2-0.6 0.000-0.001 2-20	0.14-0.16 0.19-0.21 --- 0.03-0.07	0.0-2.9 3.0-5.9 --- 0.0-2.9	0.0-0.5 0.0-0.5 --- 0.0-0.5	.49 .37 --- .17	.64 .49 --- .20	1	4	86
Oxcorel-----	0-5 5-18 18-60	10-15 35-50 8-15	1.40-1.55 1.30-1.50 1.50-1.70	0.6-2 0.001-0.06 2-6	0.14-0.16 0.15-0.18 0.05-0.08	0.0-2.9 6.0-8.9 0.0-2.9	0.0-0.7 0.0-0.5 0.0-0.5	.32 .28 .10	.55 .32 .37	2	7	38
145: Boulder Lake-----	0-9 9-60	40-60 40-60	1.20-1.30 1.20-1.40	0.001-0.06 0.001-0.06	0.14-0.15 0.14-0.15	6.0-8.9 6.0-8.9	1.0-2.0 0.5-1.0	.20 .20	.20 .20	5	4	86
149: Boton-----	0-10 10-28 28-60	12-18 18-27 18-27	1.25-1.45 1.40-1.60 1.40-1.60	0.6-2 0.2-0.6 0.2-0.6	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9 3.0-5.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .49 .49	.55 .49 .49	5	4L	86
Slawha-----	0-13 13-60	8-18 18-35	1.15-1.35 1.25-1.45	0.6-2 0.06-0.2	0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9	0.0-1.0 0.0-0.5	.55 .55	.55 .55	5	4L	86
150: Boton-----	0-10 10-28 28-60	12-18 18-27 18-27	1.25-1.45 1.40-1.60 1.40-1.60	0.6-2 0.2-0.6 0.2-0.6	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9 3.0-5.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .49 .49	.55 .49 .49	5	4L	86
Boton-----	0-10 10-28 28-60	12-18 18-27 18-27	1.25-1.45 1.40-1.60 1.45-1.70	0.6-2 0.2-0.6 0.2-0.6	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9 3.0-5.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .49 .49	.55 .49 .49	5	4L	86
151: Boton-----	0-10 10-28 28-60	2-8 18-27 18-27	1.50-1.65 1.40-1.60 1.40-1.60	6-20 0.2-0.6 0.2-0.6	0.09-0.10 0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9 3.0-5.9	0.0-0.5 0.0-0.5 0.0-0.5	.37 .49 .49	.37 .49 .49	5	2	134
Boton-----	0-10 10-28 28-60	12-18 18-27 18-27	1.25-1.45 1.40-1.60 1.40-1.60	0.6-2 0.2-0.6 0.2-0.6	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9 3.0-5.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .49 .49	.55 .49 .49	5	4L	86

TABLE 10--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					
155: Bearbutte-----	0-9	7-15	1.10-1.20	0.6-2	0.14-0.16	0.0-2.9	3.0-5.0	.15	.24	4	6	48
	9-24	10-18	1.10-1.20	0.6-2	0.07-0.11	0.0-2.9	3.0-5.0	.10	.37			
	24-30	3-15	1.20-1.40	0.6-2	0.04-0.06	0.0-2.9	2.0-4.0	.02	.32			
	30-53	3-15	1.20-1.40	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.32			
	53-57	---	---	0.001-0.06	---	---	---	---	---			
Badgercamp-----	0-6	8-12	1.30-1.50	0.6-2	0.14-0.16	0.0-2.9	2.0-4.0	.24	.43	2	6	48
	6-15	12-18	1.45-1.65	0.6-2	0.05-0.10	0.0-2.9	1.0-2.0	.05	.43			
	15-25	---	---	0.001-0.06	---	---	---	---	---			
156: Bearbutte-----	0-9	7-15	1.10-1.20	0.6-2	0.14-0.16	0.0-2.9	3.0-5.0	.15	.24	4	6	48
	9-24	10-18	1.10-1.20	0.6-2	0.07-0.11	0.0-2.9	3.0-5.0	.10	.37			
	24-30	3-15	1.20-1.40	0.6-2	0.04-0.06	0.0-2.9	2.0-4.0	.02	.32			
	30-53	3-15	1.20-1.40	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.32			
	53-57	---	---	0.001-0.06	---	---	---	---	---			
Ninemile-----	0-3	15-25	1.35-1.50	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.55	1	7	38
	3-14	40-60	1.25-1.45	0.001-0.06	0.14-0.16	6.0-8.9	1.0-3.0	.28	.37			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
158: Blackhawk-----	0-3	5-10	1.40-1.60	2-6	0.07-0.13	0.0-2.9	0.5-1.0	.10	.28	2	5	56
	3-18	5-10	1.45-1.65	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.37	.64			
	18-34	---	---	0.001-0.06	---	---	---	---	---			
	34-60	0-5	1.50-1.70	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.20			
Trocken-----	0-4	5-18	1.40-1.55	2-6	0.07-0.09	0.0-2.9	0.0-0.5	.20	.64	5	5	56
	4-60	8-18	1.50-1.70	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.17	.32			
160: Bluewing-----	0-6	6-10	1.40-1.60	2-6	0.07-0.09	0.0-2.9	0.0-0.5	.24	.32	5	4	86
	6-60	3-8	1.45-1.65	20-101	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
161: Bluewing-----	0-6	6-12	1.40-1.60	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.32	5	4	86
	6-60	0-8	1.45-1.65	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
Trocken-----	0-4	5-15	1.40-1.55	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.20	.37	5	4	86
	4-60	8-18	1.50-1.70	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.05	.32			
163: Dune Land-----	0-6	40-80	1.20-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.64	.64	-	4	86
	6-60	40-80	1.20-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.64	.64			
164: Soughe-----	0-4	10-20	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.15	.55	1	7	38
	4-14	25-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.15	.37			
	14-18	---	---	0.000-0.001	---	---	---	---	---			
Bucklake-----	0-6	20-25	1.45-1.55	0.6-2	0.08-0.10	3.0-5.9	1.0-2.0	.15	.37	2	7	38
	6-10	27-35	1.40-1.55	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.20	.28			
	10-21	35-50	1.35-1.50	0.06-0.2	0.10-0.12	6.0-8.9	0.5-1.0	.20	.28			
	21-31	---	---	0.000-0.06	---	---	---	---	---			
168: Boton-----	0-10	12-18	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55	5	4L	86
	10-28	18-27	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.49	.49			
	28-60	18-27	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.49	.49			
Playas-----	0-6	40-70	1.50-1.70	0.001-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	-	4	86
	6-60	35-70	1.60-1.80	0.001-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37			
173: Deppy-----	0-3	7-15	1.40-1.60	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.10	.28	2	7	38
	3-9	27-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	9-21	---	---	0.001-0.2	0.00-0.00	---	---	---	---			
	21-60	3-10	1.50-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.20			
175: Wendane-----	0-10	15-25	1.35-1.50	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.55	.55	5	4L	86
	10-60	27-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			

TABLE 10--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					
176:												
Bullump -----	0-15	15-25	1.10-1.20	0.6-2	0.08-0.12	0.0-2.9	2.0-6.0	.15	.43	3	7	38
	15-57	25-35	1.35-1.45	0.2-0.6	0.09-0.14	0.0-2.9	0.5-3.0	.10	.32			
	57-67	---	---	0.000-0.001	---	---	---	---	---			
Westbutte -----	0-6	18-25	1.25-1.45	0.6-2	0.13-0.17	0.0-2.9	2.0-4.0	.20	.37	2	7	38
	6-15	18-25	1.30-1.50	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.15	.37			
	15-28	18-30	1.40-1.60	0.6-2	0.07-0.13	3.0-5.9	1.0-3.0	.10	.37			
	28-38	---	---	0.000-0.06	---	---	---	---	---			
Harcany -----	0-3	10-15	1.20-1.40	0.6-2	0.10-0.15	0.0-2.9	3.0-5.0	.28	.49	5	6	48
	3-14	5-10	1.30-1.50	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.15	.49			
	14-60	10-15	1.45-1.65	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.32			
177:												
Bullump -----	0-15	15-25	1.10-1.20	0.6-2	0.11-0.14	0.0-2.9	2.0-6.0	.20	.37	3	6	48
	15-57	25-35	1.35-1.45	0.2-0.6	0.09-0.14	0.0-2.9	0.5-3.0	.10	.32			
	57-67	---	---	0.000-0.001	---	---	---	---	---			
Sumine -----	0-5	10-20	1.20-1.40	0.6-2	0.11-0.13	0.0-2.9	2.0-4.0	.24	.43	2	6	48
	5-30	25-35	1.40-1.60	0.6-2	0.10-0.13	0.0-2.9	0.5-3.0	.15	.55			
	30-40	---	---	0.000-0.001	---	---	---	---	---			
Cleavage -----	0-7	15-20	1.35-1.55	0.6-2	0.04-0.05	0.0-2.9	1.0-3.0	.05	.43	1	8	0
	7-15	20-35	1.35-1.55	0.2-0.6	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
180:												
Devada -----	0-5	15-27	1.10-1.30	0.6-2	0.08-0.10	3.0-5.9	1.0-3.0	.17	.37	1	7	38
	5-19	40-60	1.20-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.8-2.0	.17	.32			
	19-29	---	---	0.000-0.001	---	---	---	---	---			
Bucklake -----	0-6	20-25	1.45-1.55	0.6-2	0.08-0.10	3.0-5.9	1.0-2.0	.15	.37	2	7	38
	6-10	27-35	1.40-1.55	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.20	.28			
	10-21	35-50	1.35-1.50	0.06-0.2	0.10-0.12	6.0-8.9	0.5-1.0	.20	.28			
	21-31	---	---	0.000-0.06	---	---	---	---	---			
181:												
Westbutte -----	0-6	18-25	1.25-1.45	0.6-2	0.13-0.17	0.0-2.9	2.0-4.0	.20	.37	2	7	38
	6-15	18-25	1.30-1.50	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.15	.37			
	15-28	18-30	1.40-1.60	0.6-2	0.07-0.13	3.0-5.9	1.0-3.0	.10	.37			
	28-38	---	---	0.000-0.06	---	---	---	---	---			
182:												
Devada -----	0-5	15-27	1.10-1.30	0.6-2	0.08-0.10	3.0-5.9	1.0-3.0	.17	.37	1	7	38
	5-19	40-60	1.20-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.8-2.0	.17	.32			
	19-29	---	---	0.000-0.001	---	---	---	---	---			
Ninemile -----	0-3	10-20	1.15-1.35	0.6-2	0.07-0.12	0.0-2.9	1.0-3.0	.15	.43	1	7	38
	3-14	40-60	1.20-1.40	0.001-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.20	.37			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
Tuffo -----	0-5	5-15	1.40-1.55	2-6	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32	1	3	86
	5-8	5-15	1.35-1.55	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.24	.37			
	8-18	---	---	0.001-0.06	---	---	---	---	---			
185:												
Puett -----	0-3	8-15	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.15	.43	1	6	48
	3-15	5-10	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.0-0.5	.15	.24			
	15-25	---	---	0.001-0.06	---	---	---	---	---			
Soughe -----	0-4	10-20	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.15	.55	1	7	38
	4-14	25-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.15	.37			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
188:												
Cleavage -----	0-7	15-20	1.35-1.55	0.6-2	0.04-0.05	0.0-2.9	1.0-3.0	.05	.43	1	8	0
	7-15	20-35	1.35-1.55	0.2-0.6	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
Softscrabble -----	0-12	10-20	1.20-1.40	0.6-2	0.08-0.10	0.0-2.9	1.0-5.0	.15	.43	5	7	38
	12-36	27-35	1.25-1.45	0.2-0.6	0.08-0.10	3.0-5.9	1.0-2.0	.20	.43			
	36-61	25-40	1.35-1.55	0.06-0.2	0.16-0.19	3.0-5.9	0.5-1.0	.32	.43			
	61-71	---	---	0.001-0.06	---	---	---	---	---			
Hackwood -----	0-18	10-27	1.10-1.25	0.6-2	0.16-0.21	3.0-5.9	2.0-4.0	.37	.43	5	5	56
	18-30	15-27	1.25-1.35	0.6-2	0.10-0.17	3.0-5.9	1.0-2.0	.28	.49			
	30-60	25-35	1.35-1.45	0.6-2	0.08-0.14	3.0-5.9	0.5-1.0	.15	.43			

TABLE 10--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth In	Clay Pct	Moist bulk density g/cc	Permea- bility (Ksat) In/hr	Available water capacity In/in	Linear extensi- bility Pct	Organic matter Pct	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
189: Cleavage-----	0-7 7-15 15-25	15-20 20-35 ---	1.35-1.55 1.35-1.55 ---	0.6-2 0.2-0.6 0.000-0.001	0.04-0.05 0.08-0.12 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 1.0-2.0 ---	.05 .10 ---	.43 .49 ---	1 ---	8 ---	0 ---
Softscrabble-----	0-12 12-36 36-61 61-71	10-20 27-35 25-40 ---	1.20-1.40 1.25-1.45 1.35-1.55 ---	0.6-2 0.2-0.6 0.06-0.2 0.001-0.06	0.08-0.10 0.08-0.10 0.16-0.19 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	1.0-5.0 1.0-2.0 0.5-1.0 ---	.15 .20 .32 ---	.43 .43 .43 ---	5 ---	7 ---	38 ---
Sumine-----	0-5 5-30 30-40	10-20 25-35 ---	1.20-1.40 1.40-1.60 ---	0.6-2 0.6-2 0.000-0.001	0.11-0.13 0.10-0.13 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 0.5-3.0 ---	.24 .15 ---	.43 .55 ---	2 ---	6 ---	48 ---
190: Cleavage-----	0-7 7-15 15-25	15-20 20-35 ---	1.35-1.55 1.35-1.55 ---	0.6-2 0.2-0.6 0.000-0.001	0.04-0.05 0.08-0.12 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 1.0-2.0 ---	.05 .10 ---	.43 .49 ---	1 ---	8 ---	0 ---
Westbutte-----	0-6 6-15 15-28 28-38	18-25 18-25 18-30 ---	1.25-1.45 1.30-1.50 1.40-1.60 ---	0.6-2 0.6-2 0.6-2 0.000-0.06	0.09-0.13 0.09-0.13 0.07-0.13 ---	0.0-2.9 0.0-2.9 3.0-5.9 ---	2.0-4.0 2.0-3.0 1.0-3.0 ---	.15 .15 .10 ---	.37 .37 .37 ---	2 ---	7 ---	38 ---
Softscrabble-----	0-12 12-36 36-61 61-71	10-20 27-35 25-40 ---	1.20-1.40 1.25-1.45 1.35-1.55 ---	0.6-2 0.2-0.6 0.06-0.2 0.001-0.06	0.08-0.10 0.08-0.10 0.16-0.19 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	1.0-5.0 1.0-2.0 0.5-1.0 ---	.15 .20 .32 ---	.43 .43 .43 ---	5 ---	7 ---	38 ---
202: Cresal-----	0-5 5-23 23-60	6-12 8-15 8-18	1.35-1.55 1.30-1.50 1.45-1.60	0.6-2 0.2-0.6 0.2-0.6	0.19-0.21 0.17-0.20 0.16-0.20	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .55 .55	.55 .55 .55	5 ---	4L ---	86 ---
218: Davey-----	0-4 4-16 16-60	5-10 10-15 2-8	1.45-1.65 1.40-1.60 1.50-1.65	6-20 2-6 6-20	0.09-0.12 0.13-0.17 0.05-0.10	0.0-2.9 0.0-2.9 0.0-2.9	0.5-2.0 0.5-2.0 0.0-0.5	.24 .28 .17	.24 .28 .20	5 ---	2 ---	134 ---
231: Devada-----	0-5 5-19 19-29	15-27 40-60 ---	1.10-1.30 1.20-1.40 ---	0.6-2 0.06-0.2 0.000-0.001	0.08-0.10 0.14-0.16 ---	3.0-5.9 6.0-8.9 ---	1.0-3.0 0.8-2.0 ---	.17 .17 ---	.37 .32 ---	1 ---	7 ---	38 ---
Ninemile-----	0-3 3-14 14-24	15-25 40-60 ---	1.35-1.50 1.25-1.45 ---	0.6-2 0.001-0.06 0.000-0.001	0.08-0.11 0.14-0.16 ---	0.0-2.9 6.0-8.9 ---	2.0-4.0 1.0-3.0 ---	.15 .28 ---	.55 .37 ---	1 ---	7 ---	38 ---
Softscrabble-----	0-20 20-32 32-61 61-65	10-20 27-35 25-40 ---	1.20-1.40 1.25-1.45 1.35-1.55 ---	0.6-2 0.2-0.6 0.06-0.2 0.001-0.06	0.08-0.10 0.08-0.10 0.16-0.19 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	1.0-3.0 1.0-2.0 0.5-1.0 ---	.15 .20 .32 ---	.43 .43 .43 ---	5 ---	6 ---	48 ---
232: Devada-----	0-5 5-19 19-29	15-27 40-60 ---	1.10-1.30 1.20-1.40 ---	0.6-2 0.06-0.2 0.000-0.001	0.04-0.07 0.14-0.16 ---	0.0-2.9 6.0-8.9 ---	1.0-3.0 0.8-2.0 ---	.05 .17 ---	.37 .32 ---	1 ---	8 ---	0 ---
240: Deppy-----	0-3 3-9 9-21 21-60	7-15 27-35 --- 3-10	1.40-1.60 1.40-1.60 --- 1.50-1.70	0.6-2 0.2-0.6 0.001-0.2 2-6	0.10-0.12 0.19-0.21 0.00-0.00 0.00-0.00	0.0-2.9 3.0-5.9 --- 0.0-2.9	0.5-1.0 0.0-0.5 --- 0.0-0.5	.10 .32 --- .15	.28 .32 --- .20	2 ---	7 ---	38 ---
Tuntum-----	0-2 2-10 10-18 18-60	20-25 35-45 --- 5-15	1.40-1.60 1.40-1.60 --- 1.50-1.70	0.6-2 0.06-0.2 0.000-0.06 2-6	0.11-0.14 0.14-0.20 0.00-0.00 0.00-0.00	0.0-2.9 6.0-8.9 --- 0.0-2.9	0.5-1.0 0.0-0.5 --- 0.0-0.5	.10 .28 --- .15	.28 .28 --- .20	1 ---	7 ---	38 ---
252: Dun Glen-----	0-5 5-11 11-60	10-15 11-16 9-14	1.40-1.55 1.35-1.55 1.35-1.55	0.6-2 0.6-2 0.6-2	0.13-0.15 0.15-0.21 0.11-0.17	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.32 .43 .32	.32 .43 .32	5 ---	3 ---	86 ---
276: Orovada-----	0-6 6-17 17-60	5-10 5-18 5-18	1.35-1.50 1.40-1.55 1.40-1.60	2-6 0.6-2 0.6-2	0.13-0.15 0.15-0.17 0.14-0.16	0.0-2.9 0.0-2.9 0.0-2.9	0.9-2.0 0.5-1.0 0.0-0.5	.43 .43 .43	.43 .49 .49	5 ---	3 ---	86 ---

TABLE 10--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth In	Clay Pct	Moist bulk density g/cc	Permea- bility (Ksat) In/hr	Available water capacity In/in	Linear extensi- bility Pct	Organic matter Pct	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
296:												
Longcreek-----	0-2	20-27	1.45-1.55	0.6-2	0.07-0.09	0.0-2.9	1.0-4.0	.17	.37	1	7	38
	2-9	35-40	1.30-1.50	0.06-0.2	0.08-0.10	0.0-2.9	1.0-2.0	.17	.32			
	9-14	40-50	1.25-1.45	0.06-0.2	0.07-0.08	3.0-5.9	0.5-1.0	.15	.28			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
Cleavage-----	0-7	15-20	1.35-1.55	0.6-2	0.04-0.05	0.0-2.9	1.0-3.0	.05	.43	1	8	0
	7-15	20-35	1.35-1.55	0.2-0.6	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
335:												
Ola-----	0-3	5-10	1.40-1.60	2-6	0.07-0.09	0.0-2.9	2.0-4.0	.05	.20	2	5	56
	3-19	5-10	1.50-1.70	2-6	0.07-0.09	0.0-2.9	2.0-4.0	.15	.20			
	19-38	5-10	1.55-1.70	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.10	.17			
	38-39	---	---	0.001-0.06	---	---	---	---	---			
	39-49	---	---	0.001-0.06	---	---	---	---	---			
Poisoncreek-----	0-5	5-10	1.35-1.55	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.15	1	5	56
	5-13	24-34	1.30-1.50	0.6-2	0.08-0.13	3.0-5.9	1.0-2.0	.10	.37			
	13-15	---	---	0.001-0.2	---	---	---	---	---			
	15-25	---	---	0.001-0.2	---	---	---	---	---			
338:												
Ola-----	0-3	5-10	1.40-1.60	2-6	0.07-0.09	0.0-2.9	2.0-4.0	.05	.20	2	5	56
	3-19	5-10	1.50-1.70	2-6	0.07-0.09	0.0-2.9	2.0-4.0	.15	.20			
	19-38	5-10	1.55-1.70	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.10	.17			
	38-39	---	---	0.001-0.06	---	---	---	---	---			
	39-49	---	---	0.001-0.06	---	---	---	---	---			
Poisoncreek-----	0-5	5-10	1.35-1.55	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.15	1	5	56
	5-13	24-34	1.30-1.50	0.6-2	0.08-0.13	3.0-5.9	1.0-2.0	.10	.37			
	13-15	---	---	0.001-0.2	---	---	---	---	---			
	15-25	---	---	0.001-0.2	---	---	---	---	---			
Tosp-----	0-4	10-18	1.25-1.35	2-6	0.16-0.20	0.0-2.9	3.0-5.0	.20	.43	3	6	48
	4-37	10-18	1.35-1.50	2-6	0.12-0.14	0.0-2.9	2.0-4.0	.28	.37			
	37-50	10-18	1.35-1.50	2-6	0.08-0.14	0.0-2.9	1.0-2.0	.20	.24			
	50-54	---	---	0.000-0.001	---	---	---	---	---			
340:												
Ola-----	0-3	5-10	1.40-1.60	2-6	0.07-0.09	0.0-2.9	2.0-4.0	.05	.20	2	5	56
	3-19	5-10	1.50-1.70	2-6	0.07-0.09	0.0-2.9	2.0-4.0	.15	.20			
	19-38	5-10	1.55-1.70	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.10	.17			
	38-39	---	---	0.001-0.06	---	---	---	---	---			
	39-49	---	---	0.001-0.06	---	---	---	---	---			
Aycab-----	0-2	3-5	1.40-1.60	6-20	0.05-0.07	0.0-2.9	2.0-4.0	.05	.10	3	8	0
	2-38	10-18	1.45-1.65	2-6	0.07-0.09	0.0-2.9	1.0-2.0	.10	.17			
	38-42	---	---	0.001-0.06	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	---	---	---
345:												
Genegraf-----	0-6	8-14	1.40-1.55	0.6-2	0.07-0.08	0.0-2.9	0.0-0.5	.17	.64	5	5	56
	6-14	25-35	1.30-1.50	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5	.24	.37			
	14-23	8-16	1.55-1.70	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	23-60	5-10	1.55-1.70	0.6-2	0.03-0.05	0.0-2.9	0.0-0.5	.10	.24			
Toulon-----	0-6	10-12	1.45-1.65	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.43	3	6	48
	6-14	12-15	1.40-1.60	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.10	.43			
	14-60	0-3	1.50-1.65	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
350:												
Fulstone-----	0-3	18-25	1.35-1.50	0.6-2	0.13-0.15	3.0-5.9	1.0-2.0	.20	.32	1	7	38
	3-18	45-60	1.20-1.35	0.06-0.2	0.12-0.16	6.0-8.9	0.5-1.0	.17	.37			
	18-29	---	---	0.000-0.001	---	---	---	---	---			
357:												
Granshaw-----	0-7	4-10	1.40-1.55	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.17	.28	3	4	86
	7-25	10-17	1.40-1.60	2-6	0.10-0.12	0.0-2.9	0.0-0.5	.24	.28			
	25-60	2-8	1.50-1.70	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.15	.17			
Shawave-----	0-5	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.8-2.0	.24	.43	3	4	86
	5-16	18-25	1.40-1.60	0.2-0.6	0.14-0.16	0.0-2.9	0.0-0.5	.28	.32			
	16-46	4-10	1.50-1.70	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.15	.17			
	46-60	2-6	1.50-1.70	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			

TABLE 10--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					
360: Grumbler-----	0-3	16-24	1.25-1.45	0.6-2	0.07-0.10	0.0-2.9	0.8-2.0	.15	.49	1	7	38
	3-9	35-50	1.25-1.45	0.06-0.2	0.08-0.12	3.0-5.9	0.0-0.8	.10	.32			
	9-18	35-50	1.25-1.45	0.06-0.2	0.07-0.11	3.0-5.9	0.0-0.5	.10	.32			
	18-28	---	---	0.000-0.001	---	---	---	---	---			
Pickup-----	0-5	18-25	1.15-1.35	0.2-0.6	0.06-0.10	0.0-2.9	1.0-2.0	.17	.55	2	8	0
	5-22	40-55	1.20-1.35	0.06-0.2	0.10-0.13	3.0-5.9	0.5-1.0	.10	.32			
	22-32	---	---	0.000-0.001	---	---	---	---	---			
374: Hoot-----	0-5	14-20	1.40-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37	1	7	38
	5-15	25-35	1.40-1.60	0.2-0.6	0.06-0.09	0.0-2.9	0.0-0.5	.10	.55			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
378: Hawsley-----	0-2	0-5	1.50-1.70	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15	5	1	250
	2-42	0-5	1.50-1.70	20-101	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
	42-60	0-5	1.50-1.70	20-101	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
381: Hart Camp-----	0-7	10-17	1.30-1.45	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.20	.43	2	7	38
	7-19	20-35	1.35-1.50	0.2-0.6	0.17-0.19	3.0-5.9	1.0-2.0	.24	.49			
	19-29	---	---	0.001-0.06	---	---	---	---	---			
Devada-----	0-5	15-27	1.10-1.30	0.6-2	0.08-0.10	3.0-5.9	1.0-3.0	.17	.37	1	7	38
	5-19	40-60	1.20-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.8-2.0	.17	.32			
	19-29	---	---	0.000-0.001	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
382: Hart Camp-----	0-7	10-17	1.30-1.45	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.20	.32	2	6	48
	7-19	20-35	1.35-1.50	0.2-0.6	0.17-0.19	3.0-5.9	1.0-2.0	.24	.49			
	19-23	---	---	0.001-0.06	---	---	---	---	---			
Badgercamp-----	0-6	8-12	1.30-1.50	0.6-2	0.14-0.16	0.0-2.9	2.0-4.0	.24	.43	2	6	48
	6-15	12-18	1.45-1.65	0.6-2	0.05-0.10	0.0-2.9	1.0-2.0	.05	.43			
	15-19	---	---	0.001-0.06	---	---	---	---	---			
388: Humboldt-----	0-13	27-40	1.00-1.15	0.2-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	5	4L	86
	13-60	35-45	1.10-1.20	0.2-0.6	0.17-0.19	3.0-5.9	0.0-3.0	.28	.28			
402: Tuntum-----	0-2	20-25	1.40-1.60	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.10	.28	1	7	38
	2-10	35-45	1.40-1.60	0.06-0.2	0.14-0.20	6.0-8.9	0.0-0.5	.28	.28			
	10-18	---	---	0.000-0.06	0.00-0.00	---	---	---	---			
	18-60	5-15	1.50-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.20			
410: Shawave-----	0-5	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.8-2.0	.24	.43	3	4	86
	5-16	18-25	1.40-1.60	0.2-0.6	0.14-0.16	0.0-2.9	0.0-0.5	.28	.32			
	16-46	4-10	1.50-1.70	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.15	.17			
	46-60	2-6	1.50-1.70	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
Deadyon-----	0-5	5-15	1.40-1.50	2-6	0.11-0.13	0.0-2.9	0.8-2.0	.32	.37	4	3	86
	5-15	12-18	1.40-1.60	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.24	.32			
	15-33	3-8	1.45-1.65	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.20	.24			
	33-60	3-7	1.45-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.10	.20			
Shawave-----	0-5	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.8-2.0	.24	.43	3	4	86
	5-16	18-25	1.40-1.60	0.2-0.6	0.14-0.16	0.0-2.9	0.0-0.5	.28	.32			
	16-46	4-10	1.50-1.70	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.15	.17			
	46-60	2-6	1.50-1.70	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
411: Shawave-----	0-5	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.8-2.0	.24	.43	3	4	86
	5-16	18-25	1.40-1.60	0.2-0.6	0.14-0.16	0.0-2.9	0.0-0.5	.28	.32			
	16-46	4-10	1.50-1.70	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.15	.17			
	46-60	2-6	1.50-1.70	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
Orovada-----	0-6	5-10	1.35-1.50	2-6	0.13-0.15	0.0-2.9	0.9-2.0	.43	.43	5	3	86
	6-17	5-18	1.40-1.55	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.43	.49			
	17-60	5-18	1.40-1.60	0.6-2	0.14-0.16	0.0-2.9	0.0-0.5	.43	.49			

TABLE 10--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					
413: Isolde-----	0-3 3-60	0-5 0-5	1.40-1.60 1.50-1.70	20-101 20-101	0.06-0.09 0.06-0.09	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.17 .17	.17 .17	5	1	250
Typic Torriorthents---	0-5 5-60	2-5 ---	1.55-1.75 ---	0.2-20 0.2-20	0.05-0.07 ---	0.0-2.9 0.0-2.9	0.0-0.5 ---	.02 ---	.20 ---	5	8	0
Dune Land-----	0-6 6-60	40-80 40-80	1.20-1.40 1.20-1.40	0.06-0.2 0.06-0.2	0.14-0.16 0.14-0.16	6.0-8.9 6.0-8.9	0.0-0.5 0.0-0.5	.64 .64	.64 .64	-	4	86
414: Isolde-----	0-3 3-60	0-5 0-5	1.40-1.60 1.50-1.70	20-101 20-101	0.06-0.09 0.06-0.09	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.17 .17	.17 .17	5	1	250
Mazuma-----	0-5 5-60	10-14 5-15	1.40-1.55 1.45-1.65	0.6-2 2-6	0.13-0.15 0.10-0.14	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.43 .24	.49 .55	5	3	86
Jerval-----	0-4 4-12 12-60	5-10 27-35 5-12	1.40-1.55 1.20-1.40 1.35-1.50	0.6-2 0.2-0.6 2-6	0.10-0.12 0.14-0.16 0.06-0.07	0.0-2.9 3.0-5.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.17 .24 .15	.49 .43 .32	5	4	86
420: Jesse Camp-----	0-4 4-12 12-60	10-20 12-25 18-27	1.35-1.45 1.45-1.50 1.35-1.45	0.6-2 0.6-2 0.2-0.6	0.15-0.17 0.17-0.18 0.17-0.18	0.0-2.9 0.0-2.9 3.0-5.9	1.0-3.0 1.0-2.0 0.0-1.0	.43 .43 .43	.43 .43 .43	5	3	86
430: Woofus-----	0-6 6-20 20-40 40-60	18-27 20-30 0-5 0-10	1.25-1.45 1.30-1.50 1.45-1.65 1.55-1.70	0.2-0.6 0.2-0.6 20-101 2-6	0.18-0.23 0.17-0.21 0.06-0.10 0.05-0.08	3.0-5.9 3.0-5.9 0.0-2.9 0.0-2.9	2.0-4.0 0.5-2.0 0.5-1.0 0.0-0.5	.32 .32 .10 .10	.32 .32 .15 .32	3	4L	86
431: Woofus-----	0-6 6-20 20-40 40-60	18-27 20-30 0-5 0-10	1.25-1.45 1.30-1.50 1.45-1.65 1.55-1.70	0.2-0.6 0.2-0.6 20-101 2-6	0.18-0.23 0.17-0.21 0.06-0.10 0.05-0.08	3.0-5.9 3.0-5.9 0.0-2.9 0.0-2.9	2.0-4.0 0.5-2.0 0.5-1.0 0.0-0.5	.32 .32 .10 .10	.32 .32 .15 .32	3	4L	86
Welch-----	0-9 9-60	15-20 27-35	1.30-1.50 1.30-1.50	0.6-2 0.2-0.6	0.16-0.18 0.16-0.21	0.0-2.9 3.0-5.9	2.0-4.0 0.5-4.0	.32 .28	.32 .32	5	5	56
432: Isolde-----	0-3 3-60	0-5 0-5	1.40-1.60 1.50-1.70	20-101 20-101	0.06-0.09 0.06-0.09	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.17 .17	.17 .17	5	1	250
Ragtown-----	0-7 7-17 17-60	12-24 28-35 35-45	1.30-1.50 1.40-1.55 1.40-1.60	0.6-2 0.2-0.6 0.06-0.2	0.19-0.21 0.17-0.19 0.14-0.18	3.0-5.9 3.0-5.9 6.0-8.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .28 .32	.55 .28 .32	5	4L	86
433: Wetvit-----	0-16 16-41 41-60	15-25 18-27 15-25	1.10-1.15 1.10-1.20 1.20-1.30	0.6-2 0.2-0.6 0.2-0.6	0.20-0.22 0.20-0.22 0.18-0.20	3.0-5.9 3.0-5.9 3.0-5.9	2.0-4.0 1.0-2.0 0.5-2.0	.32 .32 .32	.32 .32 .32	5	5	56
Wetvit-----	0-16 16-41 41-60	15-25 18-27 15-25	1.10-1.15 1.10-1.20 1.20-1.30	0.6-2 0.2-0.6 0.2-0.6	0.20-0.22 0.20-0.22 0.18-0.20	3.0-5.9 3.0-5.9 3.0-5.9	2.0-4.0 1.0-2.0 0.5-2.0	.32 .32 .32	.32 .32 .32	5	5	56
442: Rodock-----	0-2 2-20 20-29 29-60	8-15 15-25 8-15 0-5	1.40-1.60 1.40-1.60 1.45-1.65 1.45-1.65	2-6 0.6-2 0.2-0.6 2-6	0.07-0.09 0.11-0.18 0.05-0.12 0.03-0.06	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	1.0-3.0 0.5-2.0 0.5-1.0 0.0-0.5	.17 .28 .17 .02	.32 .43 .32 .20	4	4	86
Fax-----	0-4 4-12 12-22 22-48	10-20 20-35 14-28 ---	1.35-1.55 1.35-1.55 1.40-1.60 ---	0.6-2 0.2-0.6 0.2-0.6 0.06-0.2	0.12-0.16 0.06-0.10 0.06-0.09 ---	0.0-2.9 0.0-2.9 0.0-2.9 ---	2.0-4.0 1.0-2.0 0.5-1.0 ---	.24 .15 .15 ---	.43 .37 .28 ---	2	6	48
Holbrook-----	0-6 6-61	10-15 5-10	1.35-1.55 1.40-1.60	0.6-2 2-6	0.11-0.13 0.07-0.09	0.0-2.9 0.0-2.9	1.0-3.0 0.0-3.0	.24 .15	.43 .32	5	6	48

TABLE 10--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					
452: Rocconda-----	0-3 3-8 8-18	12-18 35-50 ---	1.30-1.50 1.25-1.45 ---	2-6 0.06-0.2 0.000-0.001	0.08-0.10 0.07-0.09 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.0-0.8 ---	.17 .10 ---	.55 .37 ---	1	7	38
Coppereid-----	0-2 2-9 9-13	10-18 10-18 ---	1.20-1.40 1.20-1.40 ---	0.6-2 0.6-2 0.06-0.2	0.12-0.14 0.14-0.16 ---	0.0-2.9 0.0-2.9 ---	1.0-2.0 0.0-0.8 ---	.32 .37 ---	.43 .43 ---	1	5	56
Soughe-----	0-4 4-14 14-18	10-20 25-35 ---	1.35-1.50 1.30-1.50 ---	0.6-2 0.2-0.6 0.000-0.001	0.09-0.12 0.08-0.11 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.5-1.0 ---	.15 .15 ---	.55 .37 ---	1	7	38
463: Jerval-----	0-4 4-20 20-60	5-10 27-35 5-12	1.40-1.55 1.20-1.40 1.35-1.50	0.6-2 0.2-0.6 2-6	0.10-0.12 0.14-0.16 0.06-0.07	0.0-2.9 3.0-5.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.17 .24 .15	.49 .43 .32	5	4	86
Dorper-----	0-2 2-7 7-17 17-60	5-15 5-15 35-45 8-15	1.35-1.55 1.35-1.55 1.30-1.50 1.40-1.60	0.6-2 0.6-2 0.001-0.06 0.2-0.6	0.12-0.14 0.15-0.19 0.13-0.17 0.04-0.06	0.0-2.9 0.0-2.9 6.0-8.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5 0.0-0.5	.28 .49 .43 .10	.64 .64 .49 .28	2	4	86
464: Jerval-----	0-4 4-20 20-60	15-20 27-35 5-12	1.20-1.35 1.20-1.40 1.35-1.50	0.6-2 0.2-0.6 2-6	0.16-0.18 0.14-0.16 0.06-0.07	0.0-2.9 3.0-5.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .24 .15	.64 .43 .32	5	5	56
Dorper-----	0-2 2-7 7-17 17-60	5-15 5-15 35-45 8-15	1.35-1.55 1.35-1.55 1.30-1.50 1.40-1.60	0.6-2 0.6-2 0.001-0.06 0.2-0.6	0.11-0.13 0.15-0.19 0.13-0.17 0.04-0.06	0.0-2.9 0.0-2.9 6.0-8.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5 0.0-0.5	.20 .49 .43 .10	.55 .64 .49 .28	2	5	56
467: Ninemile-----	0-3 3-14 14-24	15-25 40-60 ---	1.35-1.50 1.25-1.45 ---	0.6-2 0.001-0.06 0.000-0.001	0.08-0.11 0.14-0.16 ---	0.0-2.9 6.0-8.9 ---	2.0-4.0 1.0-3.0 ---	.15 .28 ---	.55 .37 ---	1	7	38
Sumine-----	0-5 5-30 30-40	10-20 25-35 ---	1.20-1.40 1.40-1.60 ---	0.6-2 0.6-2 0.000-0.001	0.11-0.13 0.10-0.13 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 0.5-3.0 ---	.24 .15 ---	.43 .55 ---	2	6	48
Softscrabble-----	0-12 12-36 36-61 61-71	10-20 27-35 25-40 ---	1.20-1.40 1.25-1.45 1.35-1.55 ---	0.6-2 0.2-0.6 0.06-0.2 0.001-0.06	0.08-0.10 0.08-0.10 0.16-0.19 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	1.0-5.0 1.0-2.0 0.5-1.0 ---	.15 .20 .32 ---	.43 .43 .43 ---	5	7	38
468: Bucklake-----	0-6 6-10 10-21 21-31	20-25 27-35 35-50 ---	1.45-1.55 1.40-1.55 1.35-1.50 ---	0.6-2 0.2-0.6 0.06-0.2 0.000-0.06	0.08-0.10 0.11-0.14 0.10-0.12 ---	3.0-5.9 3.0-5.9 6.0-8.9 ---	1.0-2.0 0.5-1.0 0.5-1.0 ---	.15 .20 .20 ---	.37 .28 .28 ---	2	7	38
Ninemile-----	0-3 3-14 14-24	10-20 40-60 ---	1.15-1.35 1.20-1.40 ---	0.6-2 0.001-0.06 0.000-0.001	0.07-0.12 0.14-0.16 ---	0.0-2.9 6.0-8.9 ---	1.0-3.0 1.0-2.0 ---	.15 .20 ---	.43 .37 ---	1	7	38
Frentera-----	0-14 14-35 35-61	12-18 12-18 ---	1.05-1.25 1.15-1.35 ---	0.6-2 2-6 0.000-0.001	0.18-0.20 0.14-0.18 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 0.5-3.0 ---	.37 .28 ---	.37 .37 ---	2	5	56
470: Frentera-----	0-3 3-33 33-43	12-18 12-18 ---	1.05-1.25 1.15-1.35 ---	0.6-2 2-6 0.000-0.001	0.18-0.20 0.14-0.18 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 0.5-3.0 ---	.32 .28 ---	.37 .37 ---	2	6	48
Wylo-----	0-4 4-15 15-25	18-27 35-50 ---	1.20-1.30 1.10-1.30 ---	0.2-0.6 0.06-0.2 0.000-0.001	0.09-0.11 0.13-0.15 ---	0.0-2.9 6.0-8.9 ---	1.0-2.0 1.0-2.0 ---	.15 .15 ---	.37 .32 ---	1	7	38
Tuffo-----	0-5 5-8 8-18	5-15 5-15 ---	1.40-1.55 1.35-1.55 ---	2-6 2-6 0.001-0.06	0.12-0.15 0.13-0.16 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 0.5-1.0 ---	.24 .24 ---	.32 .37 ---	1	3	86

TABLE 10--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
475: Juva-----	0-6 6-60	10-20 5-15	1.30-1.45 1.40-1.55	0.6-2 0.6-2	0.15-0.17 0.07-0.10	0.0-2.9 0.0-2.9	0.0-1.0 0.0-0.5	.37 .20	.37 .24	5	4L	86
480: Tuffo-----	0-5 5-8 8-18	5-15 5-15 ---	1.40-1.55 1.35-1.55 ---	2-6 2-6 0.001-0.06	0.12-0.15 0.13-0.16 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 0.5-1.0 ---	.24 .24 ---	.32 .37 ---	1	3	86
Wylo-----	0-4 4-15 15-25	18-27 35-50 ---	1.20-1.30 1.10-1.30 ---	0.2-0.6 0.06-0.2 0.000-0.001	0.09-0.11 0.13-0.15 ---	0.0-2.9 6.0-8.9 ---	1.0-2.0 1.0-2.0 ---	.15 .15 ---	.37 .32 ---	1	7	38
Freintera-----	0-14 14-35 35-61	12-18 12-18 ---	1.05-1.25 1.15-1.35 ---	0.6-2 2-6 0.000-0.001	0.18-0.20 0.14-0.18 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 0.5-3.0 ---	.37 .28 ---	.37 .37 ---	2	4	86
531: Longcreek-----	0-2 2-9 9-14 14-24	20-27 35-40 40-50 ---	1.45-1.55 1.30-1.50 1.25-1.45 ---	0.6-2 0.06-0.2 0.06-0.2 0.000-0.001	0.07-0.09 0.08-0.10 0.07-0.08 ---	0.0-2.9 0.0-2.9 3.0-5.9 ---	1.0-4.0 1.0-2.0 0.5-1.0 ---	.17 .17 .15 ---	.37 .32 .28 ---	1	7	38
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	---	---	---
535: Locane-----	0-3 3-14 14-24	15-25 35-50 ---	1.35-1.55 1.30-1.50 ---	0.6-2 0.06-0.2 0.000-0.001	0.07-0.12 0.08-0.13 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.0-0.6 ---	.10 .10 ---	.37 .28 ---	1	7	38
550: Welch-----	0-9 9-60	15-20 27-35	1.30-1.50 1.30-1.50	0.6-2 0.2-0.6	0.16-0.18 0.16-0.21	0.0-2.9 3.0-5.9	2.0-4.0 0.5-4.0	.32 .28	.32 .32	5	5	56
563: Sondoa-----	0-5 5-60	20-27 25-35	1.35-1.50 1.40-1.55	0.2-0.6 0.2-0.6	0.19-0.21 0.19-0.21	3.0-5.9 3.0-5.9	0.8-2.0 0.0-0.5	.49 .49	.49 .49	5	4L	86
Isolde-----	0-3 3-60	0-5 0-5	1.40-1.60 1.50-1.70	20-101 20-101	0.06-0.09 0.06-0.09	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.17 .17	.17 .17	5	1	250
574: Mazuma-----	0-5 5-27 27-60	5-15 5-15 5-15	1.40-1.55 1.40-1.55 1.45-1.65	2-6 2-6 2-6	0.11-0.13 0.11-0.13 0.06-0.08	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.28 .43 .24	.28 .43 .32	5	3	86
575: Mazuma-----	0-5 5-60	3-8 5-15	1.50-1.65 1.45-1.65	2-6 2-6	0.11-0.13 0.10-0.14	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.37 .24	.43 .37	5	2	134
Mazuma-----	0-5 5-27 27-60	5-15 5-15 5-15	1.40-1.55 1.40-1.55 1.45-1.65	2-6 2-6 2-6	0.11-0.13 0.11-0.13 0.06-0.08	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.28 .43 .24	.28 .43 .32	5	3	86
576: Mazuma-----	0-5 5-60	10-14 5-15	1.40-1.55 1.45-1.65	0.6-2 2-6	0.13-0.15 0.10-0.14	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.43 .24	.49 .55	5	3	86
577: Mazuma-----	0-5 5-27 27-60	5-15 5-15 5-15	1.40-1.55 1.40-1.55 1.45-1.65	0.6-2 2-6 2-6	0.19-0.21 0.11-0.13 0.06-0.08	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.55 .43 .24	.55 .43 .32	5	4L	86
Isolde-----	0-3 3-60	0-5 0-5	1.40-1.60 1.50-1.70	20-101 20-101	0.06-0.09 0.06-0.09	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.17 .17	.17 .17	5	1	250
Typic Torriorthents---	0-5 5-60	10-20 ---	1.30-1.45 ---	0.6-2 0.2-20	0.19-0.21 ---	0.0-2.9 0.0-2.9	0.0-0.5 ---	.55 ---	.55 ---	5	4L	86

TABLE 10--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					
578:												
Mazuma-----	0-5	5-15	1.40-1.55	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55	5	4L	86
	5-27	5-15	1.40-1.55	2-6	0.11-0.13	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-15	1.45-1.65	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.24	.32			
Toulon-----	0-6	10-12	1.45-1.65	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.43	3	6	48
	6-14	12-15	1.40-1.60	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.10	.43			
	14-60	0-3	1.50-1.65	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
Isolde-----	0-3	0-5	1.40-1.60	20-101	0.06-0.09	0.0-2.9	0.0-0.5	.17	.17	5	1	250
	3-60	0-5	1.50-1.70	20-101	0.06-0.09	0.0-2.9	0.0-0.5	.17	.17			
580:												
McConnel-----	0-5	5-15	1.35-1.50	2-6	0.11-0.17	0.0-2.9	0.0-1.0	.20	.32	2	5	56
	5-15	5-15	1.35-1.50	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.20	.32			
	15-60	0-5	1.45-1.60	20-101	0.03-0.05	0.0-2.9	0.0-0.5	.05	.28			
581:												
McConnel-----	0-5	5-10	1.35-1.50	2-6	0.05-0.10	0.0-2.9	1.0-2.0	.05	.32	2	5	56
	5-15	10-18	1.35-1.50	2-6	0.09-0.12	0.0-2.9	0.0-0.5	.17	.32			
	15-60	0-5	1.45-1.60	20-101	0.03-0.04	0.0-2.9	0.0-0.5	.02	.15			
620:												
Croesus-----	0-10	10-18	1.30-1.45	0.6-2	0.05-0.07	0.0-2.9	2.0-4.0	.05	.43	2	8	0
	10-22	10-18	1.30-1.45	0.6-2	0.03-0.07	0.0-2.9	1.0-3.0	.05	.32			
	22-29	10-18	1.35-1.50	0.6-2	0.03-0.07	0.0-2.9	1.0-2.0	.05	.32			
	29-39	---	---	0.000-0.001	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
630:												
Ninemile-----	0-3	15-25	1.35-1.50	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.55	1	7	38
	3-14	40-60	1.25-1.45	0.001-0.06	0.14-0.16	6.0-8.9	1.0-3.0	.28	.37			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
647:												
Wendane-----	0-10	15-25	1.35-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55	5	4L	86
	10-60	27-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
Humboldt-----	0-13	27-40	1.00-1.15	0.2-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	5	4L	86
	13-60	35-45	1.10-1.20	0.2-0.6	0.17-0.19	3.0-5.9	0.0-3.0	.28	.28			
648:												
Wendane-----	0-10	15-25	1.35-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55	5	4L	86
	10-60	27-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
660:												
Soughe-----	0-4	8-18	1.35-1.50	2-6	0.03-0.05	0.0-2.9	1.0-2.0	.05	.32	1	8	0
	4-14	25-35	1.20-1.40	0.2-0.6	0.08-0.11	3.0-5.9	0.0-0.5	.15	.49			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
Hoot-----	0-5	14-20	1.40-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37	1	7	38
	5-15	25-35	1.40-1.60	0.2-0.6	0.06-0.09	0.0-2.9	0.0-0.5	.10	.55			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
662:												
Jaybee-----	0-7	15-20	1.35-1.50	0.6-2	0.07-0.09	0.0-2.9	0.0-2.0	.20	.32	1	5	56
	7-14	35-45	1.25-1.45	0.06-0.2	0.16-0.18	6.0-8.9	0.0-0.5	.28	.49			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
Soughe-----	0-4	10-20	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.15	.55	1	7	38
	4-14	25-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.15	.37			
	14-18	---	---	0.000-0.001	---	---	---	---	---			
Hoot-----	0-5	14-20	1.40-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37	1	7	38
	5-15	25-35	1.40-1.60	0.2-0.6	0.06-0.09	0.0-2.9	0.0-0.5	.10	.55			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
663:												
Soughe-----	0-4	10-20	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.15	.55	1	7	38
	4-14	25-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.15	.37			
	14-18	---	---	0.000-0.001	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
664:												
Soughe-----	0-4	10-20	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.15	.55	1	7	38
	4-14	25-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.15	.37			
	14-18	---	---	0.000-0.001	---	---	---	---	---			

TABLE 10--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
670:												
Denio-----	0-3	5-8	1.40-1.60	2-6	0.07-0.09	0.0-2.9	1.0-2.0	.20	.37	2	4	86
	3-16	5-8	1.40-1.60	2-6	0.06-0.09	0.0-2.9	0.5-1.0	.20	.37			
	16-60	0-3	1.55-1.70	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.02	.15			
679:												
Outerkirk-----	0-4	5-10	1.45-1.65	0.6-2	0.11-0.13	0.0-2.9	0.5-0.8	.32	.32	5	3	86
	4-34	5-15	1.45-1.65	0.6-2	0.10-0.12	0.0-2.9	0.0-0.8	.28	.32			
	34-50	3-10	1.45-1.65	0.2-0.6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
	50-60	3-10	1.50-1.70	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
683:												
Oxcorel-----	0-5	10-15	1.40-1.55	0.6-2	0.14-0.16	0.0-2.9	0.0-0.7	.32	.55	2	7	38
	5-18	35-50	1.30-1.50	0.001-0.06	0.15-0.18	6.0-8.9	0.0-0.5	.28	.32			
	18-60	8-15	1.50-1.70	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37			
703:												
Pickup-----	0-5	14-22	1.15-1.35	0.2-0.6	0.08-0.10	0.0-2.9	1.0-2.0	.15	.49	2	7	38
	5-22	40-55	1.20-1.35	0.06-0.2	0.10-0.13	3.0-5.9	0.5-2.0	.10	.32			
	22-32	---	---	0.000-0.001	---	---	---	---	---			
Grumblen-----	0-3	16-24	1.25-1.45	0.6-2	0.07-0.10	0.0-2.9	0.8-2.0	.15	.49	1	7	38
	3-9	35-50	1.25-1.45	0.06-0.2	0.08-0.12	3.0-5.9	0.0-0.8	.10	.32			
	9-18	35-50	1.25-1.45	0.06-0.2	0.07-0.11	3.0-5.9	0.0-0.5	.10	.32			
	18-28	---	---	0.000-0.001	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
715:												
Wholan-----	0-3	5-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55	5	5	56
	3-60	5-15	1.35-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
716:												
Wholan-----	0-3	5-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55	5	5	56
	3-60	5-15	1.35-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
720:												
Pickup-----	0-5	18-25	1.15-1.35	0.2-0.6	0.08-0.12	0.0-2.9	1.0-2.0	.28	.43	2	7	38
	5-22	40-55	1.20-1.35	0.06-0.2	0.10-0.13	3.0-5.9	0.5-1.0	.10	.32			
	22-32	---	---	0.000-0.001	---	---	---	---	---			
Bucklake-----	0-6	20-25	1.45-1.55	0.6-2	0.08-0.10	3.0-5.9	1.0-2.0	.15	.37	2	7	38
	6-10	27-35	1.40-1.55	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.20	.28			
	10-21	35-50	1.35-1.50	0.06-0.2	0.10-0.12	6.0-8.9	0.5-1.0	.20	.28			
	21-31	---	---	0.000-0.06	---	---	---	---	---			
Puett-----	0-3	8-15	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.15	.43	1	6	48
	3-15	5-10	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.0-0.5	.15	.24			
	15-25	---	---	0.001-0.06	---	---	---	---	---			
758:												
Longcreek-----	0-2	20-27	1.45-1.55	0.6-2	0.07-0.09	0.0-2.9	1.0-4.0	.17	.37	1	7	38
	2-9	35-40	1.30-1.50	0.06-0.2	0.08-0.10	0.0-2.9	1.0-2.0	.17	.32			
	9-14	40-50	1.25-1.45	0.06-0.2	0.07-0.08	3.0-5.9	0.5-1.0	.15	.28			
	14-24	---	---	0.000-0.001	---	---	---	---	---			
Softscrabble-----	0-12	10-20	1.20-1.40	0.6-2	0.08-0.10	0.0-2.9	1.0-5.0	.15	.43	5	7	38
	12-36	27-35	1.25-1.45	0.2-0.6	0.08-0.10	3.0-5.9	1.0-2.0	.20	.43			
	36-61	25-40	1.35-1.55	0.06-0.2	0.16-0.19	3.0-5.9	0.5-1.0	.32	.43			
	61-71	---	---	0.001-0.06	---	---	---	---	---			
Anawalt-----	0-6	18-27	1.30-1.50	0.6-2	0.06-0.10	0.0-2.9	1.0-2.0	.10	.43	1	7	38
	6-15	35-60	1.25-1.45	0.06-0.2	0.11-0.17	6.0-8.9	0.5-1.0	.28	.43			
	15-25	---	---	0.000-0.001	---	---	---	---	---			
775:												
Rednik-----	0-6	5-15	1.35-1.55	2-6	0.05-0.06	0.0-2.9	0.0-0.5	.20	.32	5	5	56
	6-18	18-27	1.30-1.50	0.2-0.6	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
	18-60	5-15	1.45-1.65	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.32			
Jungo-----	0-5	16-24	1.30-1.45	0.6-2	0.08-0.10	0.0-2.9	1.0-2.0	.15	.49	5	6	48
	5-22	27-35	1.40-1.60	0.2-0.6	0.08-0.10	0.0-2.9	0.0-1.0	.10	.37			
	22-60	27-35	1.40-1.60	0.2-0.6	0.06-0.08	0.0-2.9	0.0-0.5	.05	.37			
Aboten-----	0-7	5-15	1.35-1.50	0.6-2	0.13-0.17	0.0-2.9	0.5-1.0	.32	.64	2	5	56
	7-14	25-35	1.30-1.50	0.06-0.2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.37			
	14-30	---	---	0.06-0.2	---	---	---	---	---			
	30-60	3-8	1.50-1.60	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.05	.24			

TABLE 10--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					
781: Pickup-----	0-5 5-22 22-32	18-25 40-55 ---	1.15-1.35 1.20-1.35 ---	0.2-0.6 0.06-0.2 0.000-0.001	0.08-0.12 0.10-0.13 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.5-1.0 ---	.28 .10 ---	.43 .32 ---	2	7	38
Bucklake-----	0-6 6-10 10-21 21-31	20-25 27-35 35-50 ---	1.45-1.55 1.40-1.55 1.35-1.50 ---	0.6-2 0.2-0.6 0.06-0.2 0.000-0.06	0.08-0.10 0.11-0.14 0.10-0.12 ---	3.0-5.9 3.0-5.9 6.0-8.9 ---	1.0-2.0 0.5-1.0 0.5-1.0 ---	.15 .20 .20 ---	.37 .28 .28 ---	2	7	38
782: Skedaddle-----	0-12 >12	18-27 ---	1.40-1.60 ---	0.6-2 0.000-0.001	0.06-0.10 ---	0.0-2.9 ---	1.0-2.0 ---	.28 ---	.43 ---	1	7	38
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
783: Rocconda-----	0-3 3-8 8-18	12-18 35-50 ---	1.30-1.50 1.25-1.45 ---	2-6 0.06-0.2 0.000-0.001	0.08-0.10 0.07-0.09 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.0-0.8 ---	.17 .10 ---	.55 .37 ---	1	7	38
Rocconda-----	0-3 3-8 8-18	12-18 35-50 ---	1.30-1.50 1.25-1.45 ---	2-6 0.06-0.2 0.000-0.001	0.08-0.10 0.07-0.09 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.0-0.8 ---	.17 .10 ---	.55 .37 ---	1	7	38
785: Rodell-----	0-5 5-17 17-21	5-10 2-5 ---	1.40-1.60 1.40-1.60 ---	6-20 20-101 0.06-20	0.05-0.08 0.04-0.07 ---	0.0-2.9 0.0-2.9 ---	0.5-1.0 0.0-0.5 ---	.10 .15 ---	.20 .49 ---	1	8	0
Rubble Land-----	0-60	0-0	1.70-2.35	20-101	0.00-0.10	0.0-2.9	0.0-0.1	---	---	5	8	0
790: Valmy-----	0-2 2-60	5-15 5-15	1.40-1.60 1.40-1.60	2-6 2-6	0.13-0.17 0.08-0.14	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.43 .28	.49 .43	5	3	86
803: Ninemile-----	0-3 3-14 14-24	10-20 40-60 ---	1.15-1.35 1.20-1.40 ---	0.6-2 0.001-0.06 0.000-0.001	0.07-0.12 0.14-0.16 ---	0.0-2.9 6.0-8.9 ---	1.0-3.0 1.0-2.0 ---	.15 .20 ---	.43 .37 ---	1	7	38
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
804: Singatse-----	0-4 4-8 8-14 14-24	5-15 5-15 ---	1.40-1.60 1.40-1.60 ---	0.6-2 0.6-2 0.001-0.06 0.000-0.001	0.05-0.07 0.05-0.07 ---	0.0-2.9 0.0-2.9 ---	0.0-0.5 0.0-0.5 ---	.10 .10 ---	.28 .32 ---	1	5	56
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
805: Singatse-----	0-4 4-8 8-14 14-24	5-15 5-15 ---	1.40-1.60 1.40-1.60 ---	0.6-2 0.6-2 0.001-0.06 0.000-0.001	0.05-0.07 0.05-0.07 ---	0.0-2.9 0.0-2.9 ---	0.0-0.5 0.0-0.5 ---	.10 .10 ---	.28 .32 ---	1	5	56
Jaybee-----	0-7 7-14 14-24	15-20 35-45 ---	1.35-1.50 1.25-1.45 ---	0.6-2 0.06-0.2 0.000-0.001	0.07-0.09 0.16-0.18 ---	0.0-2.9 6.0-8.9 ---	0.0-2.0 0.0-0.5 ---	.20 .28 ---	.32 .49 ---	1	5	56
806: Singatse-----	0-4 4-8 8-14 14-24	5-15 5-15 ---	1.40-1.60 1.40-1.60 ---	0.6-2 0.6-2 0.001-0.06 0.000-0.001	0.05-0.07 0.05-0.07 ---	0.0-2.9 0.0-2.9 ---	0.0-0.5 0.0-0.5 ---	.10 .10 ---	.28 .32 ---	1	5	56
Rocconda-----	0-3 3-8 8-18	12-18 35-50 ---	1.30-1.50 1.25-1.45 ---	2-6 0.06-0.2 0.000-0.001	0.08-0.10 0.07-0.09 ---	0.0-2.9 3.0-5.9 ---	1.0-2.0 0.0-0.8 ---	.17 .10 ---	.55 .37 ---	1	7	38
Badland-----	0-2 2-60	25-70 ---	1.40-1.60 1.60-1.80	0.001-0.06 0.001-0.06	0.18-0.22 ---	6.0-8.9 ---	0.0-0.1 ---	.37 ---	.37 ---	5	4L	86

TABLE 10--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					
818: Siscab-----	0-3 3-8 8-12	5-10 27-35 ---	1.45-1.65 1.35-1.55 ---	2-6 0.2-0.6 0.001-0.06	0.04-0.07 0.14-0.17 ---	0.0-2.9 3.0-5.9 ---	2.0-3.0 1.0-2.0 ---	.05 .15 ---	.10 .28 ---	2	4	86
Aycab-----	0-29 29-38 38-42	10-18 10-18 ---	1.35-1.55 1.45-1.65 ---	2-6 2-6 0.001-0.06	0.07-0.09 0.07-0.09 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 0.5-1.0 ---	.10 .10 ---	.17 .17 ---	3	4	86
Ola-----	0-3 3-19 19-38 38-39 39-49	5-10 5-10 5-10 --- ---	1.40-1.60 1.50-1.70 1.55-1.70 --- ---	2-6 2-6 0.6-2 0.001-0.06 0.001-0.06	0.07-0.09 0.07-0.09 0.07-0.11 --- ---	0.0-2.9 0.0-2.9 0.0-2.9 --- ---	2.0-4.0 2.0-4.0 1.0-2.0 --- ---	.05 .15 .10 --- ---	.20 .20 .17 --- ---	2	5	56
819: Siscab-----	0-3 3-8 8-12	5-10 27-35 ---	1.45-1.65 1.35-1.55 ---	2-6 0.2-0.6 0.001-0.06	0.04-0.07 0.14-0.17 ---	0.0-2.9 3.0-5.9 ---	2.0-3.0 1.0-2.0 ---	.05 .15 ---	.10 .28 ---	2	4	86
Ola-----	0-3 3-19 19-38 38-39 39-49	5-10 5-10 5-10 --- ---	1.40-1.60 1.50-1.70 1.55-1.70 --- ---	2-6 2-6 0.6-2 0.001-0.06 0.001-0.06	0.07-0.09 0.07-0.09 0.07-0.11 --- ---	0.0-2.9 0.0-2.9 0.0-2.9 --- ---	2.0-4.0 2.0-4.0 1.0-2.0 --- ---	.05 .15 .10 --- ---	.20 .20 .17 --- ---	2	5	56
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
820: Siscab-----	0-3 3-8 8-12	5-10 27-35 ---	1.45-1.65 1.35-1.55 ---	2-6 0.2-0.6 0.001-0.06	0.04-0.07 0.14-0.17 ---	0.0-2.9 3.0-5.9 ---	2.0-3.0 1.0-2.0 ---	.05 .15 ---	.10 .28 ---	2	4	86
Poisoncreek-----	0-5 5-13 13-15 15-25	5-10 24-34 --- ---	1.35-1.55 1.30-1.50 --- ---	2-6 0.6-2 0.001-0.2 0.001-0.2	0.06-0.08 0.08-0.13 --- ---	0.0-2.9 3.0-5.9 --- ---	2.0-4.0 1.0-2.0 --- ---	.05 .10 --- ---	.15 .37 --- ---	1	5	56
Ola-----	0-3 3-19 19-38 38-39 39-49	5-10 5-10 5-10 --- ---	1.40-1.60 1.50-1.70 1.55-1.70 --- ---	2-6 2-6 0.6-2 0.001-0.06 0.001-0.06	0.07-0.09 0.07-0.09 0.07-0.11 --- ---	0.0-2.9 0.0-2.9 0.0-2.9 --- ---	2.0-4.0 2.0-4.0 1.0-2.0 --- ---	.05 .15 .10 --- ---	.20 .20 .17 --- ---	2	5	56
821: Siscab-----	0-3 3-8 8-12	5-10 27-35 ---	1.45-1.65 1.35-1.55 ---	2-6 0.2-0.6 0.001-0.06	0.04-0.07 0.14-0.17 ---	0.0-2.9 3.0-5.9 ---	2.0-3.0 1.0-2.0 ---	.05 .15 ---	.10 .28 ---	2	4	86
Poisoncreek-----	0-5 5-13 13-15 15-25	5-10 24-34 --- ---	1.35-1.55 1.30-1.50 --- ---	2-6 0.6-2 0.001-0.2 0.001-0.2	0.06-0.08 0.08-0.13 --- ---	0.0-2.9 3.0-5.9 --- ---	2.0-4.0 1.0-2.0 --- ---	.05 .10 --- ---	.15 .37 --- ---	1	5	56
Alta-----	0-17 17-50 50-60	5-10 5-10 ---	1.40-1.55 1.60-1.70 ---	2-6 6-20 0.06-20	0.09-0.11 0.04-0.06 ---	0.0-2.9 0.0-2.9 ---	2.0-5.0 0.0-0.8 ---	.05 .05 ---	.15 .20 ---	2	8	0
823: Softscrabble-----	0-12 12-36 36-61	10-20 27-35 27-35	1.20-1.40 1.25-1.45 1.25-1.45	0.6-2 0.06-0.2 0.2-0.6	0.14-0.16 0.10-0.13 0.14-0.16	0.0-2.9 0.0-2.9 3.0-5.9	1.0-3.0 1.0-2.0 0.5-1.0	.20 .10 .15	.37 .37 .32	5	6	48
Cleavage-----	0-7 7-15 15-25	15-25 20-35 ---	1.15-1.35 1.25-1.45 ---	0.6-2 0.2-0.6 0.000-0.001	0.12-0.14 0.10-0.12 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 1.0-2.0 ---	.10 .10 ---	.43 .55 ---	1	7	38
Harcany-----	0-3 3-14 14-60	10-15 5-10 10-15	1.20-1.40 1.30-1.50 1.45-1.65	0.6-2 0.6-2 2-6	0.10-0.15 0.16-0.18 0.10-0.12	0.0-2.9 0.0-2.9 0.0-2.9	3.0-5.0 2.0-4.0 1.0-2.0	.28 .15 .10	.49 .49 .32	5	6	48
824: Simon-----	0-7 7-31 31-46 46-60	10-20 18-35 35-45 20-35	1.20-1.40 1.25-1.45 1.25-1.40 1.35-1.55	0.6-2 0.2-0.6 0.2-0.6 0.6-2	0.17-0.19 0.17-0.20 0.16-0.19 0.08-0.10	0.0-2.9 3.0-5.9 6.0-8.9 0.0-2.9	2.0-4.0 0.5-2.0 0.5-1.0 0.0-0.5	.37 .37 .20 .05	.43 .49 .37 .32	4	5	56
825: Sojur-----	0-6 6-16	18-25 ---	1.25-1.45 ---	0.6-2 0.06-20	0.05-0.08 ---	0.0-2.9 ---	0.0-0.5 ---	.05 ---	.43 ---	1	8	0

TABLE 10--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					
826: Simon-----	0-7 7-31 31-46 46-60	10-20 18-35 35-45 20-35	1.20-1.40 1.25-1.45 1.25-1.40 1.35-1.55	0.6-2 0.2-0.6 0.2-0.6 0.6-2	0.17-0.19 0.17-0.20 0.16-0.19 0.08-0.10	0.0-2.9 3.0-5.9 6.0-8.9 0.0-2.9	2.0-4.0 0.5-2.0 0.5-1.0 0.0-0.5	.37 .37 .20 .05	.43 .49 .37 .32	4	5	56
Fulstone-----	0-3 3-18 18-29	18-25 45-60 ---	1.35-1.50 1.20-1.35 ---	0.6-2 0.06-0.2 0.000-0.001	0.13-0.15 0.12-0.16 ---	3.0-5.9 6.0-8.9 ---	1.0-2.0 0.5-1.0 ---	.20 .17 ---	.32 .37 ---	1	7	38
829: Skedaddle-----	0-12 >12	18-27 ---	1.40-1.60 ---	0.6-2 0.000-0.001	0.06-0.10 ---	0.0-2.9 ---	1.0-2.0 ---	.28 ---	.43 ---	1	7	38
Softscrabble-----	0-12 12-36 36-61 61-71	10-20 27-35 25-40 ---	1.20-1.40 1.25-1.45 1.35-1.55 ---	0.6-2 0.2-0.6 0.06-0.2 0.001-0.06	0.08-0.10 0.08-0.10 0.16-0.19 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	1.0-5.0 1.0-2.0 0.5-1.0 ---	.15 .20 .32 ---	.43 .43 .43 ---	5	7	38
Cleavage-----	0-7 7-15 15-25	15-20 20-35 ---	1.35-1.55 1.35-1.55 ---	0.6-2 0.2-0.6 0.000-0.001	0.04-0.05 0.08-0.12 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 1.0-2.0 ---	.05 .10 ---	.43 .49 ---	1	8	0
830: Skedaddle-----	0-12 >12	18-27 ---	1.40-1.60 ---	0.6-2 0.000-0.001	0.06-0.10 ---	0.0-2.9 ---	1.0-2.0 ---	.28 ---	.43 ---	1	7	38
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
Sumya-----	0-7 7-11 11-21	30-40 35-45 ---	1.30-1.45 1.30-1.45 ---	0.2-0.6 0.06-0.2 0.000-0.001	0.06-0.10 0.06-0.08 ---	3.0-5.9 3.0-5.9 ---	1.0-2.0 0.5-1.0 ---	.10 .10 ---	.37 .32 ---	1	7	38
835: Ola-----	0-3 3-19 19-38 38-39 39-49	5-10 5-10 5-10 ---	1.40-1.60 1.50-1.70 1.55-1.70 ---	2-6 2-6 0.6-2 0.001-0.06 0.001-0.06	0.07-0.09 0.07-0.09 0.07-0.11 ---	0.0-2.9 0.0-2.9 0.0-2.9 ---	2.0-4.0 2.0-4.0 1.0-2.0 ---	.05 .15 .10 ---	.20 .20 .17 ---	2	5	56
Aycab-----	0-2 2-38 38-42	3-5 10-18 ---	1.40-1.60 1.45-1.65 ---	6-20 2-6 0.001-0.06	0.05-0.07 0.07-0.09 ---	0.0-2.9 0.0-2.9 ---	2.0-4.0 1.0-2.0 ---	.05 .10 ---	.10 .17 ---	3	4	86
Tosp-----	0-4 4-37 37-50 50-54	10-18 10-18 10-18 ---	1.25-1.35 1.35-1.50 1.35-1.50 ---	2-6 2-6 2-6 0.000-0.001	0.16-0.20 0.12-0.14 0.08-0.14 ---	0.0-2.9 0.0-2.9 0.0-2.9 ---	3.0-5.0 2.0-4.0 1.0-2.0 ---	.20 .28 .20 ---	.43 .37 .24 ---	3	6	48
840: Saraph-----	0-2 2-9 9-16 16-26	0-10 15-25 20-35 ---	1.10-1.30 1.05-1.20 1.10-1.25 ---	2-6 0.2-0.6 0.06-0.2 0.001-0.06	0.06-0.08 0.12-0.16 0.15-0.18 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	0.5-1.0 0.0-0.5 0.0-0.5 ---	.20 .32 .28 ---	.24 .37 .32 ---	2	2	134
Yellowhills-----	0-16 16-34 34-60	5-12 8-15 8-15	0.85-1.05 0.90-1.10 0.90-1.10	2-6 2-6 2-6	0.20-0.25 0.20-0.25 0.20-0.25	0.0-2.9 0.0-2.9 0.0-2.9	2.0-4.0 0.0-1.0 0.0-1.0	.37 .37 .37	.37 .37 .37	5	2	134
841: Saraph-----	0-2 2-9 9-16 16-26	0-10 15-25 20-35 ---	1.10-1.30 1.05-1.20 1.10-1.25 ---	2-6 0.2-0.6 0.06-0.2 0.001-0.06	0.06-0.08 0.12-0.16 0.15-0.18 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	0.5-1.0 0.0-0.5 0.0-0.5 ---	.20 .32 .28 ---	.24 .37 .32 ---	2	2	134
Tuffo-----	0-5 5-8 8-18	5-15 5-15 ---	1.40-1.55 1.35-1.55 ---	2-6 2-6 0.001-0.06	0.12-0.15 0.13-0.16 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 0.5-1.0 ---	.24 .24 ---	.32 .37 ---	1	3	86
Yellowhills-----	0-16 16-34 34-60	5-12 8-15 8-15	0.85-1.05 0.90-1.10 0.90-1.10	2-6 2-6 2-6	0.20-0.25 0.20-0.25 0.20-0.25	0.0-2.9 0.0-2.9 0.0-2.9	2.0-4.0 0.0-1.0 0.0-1.0	.37 .37 .37	.37 .37 .37	5	2	134

TABLE 10--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
842: Deppy-----	0-3	7-15	1.40-1.60	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.10	.28	2	7	38
	3-9	27-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	9-21	---	---	0.001-0.2	0.00-0.00	---	---	---	---			
	21-60	3-10	1.50-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.20			
Tumtum-----	0-2	20-25	1.40-1.60	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.10	.28	1	7	38
	2-10	35-45	1.40-1.60	0.06-0.2	0.14-0.20	6.0-8.9	0.0-0.5	.28	.28			
	10-18	---	---	0.000-0.06	0.00-0.00	---	---	---	---			
	18-60	5-15	1.50-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.20			
Puett-----	0-3	8-15	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.15	.43	2	6	38
	3-15	5-10	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.0-0.5	.15	.24			
	15-25	---	---	0.001-0.06	---	---	---	---	---			
843: Deppy-----	0-3	7-15	1.40-1.60	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.10	.28	2	7	48
	3-9	27-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	9-21	---	---	0.001-0.2	0.00-0.00	---	---	---	---			
	21-60	3-10	1.50-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.20			
Puett-----	0-3	8-15	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.15	.43	2	6	48
	3-15	5-10	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.0-0.5	.15	.24			
	15-25	---	---	0.001-0.06	---	---	---	---	---			
Orovada-----	0-6	3-10	1.40-1.60	6-20	0.09-0.10	0.0-2.9	0.5-1.0	.32	.37	5	2	134
	6-17	5-18	1.40-1.60	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.43	.55			
	17-60	5-18	1.40-1.60	0.6-2	0.14-0.16	0.0-2.9	0.0-0.5	.43	.49			
847: Toulon-----	0-6	10-12	1.45-1.65	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.43	3	6	48
	6-14	12-15	1.40-1.60	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.10	.43			
	14-60	0-3	1.50-1.65	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
Badland-----	0-2	25-70	1.40-1.60	0.001-0.06	0.18-0.22	6.0-8.9	0.0-0.1	.37	.37	5	4L	86
	2-60	---	1.60-1.80	0.001-0.06	---	---	---	---	---			
Typic Torriorthents---	0-5	0-10	1.50-1.70	6-20	0.03-0.07	0.0-2.9	0.0-0.5	.15	.20	5	3	86
	5-60	3-10	1.50-1.70	6-20	0.03-0.04	0.0-2.9	0.0-0.5	.10	.24			
850: Playas-----	0-6	40-70	1.50-1.70	0.001-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	-	4	86
	6-60	35-70	1.60-1.80	0.001-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37			
875: Pumper-----	0-11	10-15	1.40-1.55	2-6	0.11-0.13	0.0-2.9	0.0-0.5	.24	.28	2	3	86
	11-60	0-10	1.50-1.65	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.02	.10			
Dun Glen-----	0-5	10-15	1.40-1.55	0.6-2	0.13-0.15	0.0-2.9	0.0-0.5	.32	.32	5	3	86
	5-11	11-16	1.35-1.55	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	11-60	9-14	1.35-1.55	0.6-2	0.11-0.17	0.0-2.9	0.0-0.5	.32	.32			
Davey-----	0-4	5-10	1.45-1.65	6-20	0.09-0.12	0.0-2.9	0.5-2.0	.24	.24	5	2	134
	4-16	10-15	1.40-1.60	2-6	0.13-0.17	0.0-2.9	0.5-2.0	.28	.28			
	16-60	2-8	1.50-1.65	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.20			
876: Pumper-----	0-4	8-18	1.40-1.60	2-6	0.14-0.17	0.0-2.9	0.0-0.5	.28	.37	2	4	86
	4-11	12-20	1.40-1.60	0.6-2	0.15-0.20	0.0-2.9	0.0-0.5	.49	.55			
	11-60	0-5	1.60-1.75	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.02	.10			
Weso-----	0-3	5-18	1.40-1.55	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.49	.55	5	3	86
	3-29	8-18	1.55-1.70	0.6-2	0.15-0.17	0.0-2.9	0.0-0.6	.32	.32			
	29-60	5-15	1.55-1.70	2-6	0.11-0.13	0.0-2.9	0.0-0.6	.20	.28			
878: Croesus-----	0-10	10-18	1.30-1.45	0.6-2	0.05-0.07	0.0-2.9	2.0-4.0	.05	.43	2	8	0
	10-22	10-18	1.30-1.45	0.6-2	0.03-0.07	0.0-2.9	1.0-3.0	.05	.32			
	22-29	10-18	1.35-1.50	0.6-2	0.03-0.07	0.0-2.9	1.0-2.0	.05	.32			
	29-39	---	---	0.000-0.001	---	---	---	---	---			
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
907: Bucklake-----	0-6	20-25	1.45-1.55	0.6-2	0.08-0.10	3.0-5.9	1.0-2.0	.15	.37	2	7	38
	6-10	27-35	1.40-1.55	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.20	.28			
	10-21	35-50	1.35-1.50	0.06-0.2	0.10-0.12	6.0-8.9	0.5-1.0	.20	.28			
	21-31	---	---	0.000-0.06	---	---	---	---	---			

TABLE 10--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					
909: Bucklake-----	0-6 6-10 10-21 21-31	20-25 27-35 35-50 ---	1.45-1.55 1.40-1.55 1.35-1.50 ---	0.6-2 0.2-0.6 0.06-0.2 0.000-0.06	0.08-0.10 0.11-0.14 0.10-0.12 ---	3.0-5.9 3.0-5.9 6.0-8.9 ---	1.0-2.0 0.5-1.0 0.5-1.0 ---	.15 .20 .20 ---	.37 .28 .28 ---	2 2 2 2	7 7 7 7	38 38 38 38
Softscrabble-----	0-12 12-36 36-61 61-71	10-20 27-35 25-40 ---	1.20-1.40 1.25-1.45 1.35-1.55 ---	0.6-2 0.2-0.6 0.06-0.2 0.001-0.06	0.08-0.10 0.08-0.10 0.16-0.19 ---	0.0-2.9 3.0-5.9 3.0-5.9 ---	1.0-5.0 1.0-2.0 0.5-1.0 ---	.15 .20 .32 ---	.43 .43 .43 ---	5 5 5 5	7 7 7 7	38 38 38 38
Rubble Land-----	0-60	0-0	1.70-2.35	20-101	0.00-0.10	0.0-2.9	0.0-0.1	---	---	5	8	0
935: Wesfil-----	0-8 8-13 13-23	12-18 --- ---	1.30-1.50 --- ---	0.6-2 0.06-20 0.000-0.001	0.07-0.10 --- ---	0.0-2.9 --- ---	1.0-2.0 --- ---	.10 --- ---	.43 --- ---	1 1 1	6 6 6	48 48 48
Sojur-----	0-6 6-16	18-25 ---	1.25-1.45 ---	0.6-2 0.06-20	0.05-0.08 ---	0.0-2.9 ---	0.0-0.5 ---	.05 ---	.43 ---	1 1	8 8	0 0
938: Weso-----	0-3 3-29 29-60	8-20 8-18 5-15	1.40-1.55 1.55-1.70 1.55-1.70	0.6-2 0.6-2 2-6	0.15-0.17 0.15-0.17 0.11-0.13	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.6 0.0-0.6 0.0-0.6	.55 .32 .20	.55 .37 .28	4 4 4	3 3 3	86 86 86
940: Westbutte-----	0-6 6-15 15-28 28-38	18-25 18-25 18-30 ---	1.25-1.45 1.30-1.50 1.40-1.60 ---	0.6-2 0.6-2 0.6-2 0.000-0.06	0.07-0.10 0.09-0.13 0.07-0.13 ---	0.0-2.9 0.0-2.9 3.0-5.9 ---	2.0-4.0 2.0-3.0 1.0-3.0 ---	.10 .15 .10 ---	.37 .37 .37 ---	2 2 2 2	8 8 8 8	0 0 0 0
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
965: Wylo-----	0-4 4-15 15-25	18-27 35-50 ---	1.20-1.30 1.10-1.30 ---	0.2-0.6 0.06-0.2 0.000-0.001	0.09-0.11 0.13-0.15 ---	0.0-2.9 6.0-8.9 ---	1.0-2.0 1.0-2.0 ---	.15 .15 ---	.37 .32 ---	1 1 1	7 7 7	38 38 38
Bucklake-----	0-6 6-10 10-21 21-31	20-25 27-35 35-50 ---	1.45-1.55 1.40-1.55 1.35-1.50 ---	0.6-2 0.2-0.6 0.06-0.2 0.000-0.06	0.08-0.10 0.11-0.14 0.10-0.12 ---	3.0-5.9 3.0-5.9 6.0-8.9 ---	1.0-2.0 0.5-1.0 0.5-1.0 ---	.15 .20 .20 ---	.37 .28 .28 ---	2 2 2 2	8 8 8 8	0 0 0 0
Rock Outcrop-----	---	---	---	---	---	---	---	---	---	-	---	---
1000: Broyles-----	0-10 10-60	5-15 5-15	1.35-1.55 1.40-1.60	2-6 2-6	0.13-0.15 0.09-0.11	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.32 .24	.32 .32	5 5	3 3	86 86
1010: Bubus-----	0-2 2-60	10-15 10-15	1.40-1.55 1.40-1.55	0.6-2 0.6-2	0.15-0.17 0.15-0.17	0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5	.49 .49	.64 .49	5 5	3 3	86 86
1030: Rio King-----	0-6 6-60	8-18 8-18	1.35-1.55 1.40-1.60	0.6-2 0.6-2	0.16-0.18 0.13-0.18	0.0-2.9 0.0-2.9	1.0-3.0 0.5-1.0	.24 .24	.24 .24	5 5	5 5	56 56
1032: Raglan-----	0-7 7-16 16-30	30-35 10-25 18-25	1.30-1.50 1.30-1.50 1.40-1.60	0.2-0.6 0.6-2 0.2-0.6	0.19-0.21 0.19-0.21 0.19-0.21	3.0-5.9 3.0-5.9 3.0-5.9	0.5-1.0 0.0-0.5 0.0-0.5	.32 .55 .49	.32 .55 .49	5 5 5	6 6 6	48 48 48
1060: Raglan-----	0-7 7-16 16-60	10-20 10-25 18-25	1.30-1.50 1.30-1.50 1.40-1.60	0.6-2 0.6-2 0.2-0.6	0.19-0.21 0.19-0.21 0.15-0.18	0.0-2.9 3.0-5.9 3.0-5.9	0.5-1.0 0.0-0.5 0.0-0.5	.55 .55 .43	.55 .55 .43	5 5 5	4L 4L 4L	86 86 86
1080: Argenta-----	0-4 4-46 46-60	10-15 8-18 5-10	1.35-1.55 1.35-1.55 1.35-1.55	0.6-2 0.6-2 2-6	0.15-0.21 0.14-0.21 0.11-0.15	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.49 .49 .32	.49 .49 .37	5 5 5	3 3 3	86 86 86
Argenta-----	0-4 4-46 46-60	10-15 8-18 5-10	1.35-1.55 1.35-1.55 1.35-1.55	0.6-2 0.6-2 2-6	0.15-0.21 0.14-0.21 0.11-0.15	0.0-2.9 0.0-2.9 0.0-2.9	0.0-0.5 0.0-0.5 0.0-0.5	.49 .49 .32	.49 .49 .37	5 5 5	3 3 3	86 86 86

TABLE 10--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					
1081:												
Argenta-----	0-4	5-10	1.35-1.55	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.37	.37	5	3	86
	4-46	8-18	1.35-1.55	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.49			
	46-60	5-10	1.35-1.55	2-6	0.11-0.15	0.0-2.9	0.0-0.5	.32	.37			
Clementine-----	0-3	15-25	1.00-1.15	0.6-2	0.19-0.21	3.0-5.9	3.0-5.0	.49	.49	5	5	56
	3-41	27-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	1.0-5.0	.43	.43			
	41-60	25-33	1.25-1.45	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
Outerkirk-----	0-4	5-10	1.45-1.65	0.6-2	0.11-0.13	0.0-2.9	0.5-0.8	.32	.32	5	3	86
	4-34	5-15	1.45-1.65	0.6-2	0.10-0.12	0.0-2.9	0.0-0.8	.28	.32			
	34-50	3-10	1.45-1.65	0.2-0.6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
	50-60	3-10	1.50-1.70	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
1150:												
Saraph-----	0-4	5-15	1.40-1.55	2-6	0.07-0.09	0.0-2.9	1.0-2.0	.15	.32	2	5	56
	4-9	15-25	1.05-1.20	0.2-0.6	0.12-0.16	3.0-5.9	0.0-0.5	.32	.37			
	9-16	20-35	1.10-1.25	0.06-0.2	0.15-0.18	3.0-5.9	0.0-0.5	.28	.32			
	16-30	---	---	0.001-0.06	---	---	---	---	---			
Hangrock-----	0-3	12-20	1.10-1.20	0.6-2	0.11-0.13	0.0-2.9	1.0-2.0	.10	.32	2	7	38
	3-16	25-35	1.15-1.25	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.17	.28			
	16-60	---	---	0.001-0.06	---	---	---	---	---			
Tuffo-----	0-1	5-15	1.40-1.55	2-6	0.07-0.09	0.0-2.9	1.0-3.0	.15	.32	1	5	56
	5-8	5-15	1.35-1.55	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.24	.37			
	8-30	---	---	0.001-0.06	---	---	---	---	---			
1164:												
Devada-----	0-5	18-25	1.30-1.50	0.6-2	0.06-0.10	0.0-2.9	1.0-3.0	.17	.55	1	7	38
	5-19	40-60	1.25-1.45	0.06-0.2	0.10-0.16	6.0-8.9	0.5-2.0	.15	.43			
	19-23	---	---	0.000-0.001	---	---	---	---	---			
Ashcamp-----	0-3	8-15	1.10-1.15	2-6	0.14-0.16	0.0-2.9	1.0-2.0	.20	.28	2	3	86
	3-8	12-18	1.10-1.15	2-6	0.13-0.16	0.0-2.9	1.0-2.0	.24	.32			
	8-23	---	---	0.06-2	---	---	---	---	---			
1400:												
Bombadil-----	0-4	10-15	1.35-1.50	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.32	.43	1	7	38
	4-7	18-27	1.25-1.45	0.2-0.6	0.15-0.17	3.0-5.9	1.0-2.0	.32	.49			
	7-13	25-35	1.25-1.45	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.28	.43			
	13-17	---	---	0.000-0.001	---	---	---	---	---			
Ceejay-----	0-5	15-25	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.17	.32	1	6	48
	5-16	35-45	1.15-1.30	0.06-0.2	0.13-0.15	6.0-8.9	0.0-0.5	.15	.28			
	16-20	---	---	0.000-0.001	---	---	---	---	---			
1460:												
Weezweed-----	0-15	15-25	1.10-1.15	0.6-2	0.20-0.22	3.0-5.9	2.0-4.0	.32	.32	5	5	56
	15-60	18-27	1.20-1.30	0.2-0.6	0.18-0.20	3.0-5.9	0.5-2.0	.32	.32			
2080:												
Water-----	---	---	---	---	---	---	---	---	---	-	---	---

TABLE 11.--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
		meq/100 g	pH	Pct	Pct	mmhos/cm	
117:							
Acrelane-----	0-7	8.0-15	6.1-7.3	0	0	0	0
	7-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
Poisoncreek-----	0-5	10-15	6.6-7.3	0	0	0	0
	5-13	35-45	6.6-7.3	0	0	0	0
	13-15	---	---	---	---	---	---
	15-25	---	---	---	---	---	---
120:							
Arclay-----	0-4	5.0-11	6.6-7.8	0	0	0	0
	4-18	17-25	6.6-7.8	0	0	0	0
	18-46	---	---	---	---	---	---
	46-56	---	---	---	---	---	---
Acrelane-----	0-7	8.0-15	6.1-7.3	0	0	0	0
	7-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
130:							
Tenabo-----	0-9	5.0-10	7.9-9.0	0	0	2.0-4.0	5-12
	9-16	20-30	7.9-9.0	0-5	0	2.0-4.0	13-30
	16-32	---	---	---	---	---	---
	32-60	1.0-8.0	8.5-9.0	0-5	0	4.0-32.0	31-90
Gwena-----	0-6	5.0-20	7.4-8.4	0	0	0.0-4.0	1-12
	6-15	10-30	7.9-9.0	0-5	0	4.0-16.0	13-45
	15-31	---	---	---	---	---	---
	31-49	2.0-10	8.5-9.0	1-10	0	0.0-4.0	31-90
	49-60	0.0-5.0	8.5-9.0	1-10	0	0.0-4.0	31-90
Fulstone-----	0-3	20-25	6.1-7.3	0	0	0	0
	3-18	35-60	6.6-8.4	0	0	0.0-2.0	0-2
	18-29	---	---	---	---	---	---
140:							
Tenabo-----	0-9	5.0-10	7.9-9.0	0	0	2.0-4.0	5-12
	9-16	20-30	7.9-9.0	0	0	2.0-4.0	13-30
	16-32	---	---	---	---	---	---
	32-60	1.0-8.0	8.5-9.0	1-10	0	4.0-32.0	31-90
Oxcorel-----	0-5	10-20	7.9-8.4	0	0	0.0-4.0	1-12
	5-18	30-45	7.9-9.0	0-5	0	0.0-4.0	31-90
	18-60	5.0-10	7.9-9.0	1-5	0	0.0-8.0	46-90
145:							
Boulder Lake-----	0-9	35-65	6.1-7.8	0	0	0	0
	9-60	30-60	6.6-8.4	0	0	0.0-2.0	0
149:							
Boton-----	0-10	7.0-15	7.9-9.6	1-5	0	0.0-4.0	13-30
	10-28	11-22	7.9-9.6	5-20	0-5	8.0-16.0	46-99
	28-60	11-22	8.5-9.6	5-20	0-5	16.0-32.0	46-99
Slawha-----	0-13	10-20	8.5-9.6	0-1	0-1	8.0-16.0	0-12
	13-60	10-30	8.5-9.6	1-5	0-3	16.0-32.0	0-12
150:							
Boton-----	0-10	7.0-15	7.9-9.6	1-5	0	0.0-4.0	13-30
	10-28	11-22	7.9-9.6	5-20	0-5	8.0-16.0	46-99
	28-60	11-22	8.5-9.6	5-20	0-5	16.0-32.0	46-99
Boton-----	0-10	12-21	7.9-9.0	0	0	16.0-32.0	13-30
	10-28	18-25	7.9-9.0	5-20	0	8.0-32.0	45-99
	28-60	14-25	8.5-9.0	5-20	0-1	16.0-32.0	45-99
151:							
Boton-----	0-10	1.0-7.0	7.9-9.0	0	0	0.0-4.0	1-12
	10-28	11-22	7.9-9.0	5-20	0-5	8.0-16.0	13-90
	28-60	11-22	8.5-9.0	5-20	0-5	8.0-32.0	31-99
Boton-----	0-10	7.0-15	7.9-9.6	1-5	0	0.0-4.0	13-30
	10-28	11-22	7.9-9.6	5-20	0-5	8.0-16.0	46-99
	28-60	11-22	8.5-9.6	5-20	0-5	16.0-32.0	46-99

TABLE 11.--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	
155: Bearbutte-----	0-9	15-30	6.6-7.3	0	0	0	0
	9-24	12-25	6.6-7.3	0	0	0	0
	24-30	6.0-20	6.6-7.3	0	0	0	0
	30-53	4.0-16	6.6-7.3	0-1	0	0	0
	53-57	---	---	---	---	---	---
Badgercamp-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.3	0	0	0	0
	15-25	---	---	---	---	---	---
156: Bearbutte-----	0-9	15-30	6.6-7.3	0	0	0	0
	9-24	12-25	6.6-7.3	0	0	0	0
	24-30	6.0-20	6.6-7.3	0	0	0	0
	30-53	4.0-16	6.6-7.3	0-1	0	0	0
	53-57	---	---	---	---	---	---
Ninemile-----	0-3	20-28	6.1-7.3	0	0	0	0
	3-14	38-54	6.1-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
158: Blackhawk-----	0-3	10-17	7.4-9.0	0	0	0.0-2.0	1-12
	3-18	10-20	7.4-9.0	0	0	0.0-2.0	5-12
	18-34	---	---	---	---	---	---
	34-60	5.0-16	7.9-9.0	0-10	1-5	8.0-32.0	13-45
Trocken-----	0-4	3.0-12	6.6-9.6	0-1	0	0.0-2.0	5-12
	4-60	5.0-12	6.6-9.6	0-5	0	2.0-4.0	13-45
160: Bluewing-----	0-6	4.0-7.0	7.9-9.0	1-5	0	0.0-2.0	1-12
	6-60	1.0-5.0	7.9-9.0	5-15	0-1	0.0-4.0	1-12
161: Bluewing-----	0-6	4.0-9.0	7.9-9.0	0-5	0	0.0-2.0	1-12
	6-60	1.0-5.0	7.9-9.0	5-15	0-1	0.0-4.0	1-12
Trocken-----	0-4	10-20	7.4-9.6	0-5	0	0.0-2.0	1-12
	4-60	10-20	7.4-9.6	1-5	0-1	2.0-4.0	13-45
163: Dune Land-----	0-6	25-50	8.5-9.6	0-10	0-5	16.0-32.0	46-80
	6-60	25-50	8.5-9.6	0-10	0-10	16.0-32.0	46-80
164: Soughe-----	0-4	10-25	6.6-8.4	0	0	0	0-5
	4-14	20-30	6.6-8.4	0	0	0.0-2.0	0-5
	14-18	---	---	---	---	---	---
Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
168: Boton-----	0-10	7.0-15	7.9-9.6	1-5	0	0.0-4.0	13-30
	10-28	11-22	7.9-9.6	5-20	0-5	8.0-16.0	46-99
	28-60	11-22	8.5-9.6	5-20	0-5	16.0-32.0	46-99
Playas-----	0-6	35-65	8.5-9.6	1-5	1-5	16.0-32.0	46-90
	6-60	30-60	8.5-9.6	1-10	1-10	16.0-32.0	46-90
173: Deppy-----	0-3	5.0-15	7.9-8.4	0	0	2.0-4.0	1-12
	3-9	20-35	7.9-8.4	0	0	2.0-4.0	5-12
	9-21	---	---	---	---	---	---
	21-60	2.0-8.0	8.5-9.0	0	0	4.0-32.0	31-90
175: Wendane-----	0-10	15-25	8.5-9.6	5-15	0	16.0-32.0	46-99
	10-60	25-40	7.9-9.6	5-15	0	16.0-32.0	1-5

TABLE 11.--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
		meq/100 g	pH	Pct	Pct	mmhos/cm	
176:							
Bullump-----	0-15	15-30	6.1-7.8	0	0	0	0
	15-57	10-25	6.1-7.8	0	0	0	0
	57-67	---	---	---	---	---	---
Westbutte-----	0-6	15-30	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.3	0	0	0	0
	15-28	10-25	6.6-7.8	0	0	0	0
	28-38	---	---	---	---	---	---
Harcany-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-14	10-20	6.6-7.3	0	0	0	0
	14-60	10-20	6.6-7.3	0	0	0	0
177:							
Bullump-----	0-15	15-30	6.1-7.8	0	0	0	0
	15-57	10-25	6.1-7.8	0	0	0	0
	57-67	---	---	---	---	---	---
Sumine-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-30	15-30	6.6-7.8	0	0	0	0
	30-40	---	---	---	---	---	---
Cleavage-----	0-7	20-30	6.6-7.8	0	0	0	0
	7-15	20-40	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
180:							
Devada-----	0-5	20-30	6.1-7.8	0	0	0	0
	5-19	32-48	6.1-7.8	0	0	0	0
	19-29	---	---	---	---	---	---
Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
181:							
Westbutte-----	0-6	15-30	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.3	0	0	0	0
	15-28	10-25	6.6-7.8	0	0	0	0
	28-38	---	---	---	---	---	---
182:							
Devada-----	0-5	20-30	6.1-7.8	0	0	0	0
	5-19	32-48	6.1-7.8	0	0	0	0
	19-29	---	---	---	---	---	---
Ninemile-----	0-3	15-25	6.1-7.8	0	0	0	0
	3-14	45-75	6.1-8.4	0	0	0	0
	14-24	---	---	---	---	---	---
Tuffo-----	0-5	10-30	6.6-7.8	0	0	0	0
	5-8	5.0-20	6.6-7.8	0	0	0	0
	8-18	---	---	---	---	---	---
185:							
Fuett-----	0-3	5.0-10	7.9-9.0	1-5	0	0.0-2.0	0-5
	3-15	5.0-10	7.9-9.0	1-5	0	0.0-2.0	5-12
	15-25	---	---	---	---	---	---
Soughe-----	0-4	10-25	6.6-8.4	0	0	0	0-5
	4-14	20-30	6.6-8.4	0	0	0.0-2.0	0-5
	14-24	---	---	---	---	---	---
188:							
Cleavage-----	0-7	20-30	6.6-7.8	0	0	0	0
	7-15	20-40	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
Softscrabble-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---
Hackwood-----	0-18	12-35	6.1-7.3	0	0	0	0
	18-30	12-30	6.1-7.3	0	0	0	0
	30-60	20-35	6.1-7.3	0	0	0	0

TABLE 11.--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	
189:							
Cleavage-----	0-7	20-30	6.6-7.8	0	0	0	0
	7-15	20-40	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
Softscrabble-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---
Sumine-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-30	15-30	6.6-7.8	0	0	0	0
	30-40	---	---	---	---	---	---
190:							
Cleavage-----	0-7	20-30	6.6-7.8	0	0	0	0
	7-15	20-40	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
Westbutte-----	0-6	15-30	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.3	0	0	0	0
	15-28	10-25	6.6-7.8	0	0	0	0
	28-38	---	---	---	---	---	---
Softscrabble-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---
202:							
Cresal-----	0-5	20-25	7.9-9.0	1-5	0	0.0-4.0	1-12
	5-23	20-30	7.9-9.0	3-15	0-1	4.0-16.0	13-30
	23-60	18-35	7.9-9.0	3-20	0-5	8.0-32.0	13-80
218:							
Davey-----	0-4	5.0-15	6.6-7.8	0	0	0	0
	4-16	10-25	6.6-8.4	0	0	0.0-2.0	0-5
	16-60	2.0-10	7.9-9.0	0-10	0-1	0.0-2.0	0-5
231:							
Devada-----	0-5	20-30	6.1-7.8	0	0	0	0
	5-19	32-48	6.1-7.8	0	0	0	0
	19-29	---	---	---	---	---	---
Ninemile-----	0-3	20-28	6.1-7.3	0	0	0	0
	3-14	38-54	6.1-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
Softscrabble-----	0-20	10-20	6.1-7.3	0	0	0	0
	20-32	15-30	6.1-7.3	0	0	0	0
	32-61	15-30	6.1-7.3	0	0	0	0
	61-65	---	---	---	---	---	---
232:							
Devada-----	0-5	20-30	6.1-7.8	0	0	0	0
	5-19	32-48	6.1-7.8	0	0	0	0
	19-29	---	---	---	---	---	---
240:							
Deppy-----	0-3	5.0-15	7.9-8.4	0	0	2.0-4.0	1-12
	3-9	20-35	7.9-8.4	0	0	2.0-4.0	5-12
	9-21	---	---	---	---	---	---
	21-60	2.0-8.0	8.5-9.0	0	0	4.0-32.0	31-90
Tuntum-----	0-2	15-25	7.9-8.4	0	0	0	0
	2-10	28-35	7.9-8.4	0	0	0	0
	10-18	---	---	---	---	---	---
	18-60	3.0-12	7.9-8.4	0	0	0	0
252:							
Dun Glen-----	0-5	15-25	7.4-8.4	0	0	2.0-4.0	1-12
	5-11	15-25	7.4-8.4	0	0	2.0-4.0	1-12
	11-60	5.0-15	7.9-9.6	1-10	0-1	2.0-4.0	13-45
276:							
Orovada-----	0-6	10-15	6.6-8.4	0	0	0	0-5
	6-17	10-20	7.4-8.4	0-5	0	0.0-4.0	0-5
	17-60	10-20	7.9-9.6	1-15	0	4.0-16.0	1-12

TABLE 11.--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
296:							
Longcreek-----	0-2	15-20	6.6-7.3	0	0	0	0
	2-9	35-45	6.6-7.8	0	0	0	0
	9-14	25-35	6.6-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
Cleavage-----	0-7	20-30	6.6-7.8	0	0	0	0
	7-15	20-40	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
335:							
Ola-----	0-3	8.0-10	6.1-7.3	0	0	0	0
	3-19	8.0-10	6.1-7.3	0	0	0	0
	19-38	4.0-6.0	6.1-7.3	0	0	0	0
	38-39	---	---	---	---	---	---
	39-49	---	---	---	---	---	---
Poisoncreek-----	0-5	10-15	6.6-7.3	0	0	0	0
	5-13	35-45	6.6-7.3	0	0	0	0
	13-15	---	---	---	---	---	---
	15-25	---	---	---	---	---	---
338:							
Ola-----	0-3	8.0-10	6.1-7.3	0	0	0	0
	3-19	8.0-10	6.1-7.3	0	0	0	0
	19-38	4.0-6.0	6.1-7.3	0	0	0	0
	38-39	---	---	---	---	---	---
	39-49	---	---	---	---	---	---
Poisoncreek-----	0-5	10-15	6.6-7.3	0	0	0	0
	5-13	35-45	6.6-7.3	0	0	0	0
	13-15	---	---	---	---	---	---
	15-25	---	---	---	---	---	---
Tosp-----	0-4	10-25	5.6-7.3	0	0	0	0
	4-37	5.0-15	6.1-7.3	0	0	0	0
	37-50	5.0-15	6.1-7.3	0	0	0	0
	50-54	---	---	---	---	---	---
340:							
Ola-----	0-3	8.0-10	6.1-7.3	0	0	0	0
	3-19	8.0-10	6.1-7.3	0	0	0	0
	19-38	4.0-6.0	6.1-7.3	0	0	0	0
	38-39	---	---	---	---	---	---
	39-49	---	---	---	---	---	---
Aycab-----	0-2	5.0-10	6.1-7.3	0	0	0	0
	2-38	5.0-15	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
345:							
Genegraf-----	0-6	5.0-12	7.9-9.6	0-1	0	0.0-4.0	1-12
	6-14	15-30	8.5-9.6	1-5	0	8.0-16.0	31-90
	14-23	5.0-13	8.5-9.6	1-5	0	8.0-16.0	31-90
	23-60	2.0-8.0	7.9-9.6	1-10	0	4.0-8.0	31-45
Toulon-----	0-6	5.0-10	7.9-9.0	0-5	0-2	2.0-4.0	0-12
	6-14	5.0-10	7.9-9.0	1-5	0-2	2.0-4.0	0-12
	14-60	0.0-3.0	7.9-9.0	1-5	0-2	2.0-4.0	0-12
350:							
Fulstone-----	0-3	20-25	6.1-7.3	0	0	0	0
	3-18	35-60	6.6-8.4	0	0	0.0-2.0	0-2
	18-29	---	---	---	---	---	---
357:							
Granshaw-----	0-7	0.0-5.0	7.9-9.0	0	0	0.0-2.0	0
	7-25	5.0-15	7.9-9.0	1-5	0	0.0-2.0	0
	25-60	0.0-5.0	7.9-9.6	5-15	0	0.0-2.0	0
Shawave-----	0-5	6.0-12	7.4-8.4	0	0	0.0-2.0	0-13
	5-16	16-24	7.4-8.4	0	0	0.0-2.0	0-13
	16-46	2.0-10	7.4-8.4	0-4	0	0.0-2.0	5-13
	46-60	2.0-4.0	7.4-8.4	0-4	0	0.0-2.0	5-13

TABLE 11.--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	
360:							
Grumblen-----	0-3	11-18	7.4-8.4	0	0	0	0
	3-9	21-32	7.4-8.4	0	0	0	0
	9-18	21-31	7.9-8.4	1-5	0	0.0-4.0	0-5
	18-28	---	---	---	---	---	---
Pickup-----	0-5	15-25	6.6-8.4	0	0	0	0
	5-22	25-45	6.6-8.4	0	0	0.0-2.0	0
	22-32	---	---	---	---	---	---
374:							
Hoot-----	0-5	10-15	7.4-9.0	0	0	0.0-2.0	1-12
	5-15	15-30	7.4-9.0	0-5	0	0.0-4.0	5-12
	15-25	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
378:							
Hawsley-----	0-2	1.0-5.0	6.6-8.4	0	0	0	0
	2-42	1.0-5.0	7.4-9.0	1-5	0	0.0-2.0	1-5
	42-60	1.0-5.0	7.4-9.0	1-5	0	0.0-2.0	2-9
381:							
Hart Camp-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-19	15-25	6.1-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
Devada-----	0-5	20-30	6.1-7.8	0	0	0	0
	5-19	32-48	6.1-7.8	0	0	0	0
	19-29	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
382:							
Hart Camp-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-19	15-25	6.1-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Badgercamp-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.3	0	0	0	0
	15-19	---	---	---	---	---	---
388:							
Humboldt-----	0-13	20-45	7.9-8.4	0-3	0	0.0-4.0	1-12
	13-60	20-35	7.9-8.4	1-5	0	0.0-4.0	1-12
402:							
Tumtum-----	0-2	15-25	7.9-8.4	0	0	0	0
	2-10	28-35	7.9-8.4	0	0	0	0
	10-18	---	---	---	---	---	---
	18-60	3.0-12	7.9-8.4	0	0	0	0
410:							
Shawave-----	0-5	6.0-12	7.4-8.4	0	0	0.0-2.0	0-12
	5-16	16-24	7.4-8.4	0	0	0.0-2.0	0-12
	16-46	2.0-10	7.4-8.4	0-4	0	0.0-2.0	5-12
	46-60	2.0-4.0	7.4-8.4	0-4	0	0.0-2.0	5-12
Deadyon-----	0-5	5.0-15	6.6-8.4	0	0	0	0
	5-15	10-15	7.4-8.4	0	0	0	0-5
	15-33	2.0-7.0	7.4-8.4	0	0	0	0-12
	33-60	2.0-5.0	7.9-9.0	0	0	0.0-2.0	1-12
Shawave-----	0-5	6.0-12	7.4-8.4	0	0	0.0-2.0	0-12
	5-16	16-24	7.4-8.4	0	0	0.0-2.0	0-12
	16-46	2.0-10	7.4-8.4	0-4	0	0.0-2.0	5-12
	46-60	2.0-4.0	7.4-8.4	0-4	0	0.0-2.0	5-12
411:							
Shawave-----	0-5	6.0-12	7.4-8.4	0	0	0.0-2.0	0-12
	5-16	16-24	7.4-8.4	0	0	0.0-2.0	0-12
	16-46	2.0-10	7.4-8.4	0-4	0	0.0-2.0	5-12
	46-60	2.0-4.0	7.4-8.4	0-4	0	0.0-2.0	5-12
Orovada-----	0-6	10-15	6.6-8.4	0	0	0	0-5
	6-17	10-20	7.4-8.4	0-5	0	0.0-4.0	0-5
	17-60	10-20	7.9-9.6	1-15	0	4.0-16.0	1-12

TABLE 11.--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	
413:							
Isolde-----	0-3	1.0-5.0	6.6-8.4	0-1	0	0	0-5
	3-60	1.0-5.0	6.6-8.4	0-3	0-1	0.0-2.0	0-5
Typic Torriorthents--	0-5	1.0-5.0	7.9-9.0	1-3	0	0.0-4.0	13-30
	5-60	---	---	---	---	---	---
Dune Land-----	0-6	25-50	8.5-9.6	0-10	0-5	16.0-32.0	46-80
	6-60	25-50	8.5-9.6	0-10	0-10	16.0-32.0	46-80
414:							
Isolde-----	0-3	1.0-5.0	6.6-8.4	0-1	0	0	0-5
	3-60	1.0-5.0	6.6-8.4	0-3	0-1	0.0-2.0	0-5
Mazuma-----	0-5	6.0-10	7.9-9.6	1-5	0	0.0-4.0	1-5
	5-60	3.0-9.0	7.9-9.6	1-10	0	4.0-16.0	13-45
Jerval-----	0-4	8.0-20	7.9-8.4	0-2	0	2.0-4.0	1-12
	4-12	20-30	7.9-9.0	1-5	0-3	8.0-16.0	13-30
	12-60	2.0-10	7.9-9.0	1-10	1-5	8.0-16.0	13-30
420:							
Jesse Camp-----	0-4	10-25	7.9-8.4	0-2	0	0.0-2.0	0-12
	4-12	15-30	7.9-8.4	0-2	0	0.0-2.0	0-12
	12-60	15-25	7.9-9.0	2-5	0-1	2.0-8.0	1-12
430:							
Woofus-----	0-6	15-24	7.9-8.4	1-10	0	0.0-2.0	0
	6-20	12-22	7.4-8.4	1-10	0	0.0-2.0	0
	20-40	0.0-5.0	7.4-8.4	1-10	0	0.0-2.0	0
	40-60	0.0-6.0	7.4-8.4	0-5	0	0.0-2.0	0
431:							
Woofus-----	0-6	20-35	7.9-8.4	1-5	0	0.0-2.0	0
	6-20	12-22	7.4-8.4	1-10	0	0.0-2.0	0
	20-40	0.0-5.0	7.4-8.4	1-10	0	0.0-2.0	0
	40-60	0.0-6.0	7.4-8.4	0-5	0	0.0-2.0	0
Welch-----	0-9	25-30	6.1-7.3	0	0	0	0
	9-60	25-35	6.1-7.8	0	0	0	0
432:							
Isolde-----	0-3	1.0-5.0	6.6-8.4	0-1	0	0	0-5
	3-60	1.0-5.0	6.6-8.4	0-3	0-1	0.0-2.0	0-5
Ragtown-----	0-7	10-25	7.9-9.6	1-5	0	16.0-32.0	1-5
	7-17	20-30	7.9-9.6	1-5	0-1	16.0-32.0	1-12
	17-60	20-35	7.9-9.6	1-5	0-5	4.0-16.0	1-12
433:							
Wetvit-----	0-16	40-50	6.1-7.8	0	0	0	0
	16-41	35-45	6.1-7.8	0	0	0	0
	41-60	35-45	6.6-7.8	0	0	0	0
Wetvit-----	0-16	40-50	6.1-7.8	0-1	0	0	0
	16-41	35-45	6.1-7.8	0	0	0	0
	41-60	35-45	6.6-7.8	0	0	0	0
442:							
Rodock-----	0-2	15-25	6.6-7.8	0	0	0.0-4.0	0-2
	2-20	15-35	6.6-8.4	0	0	0.0-4.0	0-5
	20-29	5.0-15	7.4-9.0	0-3	0	0.0-4.0	0-5
	29-60	2.0-5.0	7.4-9.0	0-3	0	0.0-8.0	1-12
Fax-----	0-4	15-30	7.4-8.4	0	0	0	0
	4-12	15-35	7.4-8.4	0	0	0	0
	12-22	10-25	7.9-8.4	1-10	0	0.0-2.0	0
	22-48	---	---	---	---	---	---

TABLE 11.--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	
Holbrook-----	0-6	0.0-0.0	6.1-7.3	0	0	0.0-2.0	0
	6-61	0.0-0.0	6.1-8.4	0-5	0	0.0-2.0	0
452:							
Rocconda-----	0-3	10-20	7.4-8.4	0	0	0	0-5
	3-8	20-40	7.4-8.4	0	0	0	0-5
	8-18	---	---	---	---	---	---
Coppereid-----	0-2	10-20	7.9-9.0	5-15	0	0.0-2.0	0
	2-9	10-20	7.9-9.0	5-15	0	0.0-2.0	0
	9-13	---	---	---	---	---	---
Soughe-----	0-4	10-25	6.6-8.4	0	0	0	0-5
	4-14	20-30	6.6-8.4	0	0	0.0-2.0	0-5
	14-18	---	---	---	---	---	---
463:							
Jerval-----	0-4	8.0-20	7.9-8.4	0-2	0	2.0-4.0	1-12
	4-20	20-30	7.9-9.0	1-5	0-3	8.0-16.0	13-30
	20-60	2.0-10	7.9-9.0	1-10	1-5	8.0-16.0	13-30
Dorper-----	0-2	5.0-15	7.9-9.0	0-1	0	0.0-2.0	1-12
	2-7	5.0-15	7.9-9.0	0-5	0	2.0-4.0	1-12
	7-17	25-35	7.9-9.0	0-5	0-1	2.0-8.0	13-45
	17-60	5.0-15	7.9-9.0	1-10	0-5	16.0-32.0	31-90
464:							
Jerval-----	0-4	10-25	7.9-8.4	0-2	0	2.0-4.0	1-12
	4-20	20-30	7.9-9.0	1-5	0-3	8.0-16.0	13-30
	20-60	2.0-10	7.9-9.0	1-10	1-5	8.0-16.0	13-30
Dorper-----	0-2	5.0-15	7.9-9.0	0-1	0	0.0-2.0	1-12
	2-7	5.0-15	7.9-9.0	0-5	0	2.0-4.0	1-12
	7-17	25-35	7.9-9.0	0-5	0-1	2.0-8.0	13-45
	17-60	5.0-15	7.9-9.0	1-10	0-5	16.0-32.0	31-90
467:							
Ninemile-----	0-3	20-28	6.1-7.3	0	0	0	0
	3-14	38-54	6.1-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
Sumine-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-30	15-30	6.6-7.8	0	0	0	0
	30-40	---	---	---	---	---	---
Softscrabble-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---
468:							
Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
Ninemile-----	0-3	15-25	6.1-7.8	0	0	0	0
	3-14	45-75	6.1-8.4	0	0	0	0
	14-24	---	---	---	---	---	---
Frentera-----	0-14	25-40	6.6-7.3	0	0	0	0
	14-35	15-40	6.6-8.4	0	0	0	0
	35-61	---	---	---	---	---	---
470:							
Frentera-----	0-3	25-40	6.6-7.3	0	0	0	0
	3-33	15-40	6.6-8.4	0	0	0	0
	33-43	---	---	---	---	---	---
Wylo-----	0-4	15-30	6.6-7.8	0	0	0.0-2.0	0
	4-15	25-45	6.6-7.8	0	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Tuffo-----	0-5	10-30	6.6-7.8	0	0	0	0
	5-8	5.0-20	6.6-7.8	0	0	0	0
	8-18	---	---	---	---	---	---
475:							
Juva-----	0-6	7.0-16	7.9-9.0	0-5	0	0.0-2.0	1-12
	6-60	4.0-11	7.9-9.0	1-10	0	0.0-4.0	13-30

TABLE 11.--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	
480:							
Tuffo-----	0-5	10-30	6.6-7.8	0	0	0	0
	5-8	5.0-20	6.6-7.8	0	0	0	0
	8-18	---	---	---	---	---	---
Wylo-----	0-4	15-30	6.6-7.8	0	0	0.0-2.0	0
	4-15	25-45	6.6-7.8	0	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Frentera-----	0-14	25-40	6.6-7.3	0	0	0	0
	14-35	15-40	6.6-8.4	0	0	0	0
	35-61	---	---	---	---	---	---
531:							
Longcreek-----	0-2	15-20	6.6-7.3	0	0	0	0
	2-9	35-45	6.6-7.8	0	0	0	0
	9-14	25-35	6.6-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
535:							
Locane-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-14	20-40	6.1-7.3	0	0	0	0
	14-24	---	---	---	---	---	---
550:							
Welch-----	0-9	25-30	6.1-7.3	0	0	0	0
	9-60	25-35	6.1-7.8	0	0	0	0
563:							
Sondoa-----	0-5	20-35	8.5-9.6	5-15	0	16.0-32.0	46-90
	5-60	25-40	8.5-9.6	5-15	0-1	4.0-16.0	91-130
Isolde-----	0-3	1.0-5.0	6.6-8.4	0-1	0	0	0-5
	3-60	1.0-5.0	6.6-8.4	0-3	0-1	0.0-2.0	0-5
574:							
Mazuma-----	0-5	3.0-9.0	8.5-9.6	1-5	0	16.0-32.0	13-45
	5-27	3.0-9.0	8.5-9.6	5-10	0-1	8.0-32.0	13-30
	27-60	3.0-9.0	7.9-9.6	5-10	0-1	2.0-32.0	13-30
575:							
Mazuma-----	0-5	2.0-7.0	7.9-9.6	1-5	0	0.0-4.0	1-5
	5-60	2.0-10	7.9-9.6	1-10	0	4.0-16.0	13-45
Mazuma-----	0-5	3.0-9.0	8.5-9.6	1-5	0	16.0-32.0	13-45
	5-27	3.0-9.0	8.5-9.6	5-10	0-1	8.0-32.0	13-30
	27-60	3.0-9.0	7.9-9.6	5-10	0-1	2.0-32.0	13-30
576:							
Mazuma-----	0-5	6.0-10	7.9-9.6	1-5	0	0.0-4.0	1-5
	5-60	3.0-9.0	7.9-9.6	1-10	0	4.0-16.0	13-45
577:							
Mazuma-----	0-5	3.0-9.0	8.5-9.6	1-5	0	16.0-32.0	13-45
	5-27	3.0-9.0	8.5-9.6	5-10	0-1	8.0-32.0	13-30
	27-60	3.0-9.0	7.9-9.6	5-10	0-1	2.0-32.0	13-30
Isolde-----	0-3	1.0-5.0	6.6-8.4	0-1	0	0	0-5
	3-60	1.0-5.0	6.6-8.4	0-3	0-1	0.0-2.0	0-5
Typic Torriorthents--	0-5	5.0-14	7.9-9.0	1-5	0	0.0-4.0	10-30
	5-60	---	---	---	---	---	---
578:							
Mazuma-----	0-5	3.0-9.0	8.5-9.6	1-5	0	16.0-32.0	13-45
	5-27	3.0-9.0	8.5-9.6	5-10	0-1	8.0-32.0	13-30
	27-60	3.0-9.0	7.9-9.6	5-10	0-1	2.0-32.0	13-30
Toulon-----	0-6	5.0-10	7.9-9.0	0-5	0-2	2.0-4.0	0-12
	6-14	5.0-10	7.9-9.0	1-5	0-2	2.0-4.0	0-12
	14-60	0.0-3.0	7.9-9.0	1-5	0-2	2.0-4.0	0-12
Isolde-----	0-3	1.0-5.0	6.6-8.4	0-1	0	0	0-5
	3-60	1.0-5.0	6.6-8.4	0-3	0-1	0.0-2.0	0-5

TABLE 11.--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	
580: McConnel-----	0-5 5-15 15-60	5.0-15 5.0-15 1.0-5.0	6.6-7.8 6.6-7.8 7.9-9.6	0 0 0-3	0 0 0	0.0-2.0 0.0-2.0 2.0-16.0	0 0 1-12
581: McConnel-----	0-5 5-15 15-60	5.0-10 5.0-15 1.0-5.0	7.4-7.8 7.4-7.8 7.9-9.0	0 0 0	0 0 0	0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 1-12
620: Croesus-----	0-10 10-22 22-29 29-39	5.0-20 5.0-20 5.0-20 ---	6.1-7.3 6.1-7.3 7.4-8.4 ---	0 0 0 ---	0 0 0 ---	0 0 0.0-2.0 ---	0 0 0 ---
Rock Outcrop-----	---	---	---	---	---	---	---
630: Ninemile-----	0-3 3-14 14-24	20-28 38-54 ---	6.1-7.3 6.1-7.8 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
647: Wendane-----	0-10 10-60	15-25 25-40	8.5-9.6 7.9-9.6	5-15 5-15	0 0	16.0-50.0 16.0-32.0	13-99 1-5
Humboldt-----	0-13 13-60	20-45 20-35	7.9-8.4 7.9-8.4	1-5 1-5	0 0	0.0-4.0 0.0-4.0	1-12 1-12
648: Wendane-----	0-10 10-60	15-25 25-40	8.5-9.6 7.9-9.6	5-15 5-15	0 0	16.0-50.0 16.0-32.0	13-99 1-5
660: Soughe-----	0-4 4-14 14-24	10-20 15-30 ---	6.6-7.8 6.6-8.4 ---	0 0 ---	0 0 ---	0 0.0-2.0 ---	0-5 0-5 ---
Hoot-----	0-5 5-15 15-25	10-15 15-30 ---	7.4-9.0 7.4-9.0 ---	0 0-5 ---	0 0 ---	0.0-2.0 0.0-4.0 ---	1-12 5-12 ---
662: Jaybee-----	0-7 7-14 14-24	15-30 25-40 ---	6.6-7.8 6.6-7.8 ---	0 0 ---	0 0 ---	0.0-2.0 0.0-2.0 ---	0 0 ---
Soughe-----	0-4 4-14 14-18	10-25 20-30 ---	6.6-7.8 6.6-8.4 ---	0 0 ---	0 0 ---	0 0.0-2.0 ---	0-5 0-5 ---
Hoot-----	0-5 5-15 15-25	10-15 15-30 ---	7.4-9.0 7.4-9.0 ---	0 0-5 ---	0 0 ---	0.0-2.0 0.0-4.0 ---	1-12 5-12 ---
663: Soughe-----	0-4 4-14 14-18	10-25 20-30 ---	6.6-7.8 6.6-8.4 ---	0 0 ---	0 0 ---	0 0.0-2.0 ---	0-5 0-5 ---
Rock Outcrop-----	---	---	---	---	---	---	---
664: Soughe-----	0-4 4-14 14-18	10-25 20-30 ---	6.6-7.8 6.6-8.4 ---	0 0 ---	0 0 ---	0 0.0-2.0 ---	0-5 0-5 ---
670: Denio-----	0-3 3-16 16-60	3.0-6.0 3.0-6.0 0.0-2.0	7.4-8.4 7.4-8.4 7.4-8.4	0 0 0	0 0 0	0 0 0	0 0 0
679: Outerkirk-----	0-4 4-34 34-50 50-60	0.0-5.0 5.0-10 0.0-5.0 0.0-5.0	7.9-8.4 8.5-9.0 8.5-9.0 8.5-9.0	0-1 1-5 4-8 0-1	0 0 0 0	0 0.0-2.0 0.0-2.0 0.0-2.0	0 0 0 0

TABLE 11.--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
		meq/100 g	pH	Pct	Pct	mmhos/cm	
683: Oxcorel-----	0-5	10-20	7.9-8.4	0	0	0.0-4.0	1-12
	5-18	30-45	7.9-9.0	0-5	0	0.0-4.0	31-90
	18-60	5.0-10	7.9-9.0	1-5	0	0.0-8.0	46-90
703: Pickup-----	0-5	10-18	6.6-7.8	0	0	0	0
	5-22	25-37	6.6-8.4	0	0	0.0-2.0	0-5
	22-32	---	---	---	---	---	---
Grumblen-----	0-3	11-18	7.4-8.4	0	0	0	0
	3-9	21-32	7.4-8.4	0	0	0	0
	9-18	21-31	7.9-8.4	1-5	0	0.0-4.0	0-5
	18-28	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
715: Wholan-----	0-3	3.0-10	7.4-9.0	0-1	0	2.0-8.0	0-12
	3-60	3.0-10	7.4-9.6	0-15	0	4.0-16.0	0-12
716: Wholan-----	0-3	4.0-15	7.9-9.0	0-1	0	2.0-4.0	0
	3-60	3.0-10	7.4-9.6	0-15	0	4.0-16.0	0-12
720: Pickup-----	0-5	15-25	6.6-7.8	0	0	0	0
	5-22	25-45	6.6-8.4	0	0	0.0-2.0	0
	22-32	---	---	---	---	---	---
Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
Puett-----	0-3	5.0-10	7.9-9.0	1-5	0	0.0-2.0	0-5
	3-15	5.0-10	7.9-9.0	1-5	0	0.0-2.0	5-12
	15-25	---	---	---	---	---	---
758: Longcreek-----	0-2	15-20	6.6-7.3	0	0	0	0
	2-9	35-45	6.6-7.8	0	0	0	0
	9-14	25-35	6.6-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
Softscrabble-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---
Anawalt-----	0-6	15-30	6.6-8.4	0	0	0	0
	6-15	25-50	6.6-8.4	0-5	0	0	0
	15-25	---	---	---	---	---	---
775: Rednik-----	0-6	3.0-10	7.4-9.0	0-3	0	0.0-2.0	1-12
	6-18	15-20	7.9-9.0	1-5	0-1	4.0-8.0	13-30
	18-60	3.0-10	8.5-9.6	1-5	0-2	2.0-8.0	13-30
Jungo-----	0-5	20-30	7.4-8.4	0-5	0	0.0-2.0	0-5
	5-22	30-40	7.9-9.0	1-10	1-5	0.0-4.0	0-12
	22-60	30-40	7.9-9.0	10-15	1-5	0.0-4.0	1-12
Aboten-----	0-7	4.0-11	7.9-9.0	0-5	0	0.0-2.0	1-12
	7-14	15-22	7.9-9.0	1-5	0	2.0-4.0	13-90
	14-30	---	---	---	---	---	---
	30-60	1.0-6.0	7.9-9.0	1-10	0-5	4.0-16.0	31-45

TABLE 11.--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	
781: Pickup-----	0-5 5-22 22-32	15-25 25-45 ---	6.6-8.4 6.6-8.4 ---	0 0 ---	0 0 ---	0 0.0-2.0 ---	0 0 ---
Bucklake-----	0-6 6-10 10-21 21-31	10-20 20-30 25-40 ---	6.1-7.3 6.6-7.8 6.6-7.8 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---
782: Skedaddle-----	0-12 >12	15-25 ---	6.6-7.8 ---	0 ---	0 ---	0 ---	0 ---
Rock Outcrop-----	---	---	---	---	---	---	---
783: Rocconda-----	0-3 3-8 8-18	10-20 20-40 ---	7.4-8.4 7.4-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0-5 0-5 ---
Rocconda-----	0-3 3-8 8-18	10-20 20-40 ---	7.4-8.4 7.4-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0-5 0-5 ---
785: Rodel-----	0-5 5-17 17-21	5.0-10 5.0-10 ---	5.6-6.5 5.6-6.5 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Rubble Land-----	0-60	---	---	0	0	0	0
790: Valmy-----	0-2 2-60	5.0-15 5.0-15	7.9-9.6 8.5-9.6	0 1-4	0 0	4.0-8.0 4.0-8.0	1-12 13-45
803: Ninemile-----	0-3 3-14 14-24	15-25 45-75 ---	6.1-7.8 6.1-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Rock Outcrop-----	---	---	---	---	---	---	---
804: Singatse-----	0-4 4-8 8-14 14-24	4.0-12 4.0-12 ---	7.9-9.0 7.9-9.0 ---	1-10 1-10 ---	0 0 ---	0.0-2.0 0.0-2.0 ---	0-5 0-12 ---
Rock Outcrop-----	---	---	---	---	---	---	---
805: Singatse-----	0-4 4-8 8-14 14-24	4.0-12 4.0-12 ---	7.9-9.0 7.9-9.0 ---	1-10 1-10 ---	0 0 ---	0.0-2.0 0.0-2.0 ---	0-5 0-12 ---
Jaybee-----	0-7 7-14 14-24	15-30 25-40 ---	6.6-7.8 6.6-7.8 ---	0 0 ---	0 0 ---	0.0-2.0 0.0-2.0 ---	0 0 ---
806: Singatse-----	0-4 4-8 8-14 14-24	4.0-12 4.0-12 ---	7.9-9.0 7.9-9.0 ---	1-10 1-10 ---	0 0 ---	0.0-2.0 0.0-2.0 ---	0-5 0-12 ---
Rocconda-----	0-3 3-8 8-18	10-20 20-40 ---	7.4-8.4 7.4-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0-5 0-5 ---
Badland-----	0-2 2-60	15-60 ---	7.4-9.6 ---	1-40 ---	0-5 ---	0.0-32.0 ---	0-99 ---

TABLE 11.--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
		meq/100 g	pH	Pct	Pct	mmhos/cm	
818:							
Siscab-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-8	20-30	6.1-7.3	0	0	0	0
	8-12	---	---	---	---	---	---
Aycab-----	0-29	10-20	6.1-7.3	0	0	0	0
	29-38	5.0-15	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
Ola-----	0-3	8.0-10	6.1-7.3	0	0	0	0
	3-19	8.0-10	6.1-7.3	0	0	0	0
	19-38	4.0-6.0	6.1-7.3	0	0	0	0
	38-39	---	---	---	---	---	---
	39-49	---	---	---	---	---	---
819:							
Siscab-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-8	20-30	6.1-7.3	0	0	0	0
	8-12	---	---	---	---	---	---
Ola-----	0-3	8.0-10	6.1-7.3	0	0	0	0
	3-19	8.0-10	6.1-7.3	0	0	0	0
	19-38	4.0-6.0	6.1-7.3	0	0	0	0
	38-39	---	---	---	---	---	---
	39-49	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
820:							
Siscab-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-8	20-30	6.1-7.3	0	0	0	0
	8-12	---	---	---	---	---	---
Poisoncreek-----	0-5	10-15	6.6-7.3	0	0	0	0
	5-13	35-45	6.6-7.3	0	0	0	0
	13-15	---	---	---	---	---	---
	15-25	---	---	---	---	---	---
Ola-----	0-3	8.0-10	6.1-7.3	0	0	0	0
	3-19	8.0-10	6.1-7.3	0	0	0	0
	19-38	4.0-6.0	6.1-7.3	0	0	0	0
	38-39	---	---	---	---	---	---
	39-49	---	---	---	---	---	---
821:							
Siscab-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-8	20-30	6.1-7.3	0	0	0	0
	8-12	---	---	---	---	---	---
Poisoncreek-----	0-5	10-15	6.6-7.3	0	0	0	0
	5-13	35-45	6.6-7.3	0	0	0	0
	13-15	---	---	---	---	---	---
	15-25	---	---	---	---	---	---
Alta-----	0-17	7.0-16	6.1-7.3	0	0	0	0
	17-50	3.0-8.0	6.1-7.3	0	0	0	0
	50-60	---	---	---	---	---	---
823:							
Softscrabble-----	0-12	10-20	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
Cleavage-----	0-7	10-25	6.6-7.8	0	0	0	0
	7-15	15-30	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
Harcany-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-14	10-20	6.6-7.3	0	0	0	0
	14-60	10-20	6.6-7.3	0	0	0	0
824:							
Simon-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-31	10-25	6.1-7.3	0	0	0	0
	31-46	20-30	6.1-7.3	0	0	0	0
	46-60	10-20	6.6-7.3	0	0	0	0
825:							
Sojur-----	0-6	10-20	7.9-9.0	1-10	0	0.0-2.0	1-12
	6-16	---	---	---	---	---	---

TABLE 11.--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
		meq/100 g	pH	Pct	Pct	mmhos/cm	
826: Simon-----	0-7 7-31 31-46 46-60	10-20 10-25 20-30 10-20	6.6-7.3 6.1-7.3 6.1-7.3 6.6-7.3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Fulstone-----	0-3 3-18 18-29	20-25 35-60 ---	6.1-7.3 6.6-8.4 ---	0 0 ---	0 0 ---	0 0.0-2.0 ---	0 0-2 ---
829: Skedaddle-----	0-12 >12	15-25 ---	6.6-7.8 ---	0 ---	0 ---	0 ---	0 ---
Softscrabble-----	0-12 12-36 36-61 61-71	10-25 15-30 15-30 ---	6.1-7.3 6.1-7.3 6.1-7.3 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---
Cleavage-----	0-7 7-15 15-25	20-30 20-40 ---	6.6-7.8 6.6-7.8 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
830: Skedaddle-----	0-12 >12	15-25 ---	6.6-7.8 ---	0 ---	0 ---	0 ---	0 ---
Rock Outcrop-----	---	---	---	---	---	---	---
Sumya-----	0-7 7-11 11-21	20-35 25-40 ---	6.6-7.3 6.6-7.8 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
835: Ola-----	0-3 3-19 19-38 38-39 39-49	8.0-10 8.0-10 4.0-6.0 --- ---	6.1-7.3 6.1-7.3 6.1-7.3 --- ---	0 0 0 --- ---	0 0 0 --- ---	0 0 0 --- ---	0 0 0 --- ---
Aycab-----	0-2 2-38 38-42	5.0-10 5.0-15 ---	6.1-7.3 6.1-7.3 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Tosp-----	0-4 4-37 37-50 50-54	10-25 5.0-15 5.0-15 ---	5.6-7.3 6.1-7.3 6.1-7.3 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---
840: Saraph-----	0-2 2-9 9-16 16-26	3.0-10 10-20 12-26 ---	6.6-7.8 6.6-7.8 6.6-8.4 ---	0 0 0-1 ---	0 0 0 ---	0 0 0.0-2.0 ---	0 0 0 ---
Yellowhills-----	0-16 16-34 34-60	15-40 20-50 20-50	6.6-7.8 6.6-7.8 6.6-7.8	0 0 0	0 0 0	0 0 0	0 0 0
841: Saraph-----	0-2 2-9 9-16 16-26	3.0-10 10-20 12-26 ---	6.6-7.8 6.6-7.8 6.6-8.4 ---	0 0 0-1 ---	0 0 0 ---	0 0 0.0-2.0 ---	0 0 0 ---
Tuffo-----	0-5 5-8 8-18	10-30 5.0-20 ---	6.6-7.8 6.6-7.8 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Yellowhills-----	0-16 16-34 34-60	15-40 20-50 20-50	6.6-7.8 6.6-7.8 6.6-7.8	0 0 0	0 0 0	0 0 0	0 0 0

TABLE 11.--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
907: Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
909: Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
Softscrabble-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-36	15-30	6.1-7.3	0	0	0	0
	36-61	15-30	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---
Rubble Land-----	0-60	---	---	0	0	0	0
935: Wesfil-----	0-8	10-15	7.4-9.0	1-10	0	0.0-2.0	1-5
	8-13	---	---	---	---	---	---
	13-23	---	---	---	---	---	---
Sojur-----	0-6	10-20	7.9-9.0	1-10	0	0.0-2.0	1-12
	6-16	---	---	---	---	---	---
938: Weso-----	0-3	10-25	7.9-9.0	0	0	8.0-16.0	5-12
	3-29	10-20	7.9-9.6	0-4	0	8.0-16.0	13-30
	29-60	5.0-15	8.5-9.6	0-4	0-1	8.0-16.0	13-30
940: Westbutte-----	0-6	15-30	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.3	0	0	0	0
	15-28	10-25	6.6-7.8	0	0	0	0
	28-38	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
965: Wylo-----	0-4	15-30	6.6-7.8	0	0	0.0-2.0	0
	4-15	25-45	6.6-7.8	0	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Bucklake-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	6.6-7.8	0	0	0	0
	10-21	25-40	6.6-7.8	0	0	0	0
	21-31	---	---	---	---	---	---
Rock Outcrop-----	---	---	---	---	---	---	---
1000: Broyles-----	0-10	7.0-18	7.9-9.0	0	0	2.0-4.0	5-12
	10-60	5.0-20	8.5-9.6	0	0-5	4.0-16.0	5-30
1010: Bubus-----	0-2	10-20	7.9-9.6	0-2	0	8.0-16.0	13-30
	2-60	5.0-25	7.9-9.6	2-10	0-1	8.0-32.0	13-99
1030: Rio King-----	0-6	15-25	6.6-7.8	0	0	0.0-2.0	0
	6-60	15-25	6.6-7.8	0	0	0.0-2.0	0-5
1032: Raglan-----	0-7	8.0-20	7.9-9.0	0-3	0	0.0-4.0	5-12
	7-16	8.0-25	7.9-9.0	0-3	0	0.0-4.0	12-30
	16-30	15-30	7.9-9.0	1-15	0-5	8.0-32.0	13-45
1060: Raglan-----	0-7	8.0-20	7.9-9.0	0-5	0	16.0-32.0	13-45
	7-16	8.0-25	7.9-9.0	0-5	0	16.0-32.0	13-60
	16-60	15-30	8.5-9.0	1-5	0-5	16.0-32.0	31-99
1080: Argenta-----	0-4	10-20	7.9-9.0	0-3	0	16.0-32.0	46-99
	4-46	10-25	7.9-9.0	1-10	0-5	4.0-32.0	13-45
	46-60	3.0-15	7.9-9.0	0-10	0-5	2.0-8.0	5-12
Argenta-----	0-4	10-20	7.9-9.0	0-3	0	16.0-32.0	46-99
	4-46	10-25	7.9-9.0	1-10	0-5	4.0-32.0	13-45
	46-60	3.0-15	7.9-9.0	0-10	0-5	2.0-8.0	5-12

TABLE 12.--WATER FEATURES

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
102: Cleaver-----	D	None	---	---	>6.0	---	---	---	---
104: Anawalt-----	D	None	---	---	>6.0	---	---	---	---
Devada-----	D	None	---	---	>6.0	---	---	---	---
Tuffo-----	D	None	---	---	>6.0	---	---	---	---
105: Goldrun-----	A	None	---	---	>6.0	---	---	---	---
Alvodest-----	D	Rare	---	---	-0.5-3.0	Apparent	Dec-Apr	Long	0.5
106: Goldrun-----	A	None	---	---	>6.0	---	---	---	---
108: Anawalt-----	D	None	---	---	>6.0	---	---	---	---
Oreneva-----	C	None	---	---	>6.0	---	---	---	---
110: Aycab-----	C	None	---	---	>6.0	---	---	---	---
Tosp-----	B	None	---	---	>6.0	---	---	---	---
Welch-----	D	Occasional	Brief	Mar-Jun	0.0-1.5	Apparent	Nov-Jun	---	---
111: Aycab-----	C	None	---	---	>6.0	---	---	---	---
Alta-----	B	None	---	---	>6.0	---	---	---	---
Tosp-----	B	None	---	---	>6.0	---	---	---	---
116: Acrelane-----	C	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
117: Acrelane-----	C	None	---	---	>6.0	---	---	---	---
Poisoncreek-----	D	None	---	---	>6.0	---	---	---	---
120: Arclay-----	D	None	---	---	>6.0	---	---	---	---
Acrelane-----	C	None	---	---	>6.0	---	---	---	---
130: Tenabo-----	D	None	---	---	>6.0	---	---	---	---
Gwena-----	D	None	---	---	>6.0	---	---	---	---
Fulstone-----	D	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
140: Tenabo-----	D	None	---	---	>6.0	---	---	---	---
Oxcorel-----	D	None	---	---	>6.0	---	---	---	---
145: Boulder Lake---	D	None	---	---	-1.0-1.5	Perched	Dec-Jun	Long	1.0
149: Boton-----	B	None	---	---	>6.0	---	---	---	---
Slawha-----	C	Occasional	Brief	Dec-May	>6.0	---	---	---	---
150: Boton-----	B	None	---	---	>6.0	---	---	---	---
Boton-----	B	Occasional	Brief	Feb-Jun	>6.0	---	---	---	---
151: Boton-----	B	Rare	---	---	>6.0	---	---	---	---
Boton-----	B	None	---	---	>6.0	---	---	---	---
155: Bearbutte-----	B	None	---	---	>6.0	---	---	---	---
Badgercamp---	D	None	---	---	>6.0	---	---	---	---
156: Bearbutte-----	B	None	---	---	>6.0	---	---	---	---
Ninemile-----	D	None	---	---	>6.0	---	---	---	---
158: Blackhawk-----	D	None	---	---	>6.0	---	---	---	---
Trocken-----	B	None	---	---	>6.0	---	---	---	---
160: Bluewing-----	A	None	---	---	>6.0	---	---	---	---
161: Bluewing-----	A	Frequent	Very brief	Nov-Sep	>6.0	---	---	---	---
Trocken-----	B	Rare	---	---	>6.0	---	---	---	---
163: Dune Land-----	C	None	---	---	>6.0	---	---	---	---
164: Soughe-----	D	None	---	---	>6.0	---	---	---	---
Bucklake-----	C	None	---	---	>6.0	---	---	---	---
168: Boton-----	B	None	---	---	>6.0	---	---	---	---
Playas-----	D	None	---	---	-1.0-1.0	Apparent	Feb-Sep	Long	1.0

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
173: Deppy-----	D	None	---	---	>6.0	---	---	---	---
175: Wendane-----	C	Rare	---	---	2.5-4.0	Apparent	Feb-Jul	---	---
176: Bullump-----	B	None	---	---	>6.0	---	---	---	---
Westbutte-----	C	None	---	---	>6.0	---	---	---	---
Harcany-----	B	None	---	---	>6.0	---	---	---	---
177: Bullump-----	B	None	---	---	>6.0	---	---	---	---
Sumine-----	C	None	---	---	>6.0	---	---	---	---
Cleavage-----	D	None	---	---	>6.0	---	---	---	---
180: Devada-----	D	None	---	---	>6.0	---	---	---	---
Bucklake-----	C	None	---	---	>6.0	---	---	---	---
181: Westbutte-----	C	None	---	---	>6.0	---	---	---	---
182: Devada-----	D	None	---	---	>6.0	---	---	---	---
Ninemile-----	D	None	---	---	>6.0	---	---	---	---
Tuffo-----	D	None	---	---	>6.0	---	---	---	---
185: Puett-----	D	None	---	---	>6.0	---	---	---	---
Soughe-----	D	None	---	---	>6.0	---	---	---	---
188: Cleavage-----	D	None	---	---	>6.0	---	---	---	---
Softscrabble----	C	None	---	---	>6.0	---	---	---	---
Hackwood-----	B	None	---	---	>6.0	---	---	---	---
189: Cleavage-----	D	None	---	---	>6.0	---	---	---	---
Softscrabble----	C	None	---	---	>6.0	---	---	---	---
Sumine-----	C	None	---	---	>6.0	---	---	---	---
190: Cleavage-----	D	None	---	---	>6.0	---	---	---	---
Westbutte-----	C	None	---	---	>6.0	---	---	---	---
Softscrabble----	C	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
202: Cresal-----	B	None	---	---	>6.0	---	---	---	---
218: Davey-----	B	None	---	---	>6.0	---	---	---	---
231: Devada-----	D	None	---	---	>6.0	---	---	---	---
Ninemile-----	D	None	---	---	>6.0	---	---	---	---
Softscrabble----	C	None	---	---	>6.0	---	---	---	---
232: Devada-----	D	None	---	---	>6.0	---	---	---	---
240: Deppy-----	D	None	---	---	>6.0	---	---	---	---
Tumtum-----	D	None	---	---	>6.0	---	---	---	---
252: Dun Glen-----	B	Rare	---	---	>6.0	---	---	---	---
276: Orovada-----	B	None	---	---	>6.0	---	---	---	---
296: Longcreek-----	D	None	---	---	>6.0	---	---	---	---
Cleavage-----	D	None	---	---	>6.0	---	---	---	---
335: Ola-----	C	None	---	---	>6.0	---	---	---	---
Poisoncreek-----	D	None	---	---	>6.0	---	---	---	---
338: Ola-----	C	None	---	---	>6.0	---	---	---	---
Poisoncreek-----	D	None	---	---	>6.0	---	---	---	---
Tosp-----	B	None	---	---	>6.0	---	---	---	---
340: Ola-----	C	None	---	---	>6.0	---	---	---	---
Aycab-----	C	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
345: Genegraf-----	B	None	---	---	>6.0	---	---	---	---
Toulon-----	B	None	---	---	>6.0	---	---	---	---
350: Fulstone-----	D	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
357: Granshaw-----	B	None	---	---	>6.0	---	---	---	---
Shawave-----	B	None	---	---	>6.0	---	---	---	---
360: Grumblen-----	D	None	---	---	>6.0	---	---	---	---
Pickup-----	C	None	---	---	>6.0	---	---	---	---
374: Hoot-----	D	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
378: Hawsley-----	A	None	---	---	>6.0	---	---	---	---
381: Hart Camp-----	D	None	---	---	>6.0	---	---	---	---
Devada-----	D	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
382: Hart Camp-----	D	None	---	---	>6.0	---	---	---	---
Badgercamp-----	D	None	---	---	>6.0	---	---	---	---
388: Humboldt-----	D	Frequent	Long	Feb-Jun	0.5-2.0	Apparent	Dec-Jul	---	---
402: Tumtum-----	D	None	---	---	>6.0	---	---	---	---
410: Shawave-----	B	None	---	---	>6.0	---	---	---	---
Deadyon-----	B	Rare	---	---	>6.0	---	---	---	---
Shawave-----	B	None	---	---	>6.0	---	---	---	---
411: Shawave-----	B	None	---	---	>6.0	---	---	---	---
Orovada-----	B	None	---	---	>6.0	---	---	---	---
413: Isolde-----	A	None	---	---	>6.0	---	---	---	---
Typic Torriorthents--	B	None	---	---	>6.0	---	---	---	---
Dune Land-----	C	None	---	---	>6.0	---	---	---	---
414: Isolde-----	A	None	---	---	>6.0	---	---	---	---
Mazuma-----	B	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
414 (con.): Jerval-----	B	None	---	---	>6.0	---	---	---	---
420: Jesse Camp-----	B	Rare	---	---	>6.0	---	---	---	---
430: Woofus-----	C	Frequent	Brief	Mar-Jun	3.0-5.0	Apparent	Mar-Jun	---	---
431: Woofus-----	D	Frequent	Brief	Mar-Jun	1.0-2.0	Apparent	Mar-Jun	---	---
Welch-----	D	Occasional	Brief	Mar-Jun	0.0-1.5	Apparent	Nov-Jun	---	---
432: Isolde-----	A	None	---	---	>6.0	---	---	---	---
Ragtown-----	C	Frequent	Very brief	Nov-Jun	>6.0	---	---	---	---
433: Wetvit-----	D	Frequent	Long	Jan-May	0.0-1.0	Apparent	Jan-May	---	---
Wetvit-----	D	Occasional	Brief	Jan-May	1.0-1.5	Apparent	Jan-May	---	---
442: Rodock-----	B	None	---	---	>6.0	---	---	---	---
Fax-----	C	None	---	---	>6.0	---	---	---	---
Holbrook-----	B	Rare	---	---	>6.0	---	---	---	---
452: Rocconda-----	D	None	---	---	>6.0	---	---	---	---
Coppersid-----	D	None	---	---	>6.0	---	---	---	---
Soughe-----	D	None	---	---	>6.0	---	---	---	---
463: Jerval-----	B	None	---	---	>6.0	---	---	---	---
Dorper-----	D	None	---	---	>6.0	---	---	---	---
464: Jerval-----	B	None	---	---	>6.0	---	---	---	---
Dorper-----	D	None	---	---	>6.0	---	---	---	---
467: Ninemile-----	D	None	---	---	>6.0	---	---	---	---
Sumine-----	C	None	---	---	>6.0	---	---	---	---
Softscrabble-----	C	None	---	---	>6.0	---	---	---	---
468: Bucklake-----	C	None	---	---	>6.0	---	---	---	---
Ninemile-----	D	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
468 (con.): Frentera-----	C	None	---	---	>6.0	---	---	---	---
470: Frentera-----	C	None	---	---	>6.0	---	---	---	---
Wylo-----	D	None	---	---	>6.0	---	---	---	---
Tuffo-----	D	None	---	---	>6.0	---	---	---	---
475: Juva-----	B	Occasional	Very brief	Jun-Sep	>6.0	---	---	---	---
480: Tuffo-----	D	None	---	---	>6.0	---	---	---	---
Wylo-----	D	None	---	---	>6.0	---	---	---	---
Frentera-----	C	None	---	---	>6.0	---	---	---	---
531: Longcreek-----	D	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
535: Locane-----	D	None	---	---	>6.0	---	---	---	---
550: Welch-----	D	Occasional	Brief	Mar-Jun	0.0-1.5	Apparent	Nov-Jun	---	---
563: Sondoa-----	B	None	---	---	>6.0	---	---	---	---
Isolde-----	A	None	---	---	>6.0	---	---	---	---
574: Mazuma-----	B	Rare	---	---	>6.0	---	---	---	---
575: Mazuma-----	B	None	---	---	>6.0	---	---	---	---
Mazuma-----	B	Rare	---	---	>6.0	---	---	---	---
576: Mazuma-----	B	None	---	---	>6.0	---	---	---	---
577: Mazuma-----	B	Rare	---	---	>6.0	---	---	---	---
Isolde-----	A	None	---	---	>6.0	---	---	---	---
Typic Torriorthents--	B	None	---	---	>6.0	---	---	---	---
578: Mazuma-----	B	Rare	---	---	>6.0	---	---	---	---
Toulon-----	B	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
578 (con.): Isolde-----	A	None	---	---	>6.0	---	---	---	---
580: McConnel-----	B	Rare	---	---	>6.0	---	---	---	---
581: McConnel-----	B	None	---	---	>6.0	---	---	---	---
620: Croesus----- Rock Outcrop.	C	None	---	---	>6.0	---	---	---	---
630: Ninemile-----	D	None	---	---	>6.0	---	---	---	---
647: Wendane-----	C	Frequent	Long	Dec-Jun	2.5-4.0	Apparent	Feb-Jul	---	---
Humboldt-----	D	Frequent	Long	Feb-Jun	0.5-2.0	Apparent	Dec-Jul	---	---
648: Wendane-----	C	Frequent	Long	Dec-Jun	2.5-4.0	Apparent	Feb-Jul	---	---
660: Soughe-----	D	None	---	---	>6.0	---	---	---	---
Hoot-----	D	None	---	---	>6.0	---	---	---	---
662: Jaybee-----	D	None	---	---	>6.0	---	---	---	---
Soughe-----	D	None	---	---	>6.0	---	---	---	---
Hoot-----	D	None	---	---	>6.0	---	---	---	---
663: Soughe----- Rock Outcrop.	D	None	---	---	>6.0	---	---	---	---
664: Soughe-----	D	None	---	---	>6.0	---	---	---	---
670: Denio-----	B	None	---	---	>6.0	---	---	---	---
679: Outerkirk-----	B	None	---	---	>6.0	---	---	---	---
683: Oxcorel-----	D	None	---	---	>6.0	---	---	---	---
703: Pickup-----	C	None	---	---	>6.0	---	---	---	---
Grumblen----- Rock Outcrop.	D	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
805: Singatse-----	D	None	---	---	>6.0	---	---	---	---
Jaybee-----	D	None	---	---	>6.0	---	---	---	---
806: Singatse-----	D	None	---	---	>6.0	---	---	---	---
Rocconda-----	D	None	---	---	>6.0	---	---	---	---
Badland-----	D	None	---	---	>6.0	---	---	---	---
818: Siscab-----	D	None	---	---	>6.0	---	---	---	---
Aycab-----	C	None	---	---	>6.0	---	---	---	---
Ola-----	C	None	---	---	>6.0	---	---	---	---
819: Siscab-----	D	None	---	---	>6.0	---	---	---	---
Ola-----	C	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
820: Siscab-----	D	None	---	---	>6.0	---	---	---	---
Poisoncreek----	D	None	---	---	>6.0	---	---	---	---
Ola-----	C	None	---	---	>6.0	---	---	---	---
821: Siscab-----	D	None	---	---	>6.0	---	---	---	---
Poisoncreek----	D	None	---	---	>6.0	---	---	---	---
Alta-----	B	None	---	---	>6.0	---	---	---	---
823: Softscrabble----	C	None	---	---	>6.0	---	---	---	---
Cleavage-----	D	None	---	---	>6.0	---	---	---	---
Harcany-----	B	None	---	---	>6.0	---	---	---	---
824: Simon-----	B	None	---	---	>6.0	---	---	---	---
825: Sojur-----	D	None	---	---	>6.0	---	---	---	---
826: Simon-----	B	None	---	---	>6.0	---	---	---	---
Fulstone-----	D	None	---	---	>6.0	---	---	---	---
829: Skedaddle-----	D	None	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
829 (con.): Softscrabble-----	C	None	---	---	>6.0	---	---	---	---
Cleavage-----	D	None	---	---	>6.0	---	---	---	---
830: Skedaddle-----	D	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
Sumya-----	D	None	---	---	>6.0	---	---	---	---
835: Ola-----	C	None	---	---	>6.0	---	---	---	---
Aycab-----	C	None	---	---	>6.0	---	---	---	---
Tosp-----	B	None	---	---	>6.0	---	---	---	---
840: Saraph-----	D	None	---	---	>6.0	---	---	---	---
Yellowhills-----	B	None	---	---	>6.0	---	---	---	---
841: Saraph-----	D	None	---	---	>6.0	---	---	---	---
Tuffo-----	D	None	---	---	>6.0	---	---	---	---
Yellowhills-----	B	Rare	---	---	>6.0	---	---	---	---
842: Deppy-----	D	None	---	---	>6.0	---	---	---	---
Tuntum-----	D	None	---	---	>6.0	---	---	---	---
Puett-----	D	None	---	---	>6.0	---	---	---	---
843: Deppy-----	D	None	---	---	>6.0	---	---	---	---
Puett-----	D	None	---	---	>6.0	---	---	---	---
Orovada-----	B	None	---	---	>6.0	---	---	---	---
847: Toulon-----	B	None	---	---	>6.0	---	---	---	---
Badland-----	D	None	---	---	>6.0	---	---	---	---
Typic Torriorthents--	A	None	---	---	>6.0	---	---	---	---
850: Playas-----	D	None	---	---	-1.0-1.0	Apparent	Feb-Sep	Long	1.0
875: Pumper-----	B	None	---	---	>6.0	---	---	---	---
Dun Glen-----	B	Rare	---	---	>6.0	---	---	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
875 (con.): Davey-----	B	None	---	---	>6.0	---	---	---	---
876: Pumper-----	B	None	---	---	>6.0	---	---	---	---
Weso-----	B	None	---	---	>6.0	---	---	---	---
878: Croesus-----	C	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
907: Bucklake-----	C	None	---	---	>6.0	---	---	---	---
909: Bucklake-----	C	None	---	---	>6.0	---	---	---	---
Softscrabble---	C	None	---	---	>6.0	---	---	---	---
Rubble Land----	A	None	---	---	>6.0	---	---	---	---
935: Wesfil-----	D	None	---	---	>6.0	---	---	---	---
Sojur-----	D	None	---	---	>6.0	---	---	---	---
938: Weso-----	B	None	---	---	>6.0	---	---	---	---
940: Westbutte-----	C	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
965: Wylo-----	D	None	---	---	>6.0	---	---	---	---
Bucklake-----	C	None	---	---	>6.0	---	---	---	---
Rock Outcrop.									
1000: Broyles-----	B	None	---	---	>6.0	---	---	---	---
1010: Bubus-----	B	None	---	---	>6.0	---	---	---	---
1030: Rio King-----	B	None	---	---	5.0-6.0	Apparent	Feb-Jun	---	---
1032: Raglan-----	B	None	---	---	>6.0	---	---	---	---
1060: Raglan-----	B	None	---	---	>6.0	---	---	---	---
1080: Argenta-----	C	None	---	---	3.0-3.5	Apparent	Feb-Jul	---	---

TABLE 12.--WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
1080 (con.): Argenta-----	C	Rare	---	---	3.0-3.5	Apparent	Feb-Jul	---	---
1081: Argenta-----	C	Rare	---	---	3.0-3.5	Apparent	Feb-Jul	---	---
Clementine-----	C	Occasional	Long	Feb-Jul	2.0-3.0	Apparent	Feb-Jul	---	---
Outerkirk-----	B	None	---	---	>6.0	---	---	---	---
1150: Saraph-----	D	None	---	---	>6.0	---	---	---	---
Hangrock-----	D	None	---	---	>6.0	---	---	---	---
Tuffo-----	D	None	---	---	>6.0	---	---	---	---
1164: Devada-----	D	None	---	---	>6.0	---	---	---	---
Ashcamp-----	C	None	---	---	>6.0	---	---	---	---
1400: Bombadil-----	D	None	---	---	>6.0	---	---	---	---
Ceejay-----	D	None	---	---	>6.0	---	---	---	---
1460: Weezweed-----	B	Rare	---	---	5.0-6.0	Apparent	Jan-May	---	---

TABLE 13.--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	Thickness		Uncoated steel	Concrete
		In	In			
102: Cleaver-----	Duripan	10-20	4-17	Low	High	Low
104: Anawalt-----	Bedrock (lithic)	12-20	---	Low	High	Low
Devada-----	Bedrock (lithic)	12-20	---	Low	Moderate	Low
Tuffo-----	Bedrock (paralithic)	4-14	---	Moderate	Moderate	Low
105: Goldrun-----	---	---	---	Low	High	Low
Alvodes-----	---	---	---	High	High	Low
106: Goldrun-----	---	---	---	Low	High	Low
108: Anawalt-----	Bedrock (lithic)	12-20	---	Low	High	Low
Orenea-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
110: Aycab-----	Bedrock (paralithic)	24-40	---	Moderate	Moderate	Low
Tosp-----	Bedrock (lithic)	40-60	---	Moderate	Moderate	Moderate
Welch-----	---	---	---	High	Moderate	Low
111: Aycab-----	Bedrock (paralithic)	24-40	---	Moderate	Moderate	Low
Alta-----	Bedrock (paralithic)	40-60	---	Low	Moderate	Low
Tosp-----	Bedrock (lithic)	40-60	---	Moderate	Moderate	Moderate
116: Acrelane-----	Bedrock (paralithic)	10-20	---	Moderate	Moderate	Moderate
Rock Outcrop-----	---	---	---	---	---	---
117: Acrelane-----	Bedrock (paralithic)	10-20	---	Moderate	Moderate	Moderate
Poisoncreek-----	Bedrock (paralithic) Bedrock (lithic)	10-14 14-20	2-10	Moderate	Moderate	Low
120: Arclay-----	Bedrock (paralithic)	14-20	---	Moderate	Moderate	Low
Acrelane-----	Bedrock (paralithic)	10-20	---	Moderate	Moderate	Moderate
130: Tenabo-----	Duripan	9-20	4-17	Low	High	Moderate
Gwena-----	Duripan	14-20	4-17	Low	High	Low
Fulstone-----	Duripan	14-20	4-17	Moderate	High	Low
140: Tenabo-----	Duripan	9-20	4-17	Low	High	Moderate
Oxcorel-----	---	---	---	Low	High	Moderate
145: Boulder Lake-----	---	---	---	Moderate	High	Low

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top In	Thickness In		Uncoated steel	Concrete
149: Boton-----	---	---	---	Low	High	High
Slawha-----	---	---	---	Low	High	High
150: Boton-----	---	---	---	Low	High	High
Boton-----	---	---	---	Low	High	High
151: Boton-----	---	---	---	Low	High	High
Boton-----	---	---	---	Low	High	High
155: Bearbutte-----	Bedrock (paralithic)	40-60	---	Moderate	Moderate	Low
Badgercamp-----	Bedrock (paralithic)	14-20	---	Moderate	Moderate	Low
156: Bearbutte-----	Bedrock (paralithic)	40-60	---	Moderate	Moderate	Low
Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
158: Blackhawk-----	Duripan	14-20	4-17	Low	High	High
Trocken-----	---	---	---	Low	High	High
160: Bluewing-----	---	---	---	Low	High	Low
161: Bluewing-----	---	---	---	Low	High	Low
Trocken-----	---	---	---	Low	High	High
163: Dune Land-----	---	---	---	High	High	High
164: Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
Bucklake-----	Bedrock (lithic)	20-40	---	Low	Moderate	Low
168: Boton-----	---	---	---	Low	High	High
Playas-----	---	---	---	None	High	High
173: Deppy-----	Duripan	10-20	4-17	Moderate	High	Low
175: Wendane-----	---	---	---	High	High	High
176: Bullump-----	Bedrock (lithic)	40-60	---	Moderate	Moderate	Low
Westbutte-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
Harcany-----	---	---	---	Moderate	Moderate	Low
177: Bullump-----	Bedrock (lithic)	40-60	---	Moderate	Moderate	Low
Sumine-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
180: Devada-----	Bedrock (lithic)	12-20	---	Low	Moderate	Low
Bucklake-----	Bedrock (lithic)	20-40	---	Low	Moderate	Low
181: Westbutte-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
182: Devada-----	Bedrock (lithic)	12-20	---	Low	Moderate	Low
Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
Tuffo-----	Bedrock (paralithic)	4-14	---	Moderate	Moderate	Low
185: Puett-----	Bedrock (paralithic)	10-20	---	Moderate	High	Low
Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
188: Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
Hackwood-----	---	---	---	Moderate	Moderate	Low
189: Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
Sumine-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
190: Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
Westbutte-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
202: Cresal-----	---	---	---	Low	High	High
218: Davey-----	---	---	---	Low	High	Low
231: Devada-----	Bedrock (lithic)	12-20	---	Low	Moderate	Low
Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
232: Devada-----	Bedrock (lithic)	12-20	---	Low	Moderate	Low
240: Deppy-----	Duripan	10-20	4-17	Moderate	High	Low
Tuntum-----	Duripan	9-16	4-17	Moderate	High	Low
252: Dun Glen-----	---	---	---	Low	High	Low
276: Orovada-----	---	---	---	Moderate	High	Moderate
296: Longcreek-----	Bedrock (lithic)	14-20	---	Low	Moderate	Low
Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
335: Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
Poisoncreek-----	Bedrock (paralithic)	10-14	2-10	Moderate	Moderate	Low
	Bedrock (lithic)	14-20				
338: Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
Poisoncreek-----	Bedrock (paralithic)	10-14	2-10	Moderate	Moderate	Low
	Bedrock (lithic)	14-20				
Tosp-----	Bedrock (lithic)	40-60	---	Moderate	Moderate	Moderate

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
340: Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
Aycab-----	Bedrock (paralithic)	24-40	---	Moderate	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
345: Genegraf-----	---	---	---	Low	High	Moderate
Toulon-----	---	---	---	Low	High	Low
350: Fulstone-----	Duripan	14-20	4-17	Moderate	High	Low
357: Granshaw-----	---	---	---	Low	High	Low
Shawave-----	---	---	---	Moderate	High	Low
360: Grumblen-----	Bedrock (lithic)	14-20	---	Low	High	Low
Pickup-----	Bedrock (lithic)	20-40	---	Low	High	Low
374: Hoot-----	Bedrock (lithic)	10-20	---	Low	High	Low
Rock Outcrop-----	---	---	---	---	---	---
378: Hawsley-----	---	---	---	Low	High	Low
381: Hart Camp-----	Bedrock (paralithic)	10-20	---	Moderate	Moderate	Low
Devada-----	Bedrock (lithic)	12-20	---	Low	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
382: Hart Camp-----	Bedrock (paralithic)	10-20	---	Moderate	Moderate	Low
Badgercamp-----	Bedrock (paralithic)	14-20	---	Moderate	Moderate	Low
388: Humboldt-----	---	---	---	High	High	Low
402: Tumtum-----	Duripan	9-16	4-17	Moderate	High	Low
410: Shawave-----	---	---	---	Moderate	High	Low
Deadyon-----	---	---	---	Moderate	High	Low
Shawave-----	---	---	---	Moderate	High	Low
411: Shawave-----	---	---	---	Moderate	High	Low
Orovada-----	---	---	---	Moderate	High	Moderate
413: Isolde-----	---	---	---	Low	High	Low
Typic Torriorthents---	---	---	---	Low	Moderate	High
Dune Land-----	---	---	---	High	High	High

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
414: Isolde-----	---	---	---	Low	High	Low
Mazuma-----	---	---	---	Low	High	High
Jerval-----	---	---	---	Low	High	High
420: Jesse Camp-----	---	---	---	Moderate	High	Low
430: Woofus-----	---	---	---	High	High	Low
431: Woofus-----	---	---	---	High	High	Low
Welch-----	---	---	---	High	Moderate	Low
432: Isolde-----	---	---	---	Low	High	Low
Ragtown-----	---	---	---	Low	High	High
433: Wetvit-----	---	---	---	High	Moderate	Low
Wetvit-----	---	---	---	High	Moderate	Low
442: Rodock-----	---	---	---	Moderate	High	Low
Fax-----	Duripan	20-36	---	Moderate	High	Low
Holbrook-----	---	---	---	Moderate	High	Low
452: Rocconda-----	Bedrock (lithic)	4-14	---	Low	High	Low
Coppereid-----	Bedrock (paralithic)	5-10	---	Moderate	High	Low
Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
463: Jerval-----	---	---	---	Low	High	High
Dorper-----	---	---	---	Low	High	High
464: Jerval-----	---	---	---	Low	High	High
Dorper-----	---	---	---	Low	High	High
467: Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
Sumine-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
468: Bucklake-----	Bedrock (lithic)	20-40	---	Low	Moderate	Low
Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
Frentera-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
470: Frentera-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
Wylo-----	Bedrock (lithic)	14-20	---	Low	Moderate	Low
Tuffo-----	Bedrock (paralithic)	4-14	---	Moderate	Moderate	Low
475: Juva-----	---	---	---	Low	High	Moderate

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
480: Tuffo-----	Bedrock (paralithic)	4-14	---	Moderate	Moderate	Low
Wylo-----	Bedrock (lithic)	14-20	---	Low	Moderate	Low
Freintera-----	Bedrock (lithic)	20-40	---	Moderate	Moderate	Low
531: Longcreek-----	Bedrock (lithic)	14-20	---	Low	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
535: Locane-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
550: Welch-----	---	---	---	High	Moderate	Low
563: Sondoa-----	---	---	---	Low	High	Moderate
Isolde-----	---	---	---	Low	High	Low
574: Mazuma-----	---	---	---	Low	High	High
575: Mazuma-----	---	---	---	Low	High	High
Mazuma-----	---	---	---	Low	High	High
576: Mazuma-----	---	---	---	Low	High	High
577: Mazuma-----	---	---	---	Low	High	High
Isolde-----	---	---	---	Low	High	Low
Typic Torriorthents----	---	---	---	Low	Moderate	High
578: Mazuma-----	---	---	---	Low	High	High
Toulon-----	---	---	---	Low	High	Low
Isolde-----	---	---	---	Low	High	Low
580: McConnel-----	---	---	---	Low	High	Low
581: McConnel-----	---	---	---	Low	High	Low
620: Croesus-----	Bedrock (lithic)	20-40	---	Moderate	High	Low
Rock Outcrop-----	---	---	---	---	---	---
630: Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
647: Wendane-----	---	---	---	High	High	High
Humboldt-----	---	---	---	High	High	Low
648: Wendane-----	---	---	---	High	High	High
660: Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
Hoot-----	Bedrock (lithic)	10-20	---	Low	High	Low
662: Jaybee-----	Bedrock (lithic)	7-14	---	Moderate	Moderate	Low
Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
Hoot-----	Bedrock (lithic)	10-20	---	Low	High	Low

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
663: Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
Rock Outcrop-----	---	---	---	---	---	---
664: Soughe-----	Bedrock (lithic)	10-20	---	Moderate	High	Low
670: Denio-----	---	---	---	Low	High	Low
679: Outerkirk-----	---	---	---	Moderate	High	Low
683: Oxcorel-----	---	---	---	Low	High	Moderate
703: Pickup-----	Bedrock (lithic)	20-40	---	Low	High	Low
Grumblen-----	Bedrock (lithic)	14-20	---	Low	High	Low
Rock Outcrop-----	---	---	---	---	---	---
715: Wholan-----	---	---	---	Low	High	Low
716: Wholan-----	---	---	---	Low	High	Low
720: Pickup-----	Bedrock (lithic)	20-40	---	Low	High	Low
Bucklake-----	Bedrock (lithic)	20-40	---	Low	Moderate	Low
Puett-----	Bedrock (paralithic)	10-20	---	Moderate	High	Low
758: Longcreek-----	Bedrock (lithic)	14-20	---	Low	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
Anawalt-----	Bedrock (lithic)	12-20	---	Low	High	Low
775: Rednik-----	---	---	---	Low	High	Low
Jungo-----	---	---	---	Moderate	High	High
Aboten-----	Duripan	14-20	4-17	Low	High	Moderate
781: Pickup-----	Bedrock (lithic)	20-40	---	Low	High	Low
Bucklake-----	Bedrock (lithic)	20-40	---	Low	Moderate	Low
782: Skedaddle-----	Bedrock (lithic)	4-12	---	Moderate	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
783: Roccoonda-----	Bedrock (lithic)	4-14	---	Low	High	Low
Roccoonda-----	Bedrock (lithic)	4-14	---	Low	High	Low
785: Rodell-----	Bedrock (lithic)	10-20	---	Low	Moderate	Moderate
Rubble Land-----	Bedrock (lithic)	40-40	---	None	---	---
790: Valmy-----	---	---	---	Low	High	Low

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
803: Ninemile-----	Bedrock (lithic)	10-20	---	Low	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
804: Singatse-----	Bedrock (lithic)	4-10	---	Low	High	Low
Rock Outcrop-----	---	---	---	---	---	---
805: Singatse-----	Bedrock (lithic)	4-10	---	Low	High	Low
Jaybee-----	Bedrock (lithic)	7-14	---	Moderate	Moderate	Low
806: Singatse-----	Bedrock (lithic)	4-10	---	Low	High	Low
Roccoonda-----	Bedrock (lithic)	4-14	---	Low	High	Low
Badland-----	Bedrock (paralithic)	1-4	---	None	High	High
818: Siscab-----	Bedrock (paralithic)	6-14	---	Moderate	Moderate	Low
Aycab-----	Bedrock (paralithic)	24-40	---	Moderate	Moderate	Low
Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
819: Siscab-----	Bedrock (paralithic)	6-14	---	Moderate	Moderate	Low
Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
820: Siscab-----	Bedrock (paralithic)	6-14	---	Moderate	Moderate	Low
Poisoncreek-----	Bedrock (paralithic)	10-14	2-10	Moderate	Moderate	Low
	Bedrock (lithic)	14-20				
Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
821: Siscab-----	Bedrock (paralithic)	6-14	---	Moderate	Moderate	Low
Poisoncreek-----	Bedrock (paralithic)	10-14	2-10	Moderate	Moderate	Low
	Bedrock (lithic)	14-20				
Alta-----	Bedrock (paralithic)	40-60	---	Low	Moderate	Low
823: Softscrabble-----	---	---	---	Moderate	Moderate	Low
Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
Harcany-----	---	---	---	Moderate	Moderate	Low
824: Simon-----	---	---	---	Moderate	Moderate	Low
825: Sojur-----	Bedrock (lithic)	4-10	---	Low	High	Low
826: Simon-----	---	---	---	Moderate	Moderate	Low
Fulstone-----	Duripan	14-20	4-17	Moderate	High	Low

TABLE 13.--SOIL FEATURES--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
829: Skedaddle-----	Bedrock (lithic)	4-12	---	Moderate	Moderate	Low
Softscrabble-----	---	---	---	Moderate	Moderate	Low
Cleavage-----	Bedrock (lithic)	14-20	---	Moderate	Moderate	Low
830: Skedaddle-----	Bedrock (lithic)	4-12	---	Moderate	Moderate	Low
Rock Outcrop-----	---	---	---	---	---	---
Sunya-----	Bedrock (lithic)	7-12	---	Low	Moderate	Low
835: Ola-----	Bedrock (lithic)	24-40	---	Moderate	Moderate	Low
Aycab-----	Bedrock (paralithic)	24-40	---	Moderate	Moderate	Low
Tosp-----	Bedrock (lithic)	40-60	---	Moderate	Moderate	Moderate
840: Saraph-----	Bedrock (paralithic)	14-20	---	Moderate	High	Low
Yellowhills-----	---	---	---	High	Moderate	Low
841: Saraph-----	Bedrock (paralithic)	14-20	---	Moderate	High	Low
Tuffo-----	Bedrock (paralithic)	4-14	---	Moderate	Moderate	Low
Yellowhills-----	---	---	---	High	Moderate	Low
842: Deppy-----	Duripan	10-20	4-17	Moderate	High	Low
Tuntum-----	Duripan	9-16	4-17	Moderate	High	Low
Puett-----	Bedrock (paralithic)	10-20	---	Moderate	High	Low
843: Deppy-----	Duripan	10-20	4-17	Moderate	High	Low
Puett-----	Bedrock (paralithic)	10-20	---	Moderate	High	Low
Orovada-----	---	---	---	Moderate	High	Moderate
847: Toulon-----	---	---	---	Low	High	Low
Badland-----	Bedrock (paralithic)	1-4	---	None	High	High
Typic Torriorthents---	---	---	---	Low	High	Low
850: Playas-----	---	---	---	None	High	High
875: Pumper-----	---	---	---	Low	High	Low
Dun Glen-----	---	---	---	Low	High	Low
Davey-----	---	---	---	Low	High	Low
876: Pumper-----	---	---	---	Low	High	Low
Weso-----	---	---	---	Low	High	Low
878: Croesus-----	Bedrock (lithic)	20-40	---	Moderate	High	Low
Rock Outcrop-----	---	---	---	---	---	---
907: Bucklake-----	Bedrock (lithic)	20-40	---	Low	Moderate	Low

TABLE 14.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Aboten-----	Loamy, mixed, mesic, shallow Haplic Nadurargids
Acrelane-----	Loamy-skeletal, mixed, mesic, shallow Aridic Argixerolls
Alta-----	Sandy-skeletal, mixed Pachic Cryoborolls
Alvodest-----	Fine, montmorillonitic, mesic Natric Camborthids
Anawalt-----	Clayey, montmorillonitic, frigid Lithic Xerollic Haplargids
Arclay-----	Loamy, mixed, mesic, shallow Aridic Argixerolls
Argenta-----	Coarse-loamy, mixed (calcareous), mesic Aeric Halaquepts
Ashcamp-----	Ashy, mesic, shallow Vitritorrandic Argixerolls
Aycab-----	Coarse-loamy, mixed Pachic Cryoborolls
Badgercamp-----	Loamy-skeletal, mixed, shallow Argic Cryoborolls
Bearbutte-----	Coarse-loamy, mixed, frigid Pachic Argixerolls
Blackhawk-----	Loamy, mixed, mesic, shallow Entic Durorthids
Bluewing-----	Sandy-skeletal, mixed, mesic Typic Torriorthents
Bombadil-----	Loamy, mixed, mesic Lithic Xerollic Haplargids
Boton-----	Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Boulder Lake-----	Fine, montmorillonitic, frigid Aquic Haploxererts
Broyles-----	Coarse-loamy, mixed, mesic Duric Camborthids
Bubus-----	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Bucklake-----	Fine, montmorillonitic, mesic Aridic Argixerolls
Bullump-----	Loamy-skeletal, mixed, frigid Pachic Argixerolls
Ceejay-----	Clayey, montmorillonitic, mesic Xerollic Haplargids
Cleavage-----	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Cleaver-----	Loamy, mixed, mesic, shallow Typic Durargids
Clementine-----	Fine-silty, mixed, mesic Cumulic Endoaquolls
Coppereid-----	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Cresal-----	Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Croesus-----	Loamy-skeletal, mixed Pachic Cryoborolls
Davey-----	Sandy, mixed, mesic Xerollic Camborthids
Deadyon-----	Coarse-loamy, mixed, mesic Xerollic Haplargids
Denio-----	Sandy-skeletal, mixed, mesic Xeric Torriorthents
Deppy-----	Loamy, mixed, mesic, shallow Haplic Durargids
Devada-----	Clayey, montmorillonitic, mesic Lithic Argixerolls
Dorper-----	Fine, montmorillonitic, mesic Duric Natrargids
Dun Glen-----	Coarse-loamy, mixed, mesic Typic Camborthids
Fax-----	Loamy-skeletal, mixed, mesic Aridic Durixerolls
Frentera-----	Ashy, frigid Vitrandic Haploxerolls
Fulstone-----	Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids
Genegraf-----	Fine-loamy, mixed, mesic Duric Natrargids
Goldrun-----	Mixed, mesic Xeric Torripsamments
Granshaw-----	Coarse-loamy, mixed, mesic Typic Haplargids
Grumblen-----	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Gwena-----	Loamy, mixed, mesic, shallow Xerollic Nadurargids
Hackwood-----	Fine-loamy, mixed Pachic Cryoborolls
Hangrock-----	Ashy, mesic, shallow Vitrikerandic Durargids
Harcany-----	Loamy-skeletal, mixed Pachic Cryoborolls
Hart Camp-----	Loamy, mixed, frigid, shallow Aridic Argixerolls
Hawsley-----	Mixed, mesic Typic Torripsamments
Holbrook-----	Loamy-skeletal, mixed, mesic Aridic Haploxerolls
Hoot-----	Loamy-skeletal, mixed, mesic Lithic Haplargids
Humboldt-----	Fine, montmorillonitic (calcareous), mesic Fluvaquentic Endoaquolls

TABLE 14.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Isolde-----	Mixed, mesic Typic Torripsamments
Jaybee-----	Loamy, mixed, mesic Lithic Xerollic Haplargids
Jerval-----	Fine-loamy, mixed, mesic Duric Natrargids
Jesse Camp-----	Fine-silty, mixed, frigid Xerollic Camborthids
Jungo-----	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Juva-----	Coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents
Locane-----	Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids
Longcreek-----	Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls
Mazuma-----	Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents
McConnel-----	Sandy-skeletal, mixed, mesic Xerollic Camborthids
Ninemile-----	Clayey, montmorillonitic, frigid Lithic Argixerolls
Ola-----	Coarse-loamy, mixed, frigid Pachic Haploxerolls
Oreneva-----	Loamy-skeletal, mixed, frigid Xerollic Camborthids
Orovada-----	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Outerkirk-----	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Oxcorel-----	Fine, montmorillonitic, mesic Duric Natrargids
Pickup-----	Clayey-skeletal, montmorillonitic, mesic Aridic Argixerolls
Poisoncreek-----	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Puett-----	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Pumper-----	Sandy-skeletal, mixed, mesic Typic Camborthids
Raglan-----	Fine-loamy, mixed, mesic Duric Camborthids
Ragtown-----	Fine, montmorillonitic (calcareous), mesic Typic Torriorthents
Rednik-----	Loamy-skeletal, mixed, mesic Typic Haplargids
Rio King-----	Coarse-loamy, mixed, mesic Aridic Haploxerolls
Rocconda-----	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Rodell-----	Sandy-skeletal, mixed Lithic Cryorthents
Rodock-----	Loamy-skeletal, mixed, mesic Aridic Duric Haploxerolls
Saraph-----	Ashy, mesic, shallow Xerollic Haplargids
Shawave-----	Fine-loamy, mixed, mesic Xerollic Haplargids
Simon-----	Fine-loamy, mixed, frigid Aridic Argixerolls
Singatse-----	Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents
Siscab-----	Loamy, mixed, mesic, shallow Aridic Argixerolls
Skedaddle-----	Loamy-skeletal, mixed, nonacid, mesic Lithic Xeric Torriorthents
Slawha-----	Fine-silty, mixed (calcareous), mesic Typic Torrifluvents
Softscrabble-----	Loamy-skeletal, mixed, frigid Pachic Argixerolls
Sojur-----	Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents
Sondoa-----	Fine-silty, mixed (calcareous), mesic Typic Torriorthents
Soughe-----	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Sumine-----	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Sumya-----	Clayey-skeletal, montmorillonitic, nonacid, frigid Lithic Xeric Torriorthents
Tenabo-----	Loamy, mixed, mesic, shallow Typic Nadurargids
Tosp-----	Coarse-loamy, mixed Pachic Cryoborolls
Toulon-----	Sandy-skeletal, mixed, mesic Typic Camborthids
Trocken-----	Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents
Tuffo-----	Ashy, nonacid, mesic, shallow Vitrandic Torriorthents
Tuntum-----	Loamy, mixed, mesic, shallow Typic Durargids
Typic Torriorthents-----	Mesic Typic Torriorthents
Valmy-----	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Weezweed-----	Ashy, mesic Vitritorrandic Haploxerolls
Welch-----	Fine-loamy, mixed, frigid Cumulic Endoaquolls

TABLE 14.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Wendane-----	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
Wesfil-----	Loamy-skeletal, mixed (calcareous), mesic Lithic Xeric Torriorthents
Weso-----	Coarse-loamy, mixed, mesic Duric Camborthids
Westbutte-----	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
Wetvit-----	Ashy, mesic Aquandic Endoaquolls
Wholan-----	Coarse-silty, mixed, mesic Typic Camborthids
Woofus-----	Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Fluvaquentic Endoaquolls
Wylo-----	Clayey, montmorillonitic, mesic Lithic Argixerolls
Yellowhills-----	Ashy, mesic Vitritorrandic Haploxerolls

RANGELAND PLANTS AND WOODLAND UNDERSTORY



102--CLEAVER VERY STONY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		CLEAVER	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	10-20	5-10	20-30
Sandberg bluegrass	POSE	5-10	---	---
bottlebrush squirreltail	SIHY	2-8	5-10	---
inland saltgrass	DISPS2	---	---	2-5
Bailey greasewood	SAVEB	20-30	---	---
Nevada ephedra	EPNE	---	5-10	---
black greasewood	SAVE4	---	---	30-50
bud sagebrush	ARSP5	5-15	---	---
burrobrush	HYMEN3	---	5-10	---
fourwing saltbush	ATCA2	---	5-10	2-5
littleleaf horsebrush	TEGL	---	10-20	---
rubber rabbitbrush	CHNA2	---	10-20	---
shadscale	ATCO	15-30	---	2-5
spiny hopsage	GRSP	---	10-20	---

Range site number	027XY018NV	027XY022NV	027XY016NV
Potential production (lb/acre):			
Favorable years	400	400	500
Normal years	250	200	300
Unfavorable years	100	50	150

104--ANAWALT-DEVADA-TUFFO COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		ANAWALT	DEVADA	TUFFO	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	2-5	---	---	---
Idaho fescue	FEID	---	---	---	---	30-40	---
Indian ricegrass	ORHY	---	---	---	---	---	2-8
Sandberg bluegrass	POSE	30-45	---	---	---	---	---
Thurber needlegrass	STTE2	---	10-25	15-20	---	2-8	2-8
Webber needlegrass	STWE	2-5	---	---	---	---	---
basin wildrye	ELCI2	---	---	5-10	---	5-10	---
bluebunch wheatgrass	AGSP	---	20-50	30-40	---	25-40	10-30
bluegrass	FOA++	---	5-10	---	---	2-5	---
desert needlegrass	STSP3	---	---	---	---	---	15-30
Wyoming big sagebrush	ARTRW	---	---	---	---	---	20-30
antelope bitterbrush	POTR2	---	---	2-10	---	2-10	---
big sagebrush	ARTR2	---	---	15-25	---	---	---
ephedra	EPHED	---	---	---	---	---	2-10
low sagebrush	ARAR8	30-45	10-20	---	---	---	---
mountain big sagebrush	ARVA2	---	---	---	---	10-20	---
purple sage	SADOC2	---	---	---	---	---	10-15

Range site number	023XY021NV	023XY031NV	023XY020NV	none	023XY007NV	023XY030NV
Potential production (lb/acre):						
Favorable years	300	900	1100		1600	500
Normal years	200	700	900		1200	300
Unfavorable years	150	500	600		900	150

105--GOLDRUN-ALVODEST COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		GOLDRUN	ALVODEST	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	30-40	---	---	---	2-5
alkali sacaton	SPAI	---	---	---	5-25	---
basin wildrye	ELCI2	2-8	5-15	---	50-60	5-20
bottlebrush squirreltail	SIHY	---	---	---	---	2-5
inland saltgrass	DISPS2	---	5-10	---	---	---
needleandthread	STCO4	5-15	---	---	---	---
thickspike wheatgrass	AGDA	5-10	---	---	---	---
canaigre	RUHY	1-3	---	---	---	---
globemallow	SPHAE	---	---	---	---	1-2
lemon scurfpea	PSLA	1-3	---	---	---	---
thelypody	THELY	---	---	---	---	2-4
tufted eveningprimrose	OECE2	1-3	---	---	---	---
basin big sagebrush	ARTRT	25-30	---	---	---	---
big sagebrush	ARTR2	---	---	---	---	10-25
black greasewood	SAVE4	---	60-75	---	5-15	20-30
fourwing saltbush	ATCA2	2-8	---	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	2-5	---
spiny hopsage	GRSP	2-8	---	---	---	5-15
Range site number		024XY001NV	024XY011NV	none	024XY007NV	024XY022NV
Potential production (lb/acre):						
Favorable years		800	500		1900	800
Normal years		500	350		1400	600
Unfavorable years		300	200		800	350

106--GOLDRUN FINE SAND, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		GOLDRUN	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	30-40	15-30	5-15
basin wildrye	ELCI2	2-8	5-10	---
bottlebrush squirreltail	SIHY	---	---	5-10
needleandthread	STCO4	5-15	30-40	---
thickspike wheatgrass	AGDA	5-10	---	---
canaigre	RUHY	1-3	---	---
lemon scurfpea	PSLA	1-3	---	---
tufted eveningprimrose	OECE2	1-3	---	---
basin big sagebrush	ARTRT	25-30	---	---
big sagebrush	ARTR2	---	15-25	---
bud sagebrush	ARSP5	---	---	20-30
fourwing saltbush	ATCA2	2-8	---	---
shadscale	ATCO	---	---	30-40
spiny hopsage	GRSP	2-8	1-5	2-5
winterfat	EULA5	---	---	2-5
Range site number		024XY001NV	024XY017NV	024XY002NV
Potential production (lb/acre):				
Favorable years		800	900	750
Normal years		500	700	450
Unfavorable years		300	500	300

108--ANAWALT-ORENEVA COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		ANAWALT	ORENEVA	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	---	2-5	---	---
Indian ricegrass	ORHY	---	---	2-8	---
Sandberg bluegrass	POSE	30-45	---	2-5	---
Thurber needlegrass	STTH2	---	15-20	15-30	---
Webber needlegrass	STWE	2-5	---	---	---
basin wildrye	ELCI2	---	5-10	---	---
bluebunch wheatgrass	AGSP	---	30-40	---	---
bottlebrush squirreltail	SIHY	---	---	2-5	---
desert needlegrass	STSP3	---	---	2-10	---
Lahontan sagebrush	ARARL*	---	---	30-45	---
antelope bitterbrush	PUR2	---	2-10	---	---
big sagebrush	ARTR2	---	15-25	---	---
ephedra	EPHED	---	---	2-5	---
low sagebrush	ARAR8	30-45	---	---	---
shadscale	ATCO	---	---	2-5	---
spiny hopsage	GRSP	---	---	2-5	---

Range site number	023XY021NV	023XY020NV	023XY047NV	none
Potential production (lb/acre):				
Favorable years	300	1100	500	
Normal years	200	900	350	
Unfavorable years	150	600	200	

110--AYCAB-TOSP-WELCH ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		AYCAB	TOSP	WELCH	Inclusion 1	Inclusion 2	Inclusion 3
Columbia needlegrass	STNE3	---	---	---	---	X	---
Idaho fescue	FEID	5-10	X	---	---	---	---
Nevada bluegrass	PONE3	---	X	---	40-50	---	2-5
basin wildrye	ELCI2	5-10	---	---	---	---	---
big squirreltail	SIJU	---	X	---	---	X	5-10
bluegrass	POA++	2-5	---	10-20	---	---	---
meadow barley	HOB2	---	---	5-10	---	---	---
melic	MELIC	---	X	---	---	---	---
mountain brome	BRCA5	20-30	X	---	---	X	2-5
needlegrass	STIPA	5-10	---	---	---	---	---
purple oniongrass	MESP	2-5	---	---	---	---	---
rush	JUNCU	---	---	5-10	---	---	---
sedge	CAREX	---	---	5-10	5-15	---	---
slender wheatgrass	AGTR	---	X	---	---	---	---
tufted hairgrass	DECE	---	---	30-50	---	---	---
meadowrue	THALI2	---	X	---	---	---	---
antelope bitterbrush	PUR2	2-5	---	---	---	---	2-5
mountain big sagebrush	ARVA2	10-20	X	---	---	X	5-10
snowberry	SYMPH	2-8	X	---	---	---	---
curleaf mountainmahogany	CELE3	---	---	---	---	---	40-65
quaking aspen	POTRT	---	X	---	---	---	---

Range site number	023XY048NV	023XY028NV	023XY025NV	023XY013NV	023XY070NV	023XY073NV
Potential production (lb/acre):						
Favorable years	1300	600	4000	2200	300	3200
Normal years	1100	400	3000	1700	150	2900
Unfavorable years	900	250	2000	1300	100	2300

111--AYCAB-ALTA-TOSP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		AYCAB	ALTA	TOSP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Columbia needlegrass	STNE3	---	---	---	---	---	X	---
Idaho fescue	FEID	5-10	---	X	---	---	---	---
Letterman needlegrass	STLE4	---	---	---	---	---	---	2-10
Nevada bluegrass	PONE3	---	2-5	X	---	---	---	2-10
basin wildrye	ELCI2	5-10	---	---	---	---	---	---
big squirreltail	SIJU	---	5-10	X	---	---	X	2-5
bluegrass	POA++	2-5	---	---	---	10-20	---	---
meadow barley	HOBR2	---	---	---	---	5-10	---	---
melic	MELIC	---	---	X	---	---	---	---
mountain brome	BRCA5	20-30	2-5	X	---	---	X	2-5
needlegrass	STIPA	5-10	---	---	---	---	---	---
purple oniongrass	MESP	2-5	---	---	---	---	---	---
rush	JUNCU	---	---	---	---	5-10	---	---
sedge	CAREX	---	---	---	---	5-10	---	---
slender wheatgrass	AGTR	---	---	X	---	---	---	---
tufted hairgrass	DECE	---	---	---	---	30-50	---	---
meadowrue	THALI2	---	---	X	---	---	---	---
antelope bitterbrush	PUTR2	2-5	2-5	---	---	---	---	5-10
mountain big sagebrush	ARVA2	10-20	5-10	X	---	---	X	15-25
snowberry	SYMPH	2-8	---	X	---	---	---	---
curlleaf mountainmahogany	CELE3	---	40-65	---	---	---	---	30-40
quaking aspen	POTRT	---	---	X	---	---	---	---

Range site number	023XY048NV	023XY073NV	023XY028NV	none	023XY025NV	023XY070NV	023XY069NV
Potential production (lb/acre):							
Favorable years	1300	3200	600		4000	300	2500
Normal years	1100	2900	400		3000	150	1800
Unfavorable years	900	2300	250		2000	100	1200

116--ACRELANE-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		ACRELANE	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5	---	---	---	---
Idaho fescue	FEID	---	---	30-40	---	---
Indian ricegrass	ORHY	2-5	---	---	---	15-30
Thurber needlegrass	STTH2	20-40	---	---	10-25	---
basin wildrye	ELCI2	2-5	---	---	20-30	5-10
bluebunch wheatgrass	AGSP	15-25	---	15-30	---	---
bluegrass	POA++	---	---	2-8	---	---
needleandthread	STCO4	---	---	---	---	30-40
arrowleaf balsamroot	BASA3	1-2	---	2-5	---	---
tapertip hawksbeard	CRAC2	1-2	---	2-5	---	---
Wyoming big sagebrush	ARTRW	15-25	---	---	---	---
antelope bitterbrush	PUTR2	---	---	2-5	---	---
big sagebrush	ARTR2	---	---	---	15-25	15-25
black greasewood	SAVE4	---	---	---	2-5	---
ephedra	EPHED	2-5	---	---	---	---
mountain big sagebrush	ARVA2	---	---	15-20	---	---
snowberry	SYMPH	---	---	2-5	---	---
spiny hopsage	GRSP	---	---	---	5-10	1-5

Range site number	023XY057NV	none	023XY043NV	023XY040NV	024XY017NV
Potential production (lb/acre):					
Favorable years	700		1300	1000	900
Normal years	500		700	800	700
Unfavorable years	300		400	600	500

117--ACRELANE-POISONCREEK COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		ACRELANE	POISONCREEK	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5	---	---	---	---
Idaho fescue	FEID	---	15-25	30-40	---	---
Indian ricegrass	ORHY	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-8
Thurber needlegrass	STTH2	20-40	---	---	5-10	---
basin wildrye	ELCI2	2-5	---	---	---	40-60
bluebunch wheatgrass	AGSP	15-25	---	15-30	50-60	---
bluegrass	POA++	---	5-15	2-8	---	---
sedge	CAREX	---	---	---	---	2-5
wheatgrass	AGROP2	---	---	---	---	5-15
arrowleaf balsamroot	BASA3	1-2	---	2-5	1-2	---
goldenweed	HAPLO2	---	2-5	---	---	---
tapertip hawkbeard	CRAC2	1-2	---	2-5	1-2	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW	15-25	---	---	---	---
antelope bitterbrush	PUR2	---	---	2-5	5-10	---
ephedra	EPHED	2-5	---	---	---	---
low sagebrush	ARAR8	---	35-45	---	---	---
mountain big sagebrush	ARVA2	---	---	15-20	15-25	5-15
snowberry	SYMPH	---	---	2-5	---	---

Range site number	023XY057NV	023XY008NV	023XY043NV	023XY042NV	023XY056NV
Potential production (lb/acre):					
Favorable years	700	400	1300	1000	2200
Normal years	500	250	700	800	1700
Unfavorable years	300	200	400	600	1200

120--ARCLAY-ACRELANE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		ARCLAY	ACRELANE	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	2-5	---	---	---
Indian ricegrass	ORHY	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-8
Thurber needlegrass	STTH2	5-15	20-40	---	5-15	---
basin wildrye	ELCI2	---	2-5	---	---	65-75
bluebunch wheatgrass	AGSP	40-60	15-25	---	40-60	---
bluegrass	POA++	2-8	---	---	2-8	---
Hooker balsamroot	BAHO	2-5	---	---	2-5	---
arrowleaf balsamroot	BASA3	---	1-2	---	---	---
tapertip hawkbeard	CRAC2	1-2	1-2	---	1-2	---
Lahontan sagebrush	ARARL*	10-20	---	---	10-20	---
Wyoming big sagebrush	ARTRW	---	15-25	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	5-10
ephedra	EPHED	---	2-5	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	---	1-3

Range site number	023XY037NV	023XY057NV	none	023XY037NV	023XY009NV
Potential production (lb/acre):					
Favorable years	700	700		700	5500
Normal years	600	500		600	4500
Unfavorable years	400	300		400	2500

130--TENABO-GWENA-FULSTONE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		TENABO	GWENA	FULSTONE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	5-15	2-8	5-15	5-15	5-15
Sandberg bluegrass	POSE	---	2-8	2-5	2-8	---	2-8
Thurber needlegrass	STH2	---	15-25	15-30	15-25	---	15-25
bottlebrush squirreltail	SIHY	5-10	2-5	2-5	2-5	5-10	2-5
desert needlegrass	STSP3	---	---	2-10	---	---	---
globemallow	SPHAE	---	1-2	---	1-2	---	1-2
Lahontan sagebrush	ARARL*	---	---	30-45	---	---	---
Wyoming big sagebrush	ARTRW	---	20-35	---	20-35	---	20-35
bud sagebrush	ARSP5	20-30	---	---	---	20-30	---
ephedra	EPHED	---	---	2-5	---	---	---
shadscale	ATCO	30-40	---	2-5	---	30-40	---
spiny hopsage	GRSP	2-5	5-20	2-5	5-20	2-5	5-20
winterfat	EULAS	2-5	---	---	---	2-5	---

Range site number	024XY002NV	024XY020NV	023XY047NV	024XY020NV	024XY002NV	024XY020NV
Potential production (lb/acre):						
Favorable years	750	700	500	700	750	700
Normal years	450	450	350	450	450	450
Unfavorable years	300	300	200	300	300	300

140--TENABO-OXCOREL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		TENABO	OXCOREL	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	5-15	2-8	5-15	---
Nevada bluegrass	PONE3	---	---	---	---	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-8	---
Thurber needlegrass	STH2	---	---	15-30	15-25	---
basin wildrye	ELC12	---	---	---	---	60-70
bottlebrush squirreltail	SIHY	5-10	5-10	2-5	2-5	---
desert needlegrass	STSP3	---	---	2-10	---	---
mat muhly	MURI	---	---	---	---	2-8
streambank wheatgrass	AGDAR	---	---	---	---	2-8
globemallow	SPHAE	---	---	---	1-2	---
Lahontan sagebrush	ARARL*	---	---	30-45	---	---
Wyoming big sagebrush	ARTRW	---	---	---	20-35	---
basin big sagebrush	ARTRT	---	---	---	---	5-10
bud sagebrush	ARSP5	20-30	20-30	---	---	---
ephedra	EPHED	---	---	2-5	---	---
shadscale	ATCO	30-40	30-40	2-5	---	---
spiny hopsage	GRSP	2-5	2-5	2-5	5-20	---
winterfat	EULAS	2-5	2-5	---	---	---

Range site number	024XY002NV	024XY002NV	023XY047NV	024XY020NV	025XY003NV
Potential production (lb/acre):					
Favorable years	750	750	500	700	4500
Normal years	450	450	350	450	3500
Unfavorable years	300	300	200	300	2000

145--BOULDER LAKE SILTY CLAY, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		BOULDER LAKE	Inclusion 1
Nevada bluegrass	PONE3	15-35	2-10
basin wildrye	ELCI2	---	40-60
creeping wildrye	ELTR3	5-15	---
mat muhly	MURI	5-10	---
western wheatgrass	AGSM	---	2-10
povertyweed	IVAX	---	2-5
thelypody	THELY	---	1-3
basin big sagebrush	ARTRT	---	5-15
rubber rabbitbrush	CHNA2	2-5	---
silver sagebrush	ARCA13	30-40	---
Range site number		023XY003NV	023XY005NV
Potential production (lb/acre):			
Favorable years		1800	3000
Normal years		1400	2000
Unfavorable years		700	1300

149--BOTON-SLAWHA COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BOTON	SLAWHA	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	10-15	---	---	20-30	---
alkali sacaton	SPAI	---	2-10	---	---	5-25
basin wildrye	ELCI2	---	30-45	---	---	50-60
bottlebrush squirreltail	SIHY	5-10	---	---	---	---
inland saltgrass	DISPS2	2-5	---	2-10	2-5	---
Bailey greasewood	SAVEB	T-5	---	---	---	---
Torrey quailbush	ATTO	---	30-50	---	---	---
basin big sagebrush	ARTRT	---	2-8	---	---	---
black greasewood	SAVE4	20-30	2-10	60-70	30-50	5-15
bud sagebrush	ARSP5	2-5	---	---	---	---
fourwing saltbush	ATCA2	---	2-5	---	2-5	---
rubber rabbitbrush	CHNA2	---	---	---	---	2-5
seepweed	SUAED	---	---	2-8	---	---
shadscale	ATCO	20-35	---	2-10	2-5	---
Range site number		027XY024NV	027XY041NV	027XY025NV	027XY016NV	024XY007NV
Potential production (lb/acre):						
Favorable years		500	1500	500	500	1900
Normal years		350	1000	350	300	1400
Unfavorable years		150	600	200	150	800

150--BOTON COMPLEX, OCCASIONALLY FLOODED

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		BOTON	BOTON	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	10-15	---	2-5	---
alkali sacaton	SPAI	---	---	---	2-10
basin wildrye	ELCI2	---	---	5-20	30-45
bottlebrush squirreltail	SIHY	5-10	---	2-5	---
inland saltgrass	DISPS2	2-5	2-10	---	---
globemallow	SPHAE	---	---	1-2	---
thelypody	THELY	---	---	2-4	---
Bailey greasewood	SAVEB	T-5	---	---	---
Torrey quailbush	ATTO	---	---	---	30-50
basin big sagebrush	ARTRT	---	---	---	2-8
big sagebrush	ARTR2	---	---	10-25	---
black greasewood	SAVE4	20-30	60-70	20-30	2-10
bud sagebrush	ARSP5	2-5	---	---	---
fourwing saltbush	ATCA2	---	---	---	2-5
seepweed	SUAED	---	2-8	---	---
shadscale	ATCO	20-35	2-10	---	---
spiny hopsage	GRSP	---	---	5-15	---
Range site number		027XY024NV	027XY025NV	024XY022NV	027XY041NV
Potential production (lb/acre):					
Favorable years		500	500	800	1500
Normal years		350	350	600	1000
Unfavorable years		150	200	350	600

151--BOTON COMPLEX, OVERBLOWN

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		BOTON	BOTON	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	2-5	---	---	---
alkali sacaton	SPAI	---	---	---	5-25
basin wildrye	ELCI2	5-20	---	30-45	50-60
bottlebrush squirreltail	SIHY	2-5	5-10	---	---
other perennial grasses	PPGG	---	---	2-15	---
globemallow	SPHAE	1-2	---	---	---
thelypody	THELY	2-4	---	---	---
Torrey quailbush	ATTO	---	---	30-40	---
basin big sagebrush	ARTRT	---	---	2-10	---
big sagebrush	ARTR2	10-25	---	---	---
black greasewood	SAVE4	20-30	15-30	5-10	5-15
bud sagebrush	ARSP5	---	2-8	---	---
rubber rabbitbrush	CHNA2	---	---	---	2-5
seepweed	SUAED	---	2-8	---	---
shadscale	ATCO	---	30-50	---	---
spiny hopsage	GRSP	5-15	---	---	---
Range site number		024XY022NV	024XY003NV	024XY015NV	024XY007NV
Potential production (lb/acre):					
Favorable years		800	600	1500	1900
Normal years		600	450	1200	1400
Unfavorable years		350	300	800	800

155--BEARBUTTE-BADGERCAMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BEARBUTTE	BADGERCAMP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	40-50	10-20	30-50	30-40	---
Thurber needlegrass	STTH2	---	---	2-8	2-8	---
basin wildrye	ELCI2	---	---	---	5-10	---
bluebunch wheatgrass	AGSP	2-5	5-15	15-30	25-40	---
bluegrass	POA++	---	2-5	2-8	2-5	---
mountain brome	BRCA5	---	2-8	---	---	---
needlegrass	STIPA	---	5-15	---	---	---
antelope bitterbrush	PUTR2	10-20	---	---	2-10	---
curlleaf mountainmahogany	CELE3	---	25-40	---	---	---
low sagebrush	ARAR8	---	---	10-20	---	---
mountain big sagebrush	ARVA2	10-20	5-10	---	10-20	---
snowberry	SYMPH	---	2-5	---	---	---
Range site number		023XY066NV	023XY026NV	023XY017NV	023XY007NV	none
Potential production (lb/acre):						
Favorable years		1300	1400	900	1600	
Normal years		1100	1100	700	1200	
Unfavorable years		900	600	500	900	

156--BEARBUTTE-NINEMILE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BEARBUTTE	NINEMILE	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	40-50	30-50	40-50	10-20	---
Thurber needlegrass	STTH2	---	2-8	10-20	---	---
basin wildrye	ELCI2	---	---	2-5	---	---
bluebunch wheatgrass	AGSP	2-5	15-30	2-8	5-15	---
bluegrass	POA++	---	2-8	---	2-5	---
mountain brome	BRCA5	---	---	---	2-8	---
needlegrass	STIPA	---	---	---	5-15	---
antelope bitterbrush	PUTR2	10-20	---	---	---	---
basin big sagebrush	ARTRT	---	---	15-25	---	---
curlleaf mountainmahogany	CELE3	---	---	---	25-40	---
low sagebrush	ARAR8	---	10-20	---	---	---
mountain big sagebrush	ARVA2	10-20	---	---	5-10	---
snowberry	SYMPH	---	---	---	2-5	---
Range site number		023XY066NV	023XY017NV	023XY071NV	023XY026NV	none
Potential production (lb/acre):						
Favorable years		1300	900	1000	1400	
Normal years		1100	700	800	1100	
Unfavorable years		900	500	600	600	

158--BLACKHAWK-TROCKEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BLACKHAWK	TROCKEN	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	10-20	10-20	10-20	20-25	---
Sandberg bluegrass	POSE	5-10	5-10	5-10	2-5	---
bottlebrush squirreltail	SIHY	2-8	2-8	2-8	2-5	---
needleandthread	STCO4	---	---	---	5-15	---
Bailey greasewood	SAVEB	20-30	20-30	20-30	---	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW	---	---	---	20-30	---
bud sagebrush	ARSP5	5-15	5-15	5-15	---	---
shadscale	ATCO	15-30	15-30	15-30	---	---
spiny hopsage	GRSP	---	---	---	10-25	---
winterfat	EULA5	---	---	---	2-5	---
Range site number		027XY018NV	027XY018NV	027XY018NV	027XY008NV	none
Potential production (lb/acre):						
Favorable years		400	400	400	700	
Normal years		250	250	250	500	
Unfavorable years		100	100	100	300	

160--BLUEWING GRAVELLY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BLUEWING	Inclusion 1	Inclusion 2	Inclusion 3	
Indian ricegrass	ORHY	10-20	15-30	---	5-10	
Sandberg bluegrass	POSE	5-10	2-15	---	---	
bottlebrush squirreltail	SIHY	2-8	2-8	---	5-10	
inland saltgrass	DISPS2	---	---	2-10	---	
Bailey greasewood	SAVEB	20-30	---	---	---	
Nevada ephedra	EPNE	---	---	---	5-10	
black greasewood	SAVE4	---	---	60-70	---	
bud sagebrush	ARSP5	5-15	15-25	---	---	
burrobrush	HYMEN3	---	---	---	5-10	
fourwing saltbush	ATCA2	---	---	---	5-10	
littleleaf horsebrush	TEGL	---	---	---	10-20	
rubber rabbitbrush	CHNA2	---	---	---	10-20	
seepweed	SUAED	---	---	2-8	---	
shadscale	ATCO	15-30	20-35	2-10	---	
spiny hopsage	GRSP	---	---	---	10-20	
winterfat	EULA5	---	5-10	---	---	
Range site number		027XY018NV	027XY013NV	027XY025NV	027XY022NV	
Potential production (lb/acre):						
Favorable years		400	600	500	400	
Normal years		250	450	350	200	
Unfavorable years		100	250	200	50	

161--BLUEWING-TROCKEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		BLUEWING	TROCKEN	Inclusion 1
Indian ricegrass	ORHY	5-10	10-20	10-20
Sandberg bluegrass	POSE	---	5-10	5-10
bottlebrush squirreltail	SIHY	5-10	2-8	2-8
Bailey greasewood	SAVEB	---	20-30	20-30
Nevada ephedra	EPNE	5-10	---	---
bud sagebrush	ARSP5	---	5-15	5-15
burrobrush	HYMEN3	5-10	---	---
fourwing saltbush	ATCA2	5-10	---	---
littleleaf horsebrush	TEGL	10-20	---	---
rubber rabbitbrush	CHNA2	10-20	---	---
shadscale	ATCO	---	15-30	15-30
spiny hopsage	GRSP	10-20	---	---

Range site number	027XY022NV	027XY018NV	027XY018NV
Potential production (lb/acre):			
Favorable years	400	400	400
Normal years	200	250	250
Unfavorable years	50	100	100

163--DUNE LAND

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions
		Soil name or Inclusion number--
		DUNE LAND

Range site number	none
Potential production (lb/acre):	
Favorable years	
Normal years	
Unfavorable years	

164--SOUQHE-BUCKLAKE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SOUQHE	BUCKLAKE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	---	2-5	---	2-10
Sandberg bluegrass	POSE	2-5	---	---	---	2-5
Thurber needlegrass	STHE2	20-40	10-20	---	---	---
Webber needlegrass	STWE	2-8	---	---	---	---
basin wildrye	ELCI2	---	2-10	---	---	10-20
bluebunch wheatgrass	AGSP	---	40-60	---	---	---
bottlebrush squirreltail	SIHY	2-5	---	2-10	---	2-5
desert needlegrass	STSP3	---	---	2-10	---	---
Anderson peachbrush	FRAN2	---	---	---	---	2-8
Wyoming big sagebrush	ARTRW	20-30	10-20	---	---	---
antelope bitterbrush	FUTR2	---	2-5	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	15-25
big sagebrush	ARTR2	---	15-25	---	---	---
black greasewood	SAVE4	---	---	---	---	2-8
bud sagebrush	ARSP5	---	---	15-30	---	---
mountain big sagebrush	ARVA2	---	10-20	---	---	---
other shrubs	SSSS	---	---	---	---	2-8
shadscale	ATCO	---	---	30-50	---	---
spiny hopsage	GRSP	2-5	---	---	---	15-30

Range site number	023XY006NV	023XY039NV	024XY025NV	none	024XY041NV
Potential production (lb/acre):					
Favorable years	800	900	250		1000
Normal years	600	700	150		800
Unfavorable years	400	500	75		600

168--BOTON-PLAYAS ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		BOTON	PLAYAS	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	10-15	---	15-30	---
Sandberg bluegrass	POSE	---	---	2-15	---
bottlebrush squirreltail	SIHY	5-10	---	2-8	---
inland saltgrass	DISPS2	2-5	---	---	2-10
Bailey greasewood	SAVEB	T-5	---	---	---
black greasewood	SAVE4	20-30	---	---	60-70
bud sagebrush	ARSP5	2-5	---	15-25	---
seepweed	SUAED	---	---	---	2-8
shadscale	ATCO	20-35	---	20-35	2-10
winterfat	EULA5	---	---	5-10	---

Range site number	027XY024NV	none	027XY013NV	027XY025NV
Potential production (lb/acre):				
Favorable years	500		600	500
Normal years	350		450	350
Unfavorable years	150		250	200

173--DEPPY VERY COBBLY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		DEPPY	Inclusion 1
Indian ricegrass	ORHY	5-15	5-15
Sandberg bluegrass	POSE	---	2-8
Thurber needlegrass	STH2	---	15-25
bottlebrush squirreltail	SIHY	5-10	2-5
globemallow	SPHAE	---	1-2
Wyoming big sagebrush	ARTRW	---	20-35
bud sagebrush	ARSP5	20-30	---
shadscale	ATCO	30-40	---
spiny hopsage	GRSP	2-5	5-20
winterfat	EULA5	2-5	---

Range site number	024XY002NV	024XY020NV
Potential production (lb/acre):		
Favorable years	750	700
Normal years	450	450
Unfavorable years	300	300

175--WENDANE SILT LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		WENDANE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	---	---	20-30	---
basin wildrye	ELCI2	5-15	---	---	---
bottlebrush squirreltail	SIHY	---	5-10	---	---
inland saltgrass	DISPS2	5-10	---	2-5	---
black greasewood	SAVE4	60-75	15-30	30-50	---
bud sagebrush	ARSP5	---	2-8	---	---
fourwing saltbush	ATCA2	---	---	2-5	---
seepweed	SUAED	---	2-8	---	---
shadscale	ATCO	---	30-50	2-5	---

Range site number	024XY011NV	024XY003NV	027XY016NV	none
Potential production (lb/acre):				
Favorable years	500	600	500	
Normal years	350	450	300	
Unfavorable years	200	300	150	

176--BULLUMP-WESTBUTTE-HARCANY ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		BULLUMP	WESTBUTTE	HARCANY	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCU3	5-15	5-10	5-15	---	---	---	---
Idaho fescue	FEID	50-60	40-50	50-60	---	X	10-20	---
Nevada bluegrass	PONE3	---	---	---	---	X	---	---
Thurber needlegrass	STTH2	---	---	---	5-10	---	---	---
basin wildrye	ELCI2	2-5	---	2-5	2-10	---	---	---
big squirreltail	SIJU	---	---	---	---	X	---	---
bluebunch wheatgrass	AGSP	5-15	2-5	5-15	60-70	---	5-15	---
bluegrass	POA++	---	---	---	---	---	2-5	---
melic	MELIC	---	---	---	---	X	---	---
mountain brome	BRCA5	---	---	---	---	X	2-8	---
needlegrass	STIPA	---	---	---	---	---	5-15	---
slender wheatgrass	AGTR	---	---	---	---	X	---	---
meadowrue	THALI2	---	---	---	---	X	---	---
antelope bitterbrush	PUTR2	---	---	---	2-8	---	---	---
curleaf mountainmahogany	CELE3	---	---	---	---	---	25-40	---
mountain big sagebrush	ARVA2	5-15	---	5-15	10-20	X	5-10	---
snowberry	SYMPH	2-5	---	2-5	---	X	2-5	---
quaking aspen	POTRT	---	---	---	---	X	---	---
Range site number		023XY054NV	023XY053NV	023XY054NV	023XY016NV	023XY028NV	023XY026NV	none
Potential production (lb/acre):								
Favorable years		1500	1000	1500	1500	600	1400	
Normal years		1200	800	1200	1100	400	1100	
Unfavorable years		900	600	900	800	250	600	

177--BULLUMP-SUMINE-CLEAVAGE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		BULLUMP	SUMINE	CLEAVAGE	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	5-15	---	---	5-10	---	---
Idaho fescue	FEID	50-60	---	15-25	40-50	---	---
Thurber needlegrass	STTH2	---	5-10	---	---	---	---
basin wildrye	ELCI2	2-5	2-10	---	---	---	---
bluebunch wheatgrass	AGSP	5-15	60-70	---	2-5	---	---
bluegrass	POA++	---	---	5-15	---	---	10-20
meadow barley	HOBR2	---	---	---	---	---	5-10
rush	JUNCU	---	---	---	---	---	5-10
sedge	CAREX	---	---	---	---	---	5-10
tufted hairgrass	DECE	---	---	---	---	---	30-50
goldenweed	HAPLO2	---	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
antelope bitterbrush	PUTR2	---	2-8	---	---	---	---
low sagebrush	ARAR2	---	---	35-45	---	---	---
mountain big sagebrush	ARVA2	5-15	10-20	---	---	---	---
snowberry	SYMPH	2-5	---	---	---	---	---
Range site number		023XY054NV	023XY016NV	023XY008NV	023XY053NV	none	023XY025NV
Potential production (lb/acre):							
Favorable years		1500	1500	400	1000		4000
Normal years		1200	1100	250	800		3000
Unfavorable years		900	800	200	600		2000

180--DEVADA-BUCKLAKE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		DEVADA	BUCKLAKE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	---	---	30-40	---	---	---
Indian ricegrass	ORHY	---	---	---	---	2-8	---
Nevada bluegrass	PONE3	---	---	---	2-8	---	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	---
Thurber needlegrass	STTH2	10-25	10-20	2-8	---	15-30	---
basin wildrye	ELCI2	---	2-10	5-10	65-75	---	---
bluebunch wheatgrass	AGSP	20-50	40-60	25-40	---	---	---
bluegrass	POA++	5-10	---	2-5	---	---	---
bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---
desert needlegrass	STSP3	---	---	---	---	2-10	---
Lahontan sagebrush	ARARL*	---	---	---	---	30-45	---
Wyoming big sagebrush	ARTRW	---	10-20	---	---	---	---
antelope bitterbrush	PUTR2	---	2-5	2-10	---	---	---
basin big sagebrush	ARTRT	---	---	---	5-10	---	---
big sagebrush	ARTR2	---	15-25	---	---	---	---
ephedra	EPHED	---	---	---	---	2-5	---
low sagebrush	ARAR8	10-20	---	---	---	---	---
mountain big sagebrush	ARVA2	---	10-20	10-20	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	1-3	---	---
shadscale	ATCO	---	---	---	---	2-5	---
spiny hopsage	GRSP	---	---	---	---	2-5	---

Range site number	023XY031NV	023XY039NV	023XY007NV	023XY009NV	023XY047NV	none
Potential production (lb/acre):						
Favorable years	900	900	1600	5500	500	
Normal years	700	700	1200	4500	350	
Unfavorable years	500	500	900	2500	200	

181--WESTBUTTE STONY LOAM, 15 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		WESTBUTTE	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	5-10	---	---	---
Idaho fescue	FEID	40-50	30-40	15-25	---
Thurber needlegrass	STTH2	---	2-8	---	5-10
basin wildrye	ELCI2	---	5-10	---	20-40
bluebunch wheatgrass	AGSP	2-5	25-40	---	40-50
bluegrass	POA++	---	2-5	5-15	---
goldenweed	HAPLO2	---	---	2-5	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---
antelope bitterbrush	PUTR2	---	2-10	---	2-8
low sagebrush	ARAR8	---	---	35-45	---
mountain big sagebrush	ARVA2	---	10-20	---	10-20

Range site number	023XY053NV	023XY007NV	023XY008NV	023XY018NV
Potential production (lb/acre):				
Favorable years	1000	1600	400	1200
Normal years	800	1200	250	1000
Unfavorable years	600	900	200	800

182--DEVADA-NINEMILE-TUFFO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		DEVADA	NINEMILE	TUFFO	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-8	---	---
Idaho fescue	FEID	---	30-50	---	40-60	---	---
Indian ricegrass	ORHY	---	---	---	---	---	2-8
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Thurber needlegrass	STTE2	10-25	2-8	15-20	5-15	5-15	15-30
basin wildrye	ELCI2	---	---	5-10	---	---	---
bluebunch wheatgrass	AGSP	20-50	15-30	30-40	2-8	40-60	---
bluegrass	POA++	5-10	---	2-8	---	2-8	---
bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5
desert needlegrass	STSP3	---	---	---	---	---	2-10
Hooker balsamroot	BARO	---	---	---	---	2-5	---
tapertip hawksbeard	CRAC2	---	---	---	---	1-2	---
Lahontan sagebrush	ARARL*	---	---	---	---	10-20	30-45
Wyoming big sagebrush	ARTRW	---	---	---	15-25	---	---
antelope bitterbrush	PUTR2	---	---	2-10	---	---	---
big sagebrush	ARTR2	---	---	15-25	---	---	---
ephedra	EPHED	---	---	---	---	---	2-5
low sagebrush	ARAR8	10-20	10-20	---	---	---	---
shadscale	ATCO	---	---	---	---	---	2-5
spiny hopsage	GRSP	---	---	---	---	---	2-5
Range site number		023XY031NV	023XY017NV	023XY020NV	023XY072NV	023XY037NV	023XY047NV
Potential production (lb/acre):							
Favorable years		900	900	1100	800	700	500
Normal years		700	700	900	500	600	350
Unfavorable years		500	500	600	350	400	200

185--PUETT-SOUGHE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		PUETT	SOUGHE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	2-8	5-15	---	2-5	2-10
Sandberg bluegrass	POSE	---	2-5	---	---	2-5
Thurber needlegrass	STTE2	2-8	20-40	---	---	---
Webber needlegrass	STWE	---	2-8	---	---	---
basin wildrye	ELCI2	---	---	---	---	10-20
bluebunch wheatgrass	AGSP	10-30	---	---	---	---
bottlebrush squirreltail	SIHY	---	2-5	---	2-10	2-5
desert needlegrass	STSP3	15-30	---	---	2-10	---
Anderson peachbrush	PRAN2	---	---	---	---	2-8
Wyoming big sagebrush	ARTRW	20-30	20-30	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	15-25
black greasewood	SAVE4	---	---	---	---	2-8
bud sagebrush	ARSP5	---	---	---	15-30	---
ephedra	EPHED	2-10	---	---	---	---
other shrubs	SSSS	---	---	---	---	2-8
purple sage	SADOC2	10-15	---	---	---	---
shadscale	ATCO	---	---	---	30-50	---
spiny hopsage	GRSP	---	2-5	---	---	15-30
Range site number		023XY030NV	023XY006NV	none	024XY025NV	024XY041NV
Potential production (lb/acre):						
Favorable years		500	800		250	1000
Normal years		300	600		150	800
Unfavorable years		150	400		75	600

188--CLEAVAGE-SOFTSCRABBLE-HACKWOOD ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		CLEAVAGE	SOFTSCRABBLE	HACKWOOD	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCU3	---	---	---	5-10	---	---	---
Idaho fescue	FEID	15-25	30-40	X	40-50	---	---	10-20
Nevada bluegrass	PONE3	---	---	X	---	---	---	---
Thurber needlegrass	STH2	---	2-8	---	---	---	---	---
basin wildrye	ELCI2	---	5-10	---	---	---	---	---
big squirreltail	SIJU	---	---	X	---	---	---	---
bluebunch wheatgrass	AGSP	---	25-40	---	2-5	---	---	5-15
bluegrass	POA++	5-15	2-5	---	---	---	10-20	2-5
meadow barley	HOBR2	---	---	---	---	---	5-10	---
malic	MELIC	---	---	X	---	---	---	---
mountain brome	BRCA5	---	---	X	---	---	---	2-8
needlegrass	STIPA	---	---	---	---	---	---	5-15
rush	JUNCU	---	---	---	---	---	5-10	---
sedge	CAREX	---	---	---	---	---	5-10	---
slender wheatgrass	AGTR	---	---	X	---	---	---	---
tufted hairgrass	DECE	---	---	---	---	---	30-50	---
goldenweed	HAPLO2	2-5	---	---	---	---	---	---
meadowrue	THALI2	---	---	X	---	---	---	---
Douglas rabbitbrush	CHV18	2-5	---	---	---	---	---	---
antelope bitterbrush	PUTR2	---	2-10	---	---	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	---	---	25-40
low sagebrush	ARAR8	35-45	---	---	---	---	---	---
mountain big sagebrush	ARVA2	---	10-20	X	---	---	---	5-10
snowberry	SYMPH	---	---	X	---	---	---	2-5
quaking aspen	POTRT	---	---	X	---	---	---	---
Range site number		023XY008NV	023XY007NV	023XY028NV	023XY053NV	none	023XY025NV	023XY026NV
Potential production (lb/acre):								
Favorable years		400	1600	600	1000		4000	1400
Normal years		250	1200	400	800		3000	1100
Unfavorable years		200	900	250	600		2000	600

189--CLEAVAGE-SOFTSCRABBLE-SUMINE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		CLEAVAGE	SOFTSCRABBLE	SUMINE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCU3	---	---	---	---	---	5-10	---
Idaho fescue	FEID	15-25	30-40	---	---	---	40-50	10-20
Nevada bluegrass	PONE3	---	---	---	---	2-8	---	---
Thurber needlegrass	STH2	---	2-8	5-10	---	---	---	---
basin wildrye	ELCI2	---	5-10	2-10	---	40-60	---	---
bluebunch wheatgrass	AGSP	---	25-40	60-70	---	---	2-5	5-15
bluegrass	POA++	5-15	2-5	---	---	---	---	2-5
mountain brome	BRCA5	---	---	---	---	---	---	2-8
needlegrass	STIPA	---	---	---	---	---	---	5-15
sedge	CAREX	---	---	---	---	2-5	---	---
wheatgrass	AGROP2	---	---	---	---	5-15	---	---
goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Douglas rabbitbrush	CHV18	2-5	---	---	---	---	---	---
antelope bitterbrush	PUTR2	---	2-10	2-8	---	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	---	---	25-40
low sagebrush	ARAR8	35-45	---	---	---	---	---	---
mountain big sagebrush	ARVA2	---	10-20	10-20	---	5-15	---	5-10
snowberry	SYMPH	---	---	---	---	---	---	2-5
Range site number		023XY008NV	023XY007NV	023XY016NV	none	023XY056NV	023XY053NV	023XY026NV
Potential production (lb/acre):								
Favorable years		400	1600	1500		2200	1000	1400
Normal years		250	1200	1100		1700	800	1100
Unfavorable years		200	900	800		1200	600	600

190--CLEAVAGE-WESTBUTTE-SOFTSCRABBLE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		CLEAVAGE	WESTBUTTE	SOFTSCRABBLE	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	---	5-10	---	---	---	---
Idaho fescue	FEID	15-25	40-50	30-40	---	---	---
Thurber needlegrass	STTH2	---	---	2-8	---	5-10	---
basin wildrye	ELCI2	---	---	5-10	---	2-10	---
bluebunch wheatgrass	AGSP	---	2-5	25-40	---	60-70	---
bluegrass	POA++	5-15	---	2-5	10-20	---	---
meadow barley	BOBR2	---	---	---	5-10	---	---
rush	JUNCU	---	---	---	5-10	---	---
sedge	CAREX	---	---	---	5-10	---	---
tufted hairgrass	DECE	---	---	---	30-50	---	---
goldenweed	HAPLO2	2-5	---	---	---	---	---
Douglas rabbitbrush	CEVI8	2-5	---	---	---	---	---
antelope bitterbrush	PURR2	---	---	2-10	---	2-8	---
low sagebrush	ARAR8	35-45	---	---	---	---	---
mountain big sagebrush	ARVA2	---	---	10-20	---	10-20	---

Range site number	023XY008NV	023XY053NV	023XY007NV	023XY025NV	023XY016NV	none
Potential production (lb/acre):						
Favorable years	400	1000	1600	4000	1500	
Normal years	250	800	1200	3000	1100	
Unfavorable years	200	600	900	2000	800	

202--CRESAL SILT LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		CRESAL	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	---	10-15	15-25
bottlebrush squirreltail	SIHY	2-10	5-10	2-8
inland saltgrass	DISPS2	---	2-5	---
Bailey greasewood	SAVEB	---	T-5	---
black greasewood	SAVE4	---	20-30	---
bud sagebrush	ARSP5	---	2-5	2-5
shadscale	ATCO	75-85	20-35	---
winterfat	EULA5	---	---	60-70

Range site number	024XY067NV	027XY024NV	024XY004NV
Potential production (lb/acre):			
Favorable years	300	500	500
Normal years	200	350	350
Unfavorable years	75	150	200

218--DAVEY LOAMY FINE SAND, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		DAVEY	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	15-30	30-40	2-10
Sandberg bluegrass	POSE	---	---	2-5
basin wildrye	ELCI2	5-10	2-8	10-20
bottlebrush squirreltail	SIHY	---	---	2-5
needleandthread	STCO4	30-40	5-15	---
thickspike wheatgrass	AGDA	---	5-10	---
canadagre	RUBY	---	1-3	---
lemon scurfpea	PSLA	---	1-3	---
tufted eveningprimrose	OECE2	---	1-3	---
Anderson peachbrush	PRAN2	---	---	2-8
basin big sagebrush	ARTRT	---	25-30	15-25
big sagebrush	ARTR2	15-25	---	---
black greasewood	SAVE4	---	---	2-8
fourwing saltbush	ATCA2	---	2-8	---
other shrubs	SSSS	---	---	2-8
spiny hopsage	GRSP	1-5	2-8	15-30

Range site number	024XY017NV	024XY001NV	024XY041NV
Potential production (lb/acre):			
Favorable years	900	800	1000
Normal years	700	500	800
Unfavorable years	500	300	600

231--DEVADA-NINEMILE-SOFTSCRABBLE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		DEVADA	NINEMILE	SOFTSCRABBLE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	---	---	2-5	---	---	---	---
Idaho fescue	FEID	---	30-50	---	---	---	---	---
Indian ricegrass	ORRY	---	---	---	---	---	---	---
Sandberg bluegrass	POSE	---	---	---	---	---	---	2-5
Thurber needlegrass	STH2	10-25	2-8	2-5	---	10-20	2-8	15-30
basin wildrye	ELCI2	---	---	10-20	---	2-10	---	---
bluebunch wheatgrass	AGSP	20-50	15-30	20-40	---	40-60	10-30	---
bluegrass	POA++	5-10	2-8	---	---	---	---	---
bottlebrush squirreltail	SIHY	---	---	---	---	---	---	2-5
desert needlegrass	STSP3	---	---	---	---	---	15-30	2-10
Lahontan sagebrush	ARARL*	---	---	---	---	---	---	30-45
Wyoming big sagebrush	ARTRW	---	---	---	---	10-20	20-30	---
antelope bitterbrush	POTR2	---	---	2-10	---	2-5	---	---
big sagebrush	ARTR2	---	---	---	---	15-25	---	---
ephedra	EPHED	---	---	---	---	---	2-10	2-5
low sagebrush	ARAR8	10-20	10-20	---	---	---	---	---
mountain big sagebrush	ARVA2	---	---	5-15	---	10-20	---	---
purple sage	SADOC2	---	---	---	---	---	10-15	---
shadscale	ATCO	---	---	---	---	---	---	2-5
spiny hopsage	GRSP	---	---	---	---	---	---	2-5

Range site number	023XY031NV	023XY017NV	023XY041NV	none	023XY039NV	023XY030NV	023XY047NV
Potential production (lb/acre):							
Favorable years	900	900	1400		900	500	500
Normal years	700	700	1200		700	300	350
Unfavorable years	500	500	900		500	150	200

232--DEVADA EXTREMELY COBBLY LOAM, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		DEVADA	Inclusion 1	Inclusion 2	Inclusion 3
Nevada bluegrass	PONE3	---	---	---	2-8
Thurber needlegrass	STTH2	10-25	---	10-20	---
basin wildrye	ELCI2	---	---	2-10	65-75
bluebunch wheatgrass	AGSP	20-50	---	40-60	---
bluegrass	POA++	5-10	---	---	---
Wyoming big sagebrush	ARTRW	---	---	10-20	---
antelope bitterbrush	PUTR2	---	---	2-5	---
basin big sagebrush	ARTRT	---	---	---	5-10
big sagebrush	ARTR2	---	---	15-25	---
low sagebrush	ARAR8	10-20	---	---	---
mountain big sagebrush	ARVA2	---	---	10-20	---
rubber rabbitbrush	CHNA2	---	---	---	1-3
Range site number		023XY031NV	none	023XY039NV	023XY009NV
Potential production (lb/acre):					
Favorable years		900		900	5500
Normal years		700		700	4500
Unfavorable years		500		500	2500

240--DEPPY-TUMTUM COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		DEPPY	TUMTUM	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	---	2-10	2-5	25-35
Sandberg bluegrass	POSE	---	---	2-5	---	---
Thurber needlegrass	STTH2	---	40-50	---	---	5-10
basin wildrye	ELCI2	---	---	10-20	5-20	---
bluebunch wheatgrass	AGSP	---	2-10	---	---	---
bottlebrush squirreltail	SINY	5-10	---	2-5	2-5	---
globemallow	SPHA2	---	1-3	---	1-2	2-4
thelypody	THELY	---	---	---	2-4	---
Anderson peachbrush	PRAN2	---	---	2-8	---	---
Douglas rabbitbrush	CEV18	---	---	---	---	2-5
Wyoming big sagebrush	ARTRW	---	25-35	---	---	25-35
basin big sagebrush	ARTRT	---	---	15-25	---	---
big sagebrush	ARTR2	---	---	---	10-25	---
black greasewood	SAVE4	---	---	2-8	20-30	---
bud sagebrush	ARSP5	20-30	---	---	---	---
other shrubs	SSSS	---	---	2-8	---	---
shadscale	ATCO	30-40	---	---	---	2-5
spiny hopsage	GRSP	2-5	---	15-30	5-15	2-5
winterfat	EULA5	2-5	---	---	---	---
Range site number		024XY002NV	024XY005NV	024XY041NV	024XY022NV	024XY045NV
Potential production (lb/acre):						
Favorable years		750	800	1000	800	350
Normal years		450	600	800	600	200
Unfavorable years		300	400	600	350	100

252--DUN GLEN VERY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		DUN GLEN	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	2-10	---	15-25
Sandberg bluegrass	POSE	---	2-5	---	---
basin wildrye	ELCI2	---	10-20	---	---
bottlebrush squirreltail	SIHY	5-10	2-5	5-10	2-8
Anderson peachbrush	PRAN2	---	2-8	---	---
basin big sagebrush	ARTRT	---	15-25	---	---
black greasewood	SAVE4	---	2-8	15-30	---
bud sagebrush	ARSP5	20-30	---	2-8	2-5
other shrubs	SSSS	---	2-8	---	---
seepweed	SUAE2	---	---	2-8	---
shadscale	ATCO	30-40	---	30-50	---
spiny hopsage	GRSP	2-5	15-30	---	---
winterfat	EULA5	2-5	---	---	60-70

Range site number	024XY002NV	024XY041NV	024XY003NV	024XY004NV
Potential production (lb/acre):				
Favorable years	750	1000	600	500
Normal years	450	800	450	350
Unfavorable years	300	600	300	200

276--OROVADA FINE SANDY LOAM, 2 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		OROVADA	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	5-15	---	5-15
Nevada bluegrass	PONE3	---	2-8	---
Sandberg bluegrass	POSE	2-8	---	---
Thurber needlegrass	STH2	15-25	---	---
basin wildrye	ELCI2	---	65-75	---
bottlebrush squirreltail	SIHY	2-5	---	5-10
globemallow	SPHAE	1-2	---	---
Wyoming big sagebrush	ARTRW	20-35	---	---
basin big sagebrush	ARTRT	---	5-10	---
bud sagebrush	ARSP5	---	---	20-30
rubber rabbitbrush	CHNA2	---	1-3	---
shadscale	ATCO	---	---	30-40
spiny hopsage	GRSP	5-20	---	2-5
winterfat	EULA5	---	---	2-5

Range site number	024XY020NV	023XY009NV	024XY002NV
Potential production (lb/acre):			
Favorable years	700	5500	750
Normal years	450	4500	450
Unfavorable years	300	2500	300

296--LONGCREEK-CLEAVAGE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		LONGCREEK	CLEAVAGE	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	---	---	---	5-15	---
Idaho fescue	FEID	---	15-25	---	50-60	---
Indian ricegrass	ORHY	---	---	2-8	---	---
Thurber needlegrass	STTH2	10-20	---	2-8	---	---
basin wildrye	ELCI2	2-10	---	---	2-5	---
bluebunch wheatgrass	AGSP	40-60	---	10-30	5-15	---
bluegrass	POA++	---	5-15	---	---	---
desert needlegrass	STSP3	---	---	15-30	---	---
goldenweed	HAPLO2	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW	10-20	---	20-30	---	---
antelope bitterbrush	PTR2	2-5	---	---	---	---
big sagebrush	ARTR2	15-25	---	---	---	---
ephedra	EPHED	---	---	2-10	---	---
low sagebrush	ARAR8	---	35-45	---	---	---
mountain big sagebrush	ARVA2	10-20	---	---	5-15	---
purple sage	SADOC2	---	---	10-15	---	---
snowberry	SYMPH	---	---	---	2-5	---
Range site number		023XY039NV	023XY008NV	023XY030NV	023XY054NV	none
Potential production (lb/acre):						
Favorable years		900	400	500	1500	
Normal years		700	250	300	1200	
Unfavorable years		500	200	150	900	

335--OLA-POISONCREEK COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		OLA	POISONCREEK	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCU3	---	---	5-10	---	---	---
Idaho fescue	FEID	30-40	15-25	40-50	---	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---
big squirreltail	SIJU	---	---	---	5-10	---	---
bluebunch wheatgrass	AGSP	15-30	---	2-5	---	---	---
bluegrass	POA++	---	5-15	---	---	10-20	---
meadow barley	HOBR2	---	---	---	---	5-10	---
mountain brome	BRCA5	---	---	---	2-5	---	---
rush	JUNCU	---	---	---	---	5-10	---
sedge	CAREX	---	---	---	---	5-10	---
tufted hairgrass	DECE	---	---	---	---	30-50	---
arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---
goldenweed	HAPLO2	---	2-5	---	---	---	---
tapertip hawkbeard	CRAC2	2-5	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---
antelope bitterbrush	PTR2	2-5	---	---	2-5	---	---
low sagebrush	ARAR8	---	35-45	---	---	---	---
mountain big sagebrush	ARVA2	15-20	---	---	5-10	---	---
snowberry	SYMPH	2-5	---	---	---	---	---
curleaf mountainmahogany	CELE3	---	---	---	40-65	---	---
Range site number		023XY043NV	023XY008NV	023XY053NV	023XY073NV	023XY025NV	none
Potential production (lb/acre):							
Favorable years		1300	400	1000	3200	4000	
Normal years		700	250	800	2900	3000	
Unfavorable years		400	200	600	2300	2000	

338--OLA-POISONCREEK-TOSP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		OLA	POISONCREEK	TOSP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	30-40	15-25	X	---	5-10	---
Nevada bluegrass	PONE3	---	---	X	---	---	---
basin wildrye	ELCI2	---	---	---	---	5-10	---
big squirreltail	SIJU	---	---	X	---	---	---
bluebunch wheatgrass	AGSP	15-30	---	---	---	---	---
bluegrass	POA++	2-8	5-15	---	---	2-5	10-20
meadow barley	HOBR2	---	---	---	---	---	5-10
melic	MELIC	---	---	X	---	---	---
mountain brome	BRCA5	---	---	X	---	20-30	---
needlegrass	STIPA	---	---	---	---	5-10	---
purple oniongrass	MESP	---	---	---	---	2-5	---
rush	JUNCU	---	---	---	---	---	5-10
sedge	CAREX	---	---	---	---	---	5-10
slender wheatgrass	AGTR	---	---	X	---	---	---
tufted hairgrass	DECE	---	---	---	---	---	30-50
arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---
goldenweed	HAPLO2	---	2-5	---	---	---	---
meadowrue	THALI2	---	---	X	---	---	---
tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---
antelope bitterbrush	PUTR2	2-5	---	---	---	2-5	---
low sagebrush	ARAR8	---	35-45	---	---	---	---
mountain big sagebrush	ARVA2	15-20	---	X	---	10-20	---
snowberry	SYMPH	2-5	---	X	---	2-8	---
quaking aspen	POTRT	---	---	X	---	---	---

Range site number	023XY043NV	023XY008NV	023XY028NV	none	023XY048NV	023XY025NV
Potential production (lb/acre):						
Favorable years	1300	400	600		1300	4000
Normal years	700	250	400		1100	3000
Unfavorable years	400	200	250		900	2000

340--OLA-AYCAB-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		OLA	AYCAB	ROCK OUTCROP	Inclusion 1	Inclusion 2
Idaho fescue	FEID	30-40	5-10	---	---	15-25
Thurber needlegrass	STTH2	---	---	---	5-10	---
basin wildrye	ELCI2	---	5-10	---	---	---
bluebunch wheatgrass	AGSP	15-30	---	---	50-60	---
bluegrass	POA++	2-8	2-5	---	---	5-15
mountain brome	BRCA5	---	20-30	---	---	---
needlegrass	STIPA	---	5-10	---	---	---
purple oniongrass	MESP	---	2-5	---	---	---
arrowleaf balsamroot	BASA3	2-5	---	---	1-2	---
goldenweed	HAPLO2	---	---	---	---	2-5
tapertip hawksbeard	CRAC2	2-5	---	---	1-2	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5
antelope bitterbrush	PUTR2	2-5	2-5	---	5-10	---
low sagebrush	ARAR8	---	---	---	---	35-45
mountain big sagebrush	ARVA2	15-20	10-20	---	15-25	---
snowberry	SYMPH	2-5	2-8	---	---	---

Range site number	023XY043NV	023XY048NV	none	023XY042NV	023XY008NV
Potential production (lb/acre):					
Favorable years	1300	1300		1000	400
Normal years	700	1100		800	250
Unfavorable years	400	900		600	200

345--GENEGRAF-TOULON ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		GENEGRAF	TOULON	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORHY	10-20	10-20	5-10	10-15	20-30	---
Sandberg bluegrass	POSE	5-10	5-10	---	---	---	---
bottlebrush squirreltail	SIHY	2-8	2-8	5-10	5-10	---	---
inland saltgrass	DISPS2	---	---	---	2-5	2-5	---
Bailey greasewood	SAVEB	20-30	20-30	---	T-5	---	---
Nevada ephedra	EPNE	---	---	5-10	---	---	---
black greasewood	SAVE4	---	---	---	20-30	30-50	---
bud sagebrush	ARSP5	5-15	5-15	---	---	2-5	---
burrobrush	HYMEN3	---	---	5-10	---	---	---
fourwing saltbush	ATCA2	---	---	5-10	---	2-5	---
littleleaf horsebrush	TEGL	---	---	10-20	---	---	---
rubber rabbitbrush	CHNA2	---	---	10-20	---	---	---
shadscale	ATCO	15-30	15-30	---	20-35	2-5	---
spiny hopsage	GRSP	---	---	10-20	---	---	---

Range site number	027XY018NV	027XY018NV	027XY022NV	027XY024NV	027XY016NV	none
Potential production (lb/acre):						
Favorable years	400	400	400	500	500	
Normal years	250	250	200	350	300	
Unfavorable years	100	100	50	150	150	

350--FULSTONE GRAVELLY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		FULSTONE	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	---	2-5
Indian ricegrass	ORHY	2-8	---	---	---
Nevada bluegrass	PONE3	---	---	2-8	---
Sandberg bluegrass	POSE	2-5	---	---	---
Thurber needlegrass	STH2	15-30	5-15	---	15-20
basin wildrye	ELCI2	---	---	65-75	5-10
bluebunch wheatgrass	AGSP	---	40-60	---	30-40
bluegrass	POA++	---	2-8	---	---
bottlebrush squirreltail	SIHY	2-5	---	---	---
desert needlegrass	STSP3	2-10	---	---	---
Hooker balsamroot	BAHO	---	2-5	---	---
tapertip hawksbeard	CRAC2	---	1-2	---	---
Lahontan sagebrush	ARARL*	30-45	10-20	---	---
antelope bitterbrush	PUTR2	---	---	---	2-10
basin big sagebrush	ARTRT	---	---	5-10	---
big sagebrush	ARTR2	---	---	---	15-25
ephedra	EPHED	2-5	---	---	---
rubber rabbitbrush	CHNA2	---	---	1-3	---
shadscale	ATCO	2-5	---	---	---
spiny hopsage	GRSP	2-5	---	---	---

Range site number	023XY047NV	023XY037NV	023XY009NV	023XY020NV
Potential production (lb/acre):				
Favorable years	500	700	5500	1100
Normal years	350	600	4500	900
Unfavorable years	200	400	2500	600

357--GRANSHAW-SHAWAVE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		GRANSHAW	SHAWAVE	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	5-15	5-10	5-15	15-30
Sandberg bluegrass	POSE	---	2-5	2-8	---
Thurber needlegrass	STTH2	---	20-30	15-25	---
basin wildrye	ELCI2	---	---	---	5-10
bottlebrush squirreltail	SIHY	5-10	2-5	2-5	---
needleandthread	STCO4	---	5-15	---	30-40
globemallow	SPHAE	---	---	1-2	---
Wyoming big sagebrush	ARTRW	---	20-30	20-35	---
big sagebrush	ARTR2	---	---	---	15-25
bud sagebrush	ARSP5	20-30	---	---	---
shadscale	ATCO	30-40	---	---	---
spiny hopsage	GRSP	2-5	2-5	5-20	1-5
winterfat	EULAS	2-5	---	---	---
Range site number		024XY002NV	023XY068NV	024XY020NV	024XY017NV
Potential production (lb/acre):					
Favorable years		750	800	700	900
Normal years		450	600	450	700
Unfavorable years		300	400	300	500

360--GRUMBLIN-PICKUP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		GRUMBLIN	PICKUP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORHY	10-20	---	5-15	---	15-25	2-8
Sandberg bluegrass	POSE	2-10	2-8	2-5	---	---	---
Thurber needlegrass	STTH2	---	20-35	20-40	---	---	2-8
Webber needlegrass	STWE	---	---	2-8	---	---	---
basin wildrye	ELCI2	---	---	---	---	5-15	---
bluebunch wheatgrass	AGSP	---	---	---	---	---	10-30
bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
desert needlegrass	STSP3	5-15	2-5	---	---	---	15-30
Bailey greasewood	SAVEB	10-20	---	---	---	---	---
Lahontan sagebrush	ARARL*	35-50	30-35	---	---	---	---
Nevada sphedra	EPNE	2-8	---	---	---	---	---
Wyoming big sagebrush	ARTRW	---	---	20-30	---	---	20-30
basin big sagebrush	ARTRT	---	---	---	---	20-30	---
sphedra	EPHED	---	---	---	---	---	2-10
purple sage	SADOC2	---	---	---	---	---	10-15
rabbitbrush	CHRY99	---	---	---	---	2-5	---
shadscale	ATCO	2-5	---	---	---	---	---
spiny hopsage	GRSP	2-5	2-5	2-5	---	10-20	---
Range site number		027XY070NV	027XY079NV	023XY006NV	none	027XY029NV	023XY030NV
Potential production (lb/acre):							
Favorable years		400	500	800		800	500
Normal years		250	350	600		500	300
Unfavorable years		100	200	400		300	150

374--HOOT-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		HOOT	ROCK OUTCROP	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	2-5	---	5-15	2-8
Sandberg bluegrass	POSE	---	---	2-5	2-5
Thurber needlegrass	STTH2	---	---	20-40	15-30
Webber needlegrass	STWE	---	---	2-8	---
bottlebrush squirreltail	SIHY	2-10	---	2-5	2-5
desert needlegrass	STSP3	2-10	---	---	2-10
Lahontan sagebrush	ARARL*	---	---	---	30-45
Wyoming big sagebrush	ARTRW	---	---	20-30	---
bud sagebrush	ARSP5	15-30	---	---	---
ephedra	EPHED	---	---	---	2-5
shadscale	ATCO	30-50	---	---	2-5
spiny hopsage	GRSP	---	---	2-5	2-5
Range site number		024XY025NV	none	023XY006NV	023XY047NV
Potential production (lb/acre):					
Favorable years		250		800	500
Normal years		150		600	350
Unfavorable years		75		400	200

378--HAWLSLEY FINE SAND, 2 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		HAWLSLEY	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	50-70	10-20	20-30	---
Sandberg bluegrass	POSE	---	5-10	---	---
bottlebrush squirreltail	SIHY	---	2-8	---	---
inland saltgrass	DISPS2	---	---	2-5	2-10
needleandthread	STCO4	5-15	---	---	---
Bailey greasewood	SAVEB	---	20-30	---	---
Nevada dalea	PSPO	0-5	---	---	---
black greasewood	SAVE4	---	---	30-50	60-70
bud sagebrush	ARSP5	---	5-15	---	---
fourwing saltbush	ATCA2	10-20	---	2-5	---
seepweed	SUAED	---	---	---	2-8
shadscale	ATCO	---	15-30	2-5	2-10
spiny hopsage	GRSP	2-5	---	---	---
winterfat	EOLA5	2-8	---	---	---
Range site number		027XY009NV	027XY018NV	027XY016NV	027XY025NV
Potential production (lb/acre):					
Favorable years		700	400	500	500
Normal years		450	250	300	350
Unfavorable years		250	100	150	200

381--HART CAMP-DEVADA-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		HART CAMP	DEVADA	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	---	---	2-5	---
Idaho fescue	FEID	5-20	---	---	30-50	---	10-20
Thurber needlegrass	STTH2	5-10	10-25	---	2-8	2-5	---
basin wildrye	ELCI2	5-10	---	---	---	10-20	---
bluebunch wheatgrass	AGSP	25-35	20-50	---	15-30	20-40	5-15
bluegrass	POA++	---	5-10	---	2-8	---	2-5
mountain brome	BRCA5	---	---	---	---	---	2-8
needlegrass	STIPA	---	---	---	---	---	5-15
antelope bitterbrush	PUTR2	15-25	---	---	---	2-10	---
curlleaf mountainmahogany	CELE3	---	---	---	---	---	25-40
low sagebrush	ARAR8	---	10-20	---	10-20	---	---
mountain big sagebrush	ARVA2	5-15	---	---	---	5-15	5-10
snowberry	SYMPH	---	---	---	---	---	2-5
Range site number		023XY015NV	023XY031NV	none	023XY017NV	023XY041NV	023XY026NV
Potential production (lb/acre):							
Favorable years		1500	900		900	1400	1400
Normal years		1200	700		700	1200	1100
Unfavorable years		900	500		500	900	600

382--HART CAMP-BADGERCAMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		HART CAMP	BADGERCAMP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	5-20	10-20	40-50	30-40	---
Thurber needlegrass	STTH2	5-10	---	---	2-8	---
basin wildrye	ELCI2	5-10	---	---	5-10	---
bluebunch wheatgrass	AGSP	25-35	5-15	2-5	25-40	---
bluegrass	POA++	---	2-5	---	2-5	---
mountain brome	BRCA5	---	2-8	---	---	---
needlegrass	STIPA	---	5-15	---	---	---
antelope bitterbrush	PUTR2	15-25	---	10-20	2-10	---
curlleaf mountainmahogany	CELE3	---	25-40	---	---	---
mountain big sagebrush	ARVA2	5-15	5-10	10-20	10-20	---
snowberry	SYMPH	---	2-5	---	---	---
Range site number		023XY015NV	023XY026NV	023XY066NV	023XY007NV	none
Potential production (lb/acre):						
Favorable years		1500	1400	1300	1600	
Normal years		1200	1100	1100	1200	
Unfavorable years		900	600	900	900	

388--HUMBOLDT SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		HUMBOLDT	Inclusion 1	Inclusion 2
Nevada bluegrass	PONE3	5-15	---	---
alkali sacaton	SPAI	---	---	5-25
basin wildrye	ELCI2	---	---	50-60
inland saltgrass	DISPS2	2-5	2-10	---
mat muhly	MURI	2-5	---	---
sedge	CAREX	2-10	---	---
wildrye	ELYMU	60-80	---	---
black greasewood	SAVE4	---	60-70	5-15
rubber rabbitbrush	CHNA2	---	---	2-5
seepweed	SUAED	---	2-8	---
shadscale	ATCO	---	2-10	---
willow	SALIX	5-10	---	---

Range site number	025XY001NV	027XY025NV	024XY007NV
Potential production (lb/acre):			
Favorable years	3500	500	1900
Normal years	2500	350	1400
Unfavorable years	1800	200	800

402--TUMTUM VERY COBBLY LOAM, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		TUMTUM	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	OREY	5-15	5-15	2-10	25-35
Sandberg bluegrass	POSE	2-8	---	2-5	---
Thurber needlegrass	STHE2	15-25	---	---	5-10
basin wildrye	ELCI2	---	---	10-20	---
bottlebrush squirreltail	SIHY	2-5	5-10	2-5	---
globemallow	SPHAE	1-2	---	---	2-4
Anderson peachbrush	FRAN2	---	---	2-8	---
Douglas rabbitbrush	CEVI8	---	---	---	2-5
Wyoming big sagebrush	ARTRW	20-35	---	---	25-35
basin big sagebrush	ARTRT	---	---	15-25	---
black greasewood	SAVE4	---	---	2-8	---
bud sagebrush	ARSP5	---	20-30	---	---
other shrubs	SSSS	---	---	2-8	---
shadscale	ATCO	---	30-40	---	2-5
spiny hopsage	GRSP	5-20	2-5	15-30	2-5
winterfat	EULAS	---	2-5	---	---

Range site number	024XY020NV	024XY002NV	024XY041NV	024XY045NV
Potential production (lb/acre):				
Favorable years	700	750	1000	350
Normal years	450	450	800	200
Unfavorable years	300	300	600	100

410--SHAWAVE-DEADYON ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SHAWAVE	DEADYON	SHAWAVE	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	2-5	---	2-5	---	2-5
Indian ricegrass	ORHY	2-5	---	2-5	2-10	2-5
Sandberg bluegrass	POSE	---	---	---	2-5	---
Thurber needlegrass	STTH2	20-40	10-25	20-40	---	20-40
basin wildrye	ELCI2	2-5	20-30	2-5	10-20	2-5
bluebunch wheatgrass	AGSP	15-25	---	15-25	---	15-25
bottlebrush squirreltail	SIBY	---	---	---	2-5	---
arrowleaf balsamroot	BASA3	1-2	---	1-2	---	1-2
tapertip hawkbeard	CRAC2	1-2	---	1-2	---	1-2
Anderson peachbrush	PRAN2	---	---	---	2-8	---
Wyoming big sagebrush	ARTRW	15-25	---	15-25	---	15-25
basin big sagebrush	ARTRT	---	---	---	15-25	---
big sagebrush	ARTR2	---	15-25	---	---	---
black greasewood	SAVE4	---	2-5	---	2-8	---
ephedra	EPRED	2-5	---	2-5	---	2-5
other shrubs	SSSS	---	---	---	2-8	---
spiny hopsage	GRSP	---	5-10	---	15-30	---

Range site number	023XY057NV	023XY040NV	023XY057NV	024XY041NV	023XY057NV
Potential production (lb/acre):					
Favorable years	700	1000	700	1000	700
Normal years	500	800	500	800	500
Unfavorable years	300	600	300	600	300

411--SHAWAVE-OROVADA COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		SHAWAVE	OROVADA	Inclusion 1
Indian ricegrass	ORHY	5-10	5-15	30-40
Sandberg bluegrass	POSE	2-5	2-8	---
Thurber needlegrass	STTH2	20-30	15-25	---
basin wildrye	ELCI2	---	---	2-8
bottlebrush squirreltail	SIBY	2-5	2-5	---
needleandthread	STCO4	5-15	---	5-15
thickspike wheatgrass	AGDA	---	---	5-10
canaigre	RUBY	---	---	1-3
globemallow	SPHAE	---	1-2	---
lemon scurpea	PSLA	---	---	1-3
tufted eveningprimrose	OEC2	---	---	1-3
Wyoming big sagebrush	ARTRW	20-30	20-35	---
basin big sagebrush	ARTRT	---	---	25-30
fourwing saltbush	ATCA2	---	---	2-8
spiny hopsage	GRSP	2-5	5-20	2-8

Range site number	023XY068NV	024XY020NV	024XY001NV
Potential production (lb/acre):			
Favorable years	800	700	800
Normal years	600	450	500
Unfavorable years	400	300	300

413--ISOLDE-TYPIC TORRIORIENTIS-DUNE LAND COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		ISOLDE	TYPIC TORRIO	DUNE LAND	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	20-30	---	---	10-20	---	5-10
Sandberg bluegrass	POSE	---	---	---	5-10	---	---
bottlebrush squirreltail	SIBY	---	---	---	2-8	---	5-10
inland saltgrass	DISPS2	2-5	---	---	---	---	---
Bailey greasewood	SAVEB	---	---	---	20-30	---	---
Nevada ephedra	EPNE	---	---	---	---	---	5-10
black greasewood	SAVE4	30-50	---	---	---	---	---
bud sagebrush	ARSP5	---	---	---	5-15	---	---
burrobrush	HYMEN3	---	---	---	---	---	5-10
fourwing saltbush	ATCA2	2-5	---	---	---	---	5-10
littleleaf horsebrush	TEGL	---	---	---	---	---	10-20
rubber rabbitbrush	CHNA2	---	---	---	---	---	10-20
shadscale	ATCO	2-5	---	---	15-30	---	---
spiny hopsage	GRSP	---	---	---	---	---	10-20
Range site number		027XY016NV	none	none	027XY018NV	none	027XY022NV
Potential production (lb/acre):							
Favorable years		500			400		400
Normal years		300			250		200
Unfavorable years		150			100		50

414--ISOLDE-MAZUMA-JERVAL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		ISOLDE	MAZUMA	JERVAL	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	20-30	10-20	15-30	50-70	5-10
Sandberg bluegrass	POSE	---	5-10	2-15	---	---
bottlebrush squirreltail	SIBY	---	2-8	2-8	---	5-10
inland saltgrass	DISPS2	2-5	---	---	---	---
needleandthread	STCO4	---	---	---	5-15	---
Bailey greasewood	SAVEB	---	20-30	---	---	---
Nevada dalea	PSPO	---	---	---	0-5	---
Nevada ephedra	EPNE	---	---	---	---	5-10
black greasewood	SAVE4	30-50	---	---	---	---
bud sagebrush	ARSP5	---	5-15	15-25	---	---
burrobrush	HYMEN3	---	---	---	---	5-10
fourwing saltbush	ATCA2	2-5	---	---	10-20	5-10
littleleaf horsebrush	TEGL	---	---	---	---	10-20
rubber rabbitbrush	CHNA2	---	---	---	---	10-20
shadscale	ATCO	2-5	15-30	20-35	---	---
spiny hopsage	GRSP	---	---	---	2-5	10-20
winterfat	EULA5	---	---	5-10	2-8	---
Range site number		027XY016NV	027XY018NV	027XY013NV	027XY009NV	027XY022NV
Potential production (lb/acre):						
Favorable years		500	400	600	700	400
Normal years		300	250	450	450	200
Unfavorable years		150	100	250	250	50

420--JESSE CAMP VERY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		JESSE CAMP	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	---	---	2-5
Nevada bluegrass	PONE3	15-35	2-8	---
Thurber needlegrass	STTH2	---	---	15-20
basin wildrye	ELCI2	---	65-75	5-10
bluebunch wheatgrass	AGSP	---	---	30-40
creeping wildrye	ELTR3	5-15	---	---
mat muhly	MURI	5-10	---	---
antelope bitterbrush	PUTR2	---	---	2-10
basin big sagebrush	ARTRT	---	5-10	---
big sagebrush	ARTR2	---	---	15-25
rubber rabbitbrush	CHNA2	2-5	1-3	---
silver sagebrush	ARCA13	30-40	---	---
Range site number		023XY003NV	023XY009NV	023XY020NV
Potential production (lb/acre):				
Favorable years		1800	5500	1100
Normal years		1400	4500	900
Unfavorable years		700	2500	600

430--WOOFUS LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		WOOFUS	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	---	---	2-5
Nevada bluegrass	PONE3	---	40-50	---
Thurber needlegrass	STTH2	---	---	15-20
basin wildrye	ELCI2	---	---	5-10
bluebunch wheatgrass	AGSP	---	---	30-40
sedge	CAREX	---	5-15	---
antelope bitterbrush	PUTR2	---	---	2-10
big sagebrush	ARTR2	---	---	15-25
Range site number		none	023XY013NV	023XY020NV
Potential production (lb/acre):				
Favorable years			2200	1100
Normal years			1700	900
Unfavorable years			1300	600

431--WOOFUS-WELCH COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		WOOFUS	WELCH	Inclusion 1
Nevada bluegrass	PONE3	40-50	---	2-8
basin wildrye	ELCI2	---	---	65-75
bluegrass	POA++	---	10-20	---
meadow barley	HOBR2	---	5-10	---
rush	JUNCU	---	5-10	---
sedge	CAREX	5-15	5-10	---
tufted hairgrass	DECE	---	30-50	---
basin big sagebrush	ARTRT	---	---	5-10
rubber rabbitbrush	CHNA2	---	---	1-3
Range site number		023XY013NV	023XY025NV	023XY009NV
Potential production (lb/acre):				
Favorable years		2200	4000	5500
Normal years		1700	3000	4500
Unfavorable years		1300	2000	2500

432--ISOLDE-RAGTOWN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		ISOLDE	RAGTOWN	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	20-30	---	---	10-15
bottlebrush squirreltail	SIBY	---	---	---	5-10
inland saltgrass	DISPS2	2-5	2-10	---	2-5
Bailey greasewood	SAVEB	---	---	---	T-5
black greasewood	SAVE4	30-50	60-70	---	20-30
bud sagebrush	ARSP5	---	---	---	2-5
fourwing saltbush	ATCA2	2-5	---	---	---
seepweed	SUAED	---	2-8	---	---
shadscale	ATCO	2-5	2-10	---	20-35
Range site number		027XY016NV	027XY025NV	none	027XY024NV
Potential production (lb/acre):					
Favorable years		500	500		500
Normal years		300	350		350
Unfavorable years		150	200		150

433--WETVIT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		WETVIT	WETVIT	Inclusion 1	Inclusion 2	Inclusion 3	
Baltic rush	JUBA	2-8	---	---	---	---	
Canby bluegrass	POCA	---	---	---	---	2-5	
Nevada bluegrass	PONE3	40-60	40-50	2-8	2-10	---	
Thurber needlegrass	STTH2	---	---	---	---	15-20	
basin wildrye	ELCI2	2-8	---	65-75	40-60	5-10	
bluebunch wheatgrass	AGSP	---	---	---	---	30-40	
meadow barley	HOBR2	2-8	---	---	---	---	
sedge	CAREX	10-20	5-15	---	---	---	
western wheatgrass	AGSM	---	---	---	2-10	---	
povertyweed	IVAX	---	---	---	2-5	---	
thelypody	THELY	---	---	---	1-3	---	
antelope bitterbrush	PUTR2	---	---	---	---	2-10	
basin big sagebrush	ARTR	---	---	5-10	5-15	---	
big sagebrush	ARTR2	---	---	---	---	15-25	
rubber rabbitbrush	CHNA2	---	---	1-3	---	---	
Range site number		023XY089NV	023XY013NV	023XY009NV	023XY005NV	023XY020NV	
Potential production (lb/acre):							
Favorable years		4000	2200	5500	3000	1100	
Normal years		3000	1700	4500	2000	900	
Unfavorable years		2000	1300	2500	1300	600	

442--RODOCK-FAX-HOLBROOK COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		RODOCK	FAX	HOLBROOK	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	2-5	2-5	2-5	---	---	---	2-5
Indian ricegrass	ORHY	---	---	---	---	---	---	2-8
Nevada bluegrass	PONE3	---	---	---	2-8	2-10	---	---
Sandberg bluegrass	POSE	---	---	---	---	---	---	2-5
Thurber needlegrass	STTH2	15-20	15-20	15-20	---	---	15-30	15-20
basin wildrye	ELCI2	5-10	5-10	5-10	65-75	40-60	---	5-10
bluebunch wheatgrass	AGSP	30-40	30-40	30-40	---	---	---	30-40
bottlebrush squirreltail	SIBY	---	---	---	---	---	---	2-5
desert needlegrass	STSP3	---	---	---	---	---	2-10	---
western wheatgrass	AGSM	---	---	---	---	2-10	---	---
povertyweed	IVAX	---	---	---	---	2-5	---	---
thelypody	THELY	---	---	---	---	1-3	---	---
Lahontan sagebrush	ARARL*	---	---	---	---	---	30-45	---
antelope bitterbrush	PUTR2	2-10	2-10	2-10	---	---	---	2-10
basin big sagebrush	ARTR	---	---	---	5-10	5-15	---	---
big sagebrush	ARTR2	15-25	15-25	15-25	---	---	---	15-25
ephedra	EPHED	---	---	---	---	---	---	2-5
rubber rabbitbrush	CHNA2	---	---	---	1-3	---	---	---
shadscale	ATCO	---	---	---	---	---	---	2-5
spiny hopsage	GRSP	---	---	---	---	---	---	2-5
Range site number		023XY020NV	023XY020NV	023XY020NV	023XY009NV	023XY005NV	023XY047NV	023XY020NV
Potential production (lb/acre):								
Favorable years		1100	1100	1100	5500	3000	500	1100
Normal years		900	900	900	4500	2000	350	900
Unfavorable years		600	600	600	2500	1300	200	600

452--ROCCONDA-COPPEREID-SOUGHE COMPLEX

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		ROCCONDA	COPPEREID	SOUGHE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	2-8	---	5-15	X	10-20	2-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	X	2-10	2-5
Thurber needlegrass	STTR2	15-30	10-20	20-40	X	---	---
Webber needlegrass	STWE	---	---	2-8	---	---	---
basin wildrye	ELCI2	---	---	---	---	---	10-20
bottlebrush squirreltail	SIHY	2-5	2-5	2-5	X	---	2-5
desert needlegrass	STSP3	2-10	2-5	---	X	5-15	---
milkvetch	ASTRA	---	1-3	---	---	---	---
skeletonweed	LYGOD	---	1-3	---	---	---	---
Anderson peachbrush	FRAN2	---	---	---	---	---	2-8
Bailey greasewood	SAVEB	---	---	---	---	10-20	---
Lahontan sagebrush	ARARL+	30-45	30-40	---	X	35-50	---
Nevada ephedra	EPNE	---	---	---	X	2-8	---
Wyoming big sagebrush	ARTRW	---	---	20-30	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	---	15-25
black greasewood	SAVE4	---	---	---	---	---	2-8
common pricklygilia	LEPU	---	2-5	---	---	---	---
ephedra	EPHED	2-5	---	---	---	---	---
other shrubs	SSSS	---	---	---	---	---	2-8
purple sage	SADOC2	---	5-15	---	---	---	---
shadscale	ATCO	2-5	---	---	---	2-5	---
spiny hopsage	GRSP	2-5	---	2-5	X	2-5	15-30
Utah juniper	JUOS	---	---	---	X	---	---

Range site number	023XY047NV	023XY063NV	023XY066NV	023XY045NV	027XY070NV	024XY041NV
Potential production (lb/acre):						
Favorable years	500	350	800	350	400	1000
Normal years	350	250	600	250	250	800
Unfavorable years	200	100	400	100	100	600

463--JERVAL-DORPER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		JERVAL	DORPER	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	15-30	15-30	20-25	15-25
Sandberg bluegrass	POSE	2-15	2-15	2-5	---
bottlebrush squirreltail	SIHY	2-8	2-8	2-5	2-8
needleandthread	STCO4	---	---	5-15	---
Nevada ephedra	EPNE	---	---	2-5	---
Wyoming big sagebrush	ARTRW	---	---	20-30	---
bud sagebrush	ARSF5	15-25	15-25	---	2-5
shadscale	ATCO	20-35	20-35	---	---
spiny hopsage	GRSP	---	---	10-25	---
winterfat	EULAS	5-10	5-10	2-5	60-70

Range site number	027XY013NV	027XY013NV	027XY008NV	024XY004NV
Potential production (lb/acre):				
Favorable years	600	600	700	500
Normal years	450	450	500	350
Unfavorable years	250	250	300	200

464--JERVAL-DORPER ASSOCIATION, STONY

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		JERVAL	DORPER	Inclusion 1	Inclusion 2
Indian ricegrass	OREY	10-20	10-20	2-8	5-10
Sandberg bluegrass	POSE	5-10	5-10	2-5	---
Thurber needlegrass	STTH2	---	---	15-30	---
bottlebrush squirreltail	SIHY	2-8	2-8	2-5	5-10
desert needlegrass	STSP3	---	---	2-10	---
Bailey greasewood	SAVEB	20-30	20-30	---	---
Lahontan sagebrush	ARARL*	---	---	30-45	---
Nevada ephedra	EPNE	---	---	---	5-10
bud sagebrush	ARSP5	5-15	5-15	---	---
burrobrush	HYMEN3	---	---	---	5-10
ephedra	EPHED	---	---	2-5	---
fourwing saltbush	ATCA2	---	---	---	5-10
littleleaf horsebrush	TEGL	---	---	---	10-20
rubber rabbitbrush	CBNA2	---	---	---	10-20
shadscale	ATCO	15-30	15-30	2-5	---
spiny hopsage	GRSP	---	---	2-5	10-20

Range site number	027XY018NV	027XY018NV	023XY047NV	027XY022NV
Potential production (lb/acre):				
Favorable years	400	400	500	400
Normal years	250	250	350	200
Unfavorable years	100	100	200	50

467--NINEMILE-SUMINE-SOFTSCRABBLE ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		NINEMILE	SUMINE	SOFTSCRABBLE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	30-50	---	30-40	X	10-20	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---	---
Thurber needlegrass	STTH2	2-8	5-10	2-8	---	---	---	---
basin wildrye	ELCI2	---	2-10	5-10	---	---	---	---
big squirreltail	SIJU	---	---	---	X	---	---	---
bluebunch wheatgrass	AGSP	15-30	60-70	25-40	---	5-15	---	---
bluegrass	POA++	2-8	---	2-5	---	2-5	---	---
meadow barley	HOBR2	---	---	---	---	---	5-10	---
melic	MELIC	---	---	---	X	---	---	---
mountain brome	BRCA5	---	---	---	X	2-8	---	---
needlegrass	STIPA	---	---	---	---	5-15	---	---
rush	JUNCU	---	---	---	---	---	5-10	---
sedge	CAREX	---	---	---	---	---	5-10	---
slender wheatgrass	AGTR	---	---	---	X	---	---	---
tufted hairgrass	DECE	---	---	---	---	---	30-50	---
meadowrue	TRALI2	---	---	---	X	---	---	---
antelope bitterbrush	POTR2	---	2-8	2-10	---	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	25-40	---	---
low sagebrush	ARAR8	10-20	---	---	---	---	---	---
mountain big sagebrush	ARVA2	---	10-20	10-20	X	5-10	---	---
snowberry	SYMPH	---	---	---	X	2-5	---	---
quaking aspen	POTRT	---	---	---	X	---	---	---

Range site number	023XY017NV	023XY016NV	023XY007NV	023XY028NV	023XY026NV	023XY025NV	none
Potential production (lb/acre):							
Favorable years	900	1500	1600	600	1400	4000	
Normal years	700	1100	1200	400	1100	3000	
Unfavorable years	500	800	900	250	600	2000	

468--BUCKLAKE-NINEMILE-FRETERA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BUCKLAKE	NINEMILE	FRETERA	Inclusion 1	Inclusion 2
Cusick bluegrass	POCU3	---	---	2-8	---	---
Idaho fescue	FEID	---	30-50	40-60	---	---
Thurber needlegrass	STTH2	10-20	2-8	5-15	5-15	---
basin wildrye	ELCI2	2-10	---	---	---	---
bluebunch wheatgrass	AGSP	40-60	15-30	2-8	40-60	---
bluegrass	POA++	---	---	2-8	---	---
Hooker balsamroot	BAHO	---	---	---	2-5	---
tapertip hawksbeard	CRAC2	---	---	---	1-2	---
Lahontan sagebrush	ARARL*	---	---	---	10-20	---
Wyoming big sagebrush	ARTRW	10-20	---	15-25	---	---
antelope bitterbrush	PUTR2	2-5	---	---	---	---
big sagebrush	ARTR2	15-25	---	---	---	---
low sagebrush	ARAR8	---	10-20	---	---	---
mountain big sagebrush	ARVA2	10-20	---	---	---	---
Range site number		023XY039NV	023XY017NV	023XY072NV	023XY037NV	none
Potential production (lb/acre):						
Favorable years		900	900	800	700	
Normal years		700	700	500	600	
Unfavorable years		500	500	350	400	

470--FRETERA-WYLO-TUFFO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		FRETERA	WYLO	TUFFO	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	2-5	---	---	2-5
Cusick bluegrass	POCU3	2-8	---	---	---	---	---
Idaho fescue	FEID	40-60	---	---	40-50	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-8	---
Thurber needlegrass	STTH2	5-15	5-15	15-20	10-20	---	15-20
basin wildrye	ELCI2	---	---	5-10	2-5	65-75	5-10
bluebunch wheatgrass	AGSP	2-8	40-60	30-40	2-8	---	30-40
bluegrass	POA++	---	2-8	---	---	---	---
Hooker balsamroot	BAHO	---	2-5	---	---	---	---
tapertip hawksbeard	CRAC2	---	1-2	---	---	---	---
Lahontan sagebrush	ARARL*	---	10-20	---	---	---	---
Wyoming big sagebrush	ARTRW	15-25	---	---	---	---	---
antelope bitterbrush	PUTR2	---	---	2-10	---	---	2-10
basin big sagebrush	ARTRT	---	---	---	15-25	5-10	---
big sagebrush	ARTR2	---	---	15-25	---	---	15-25
rubber rabbitbrush	CHNA2	---	---	---	---	1-3	---
Range site number		023XY072NV	023XY037NV	023XY020NV	023XY071NV	023XY009NV	023XY020NV
Potential production (lb/acre):							
Favorable years		800	700	1100	1000	5500	1100
Normal years		500	600	900	800	4500	900
Unfavorable years		350	400	600	600	2500	600

475--JUVA LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		JUVA	Inclusion 1
Indian ricegrass	ORBY	10-20	5-10
Sandberg bluegrass	POSE	5-10	---
bottlebrush squirreltail	SIHY	2-8	5-10
Bailey greasewood	SAVEB	20-30	---
Nevada ephedra	EPNE	---	5-10
bud sagebrush	ARSP5	5-15	---
burrobrush	HYMEN3	---	5-10
fourwing saltbush	ATCA2	---	5-10
littleleaf horsebrush	TEGL	---	10-20
rubber rabbitbrush	CHNA2	---	10-20
shadscale	ATCO	15-30	---
spiny hopsage	GRSP	---	10-20

Range site number	027XY018NV	027XY022NV
Potential production (lb/acre):		
Favorable years	400	400
Normal years	250	200
Unfavorable years	100	50

480--TUFFO-WYLO-FRENTERA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		TUFFO	WYLO	FRENTERA	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5	---	---	---	---	2-5
Cusick bluegrass	POCU3	---	---	2-8	---	---	---
Idaho fescue	FEID	---	---	40-60	---	---	---
Indian ricegrass	ORHY	---	---	---	---	2-8	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	---
Thurber needlegrass	STTH2	15-20	5-15	5-15	---	15-30	15-20
basin wildrye	ELCI2	5-10	---	---	---	---	5-10
bluebunch wheatgrass	AGSP	30-40	40-60	2-8	---	---	30-40
bluegrass	POA++	---	---	2-8	---	---	---
bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---
desert needlegrass	STSP3	---	---	---	---	2-10	---
Hooker balsamroot	BAHO	---	2-5	---	---	---	---
tapertip hawkbeard	CRAC2	---	1-2	---	---	---	---
Lahontan sagebrush	ARARL*	---	10-20	---	---	30-45	---
Wyoming big sagebrush	ARTRW	---	---	15-25	---	---	---
antelope bitterbrush	PUTR2	2-10	---	---	---	---	2-10
big sagebrush	ARTR2	15-25	---	---	---	---	15-25
ephedra	EPHED	---	---	---	---	2-5	---
shadscale	ATCO	---	---	---	---	2-5	---
spiny hopsage	GRSP	---	---	---	---	2-5	---

Range site number	023XY020NV	023XY037NV	023XY072NV	none	023XY047NV	023XY020NV
Potential production (lb/acre):						
Favorable years	1100	700	800		500	1100
Normal years	900	600	500		350	900
Unfavorable years	600	400	350		200	600

531--LONGCREEK-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		LONGCREEK	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	---	---	---	5-15	5-10
Idaho fescue	FEID	---	---	15-25	50-60	40-50
Thurber needlegrass	STTH2	5-10	---	---	---	---
basin wildrye	ELCI2	20-40	---	---	2-5	---
bluebunch wheatgrass	AGSP	40-50	---	---	5-15	2-5
bluegrass	POA++	---	---	5-15	---	---
goldenweed	HAPLO2	---	---	2-5	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---
antelope bitterbrush	PUR2	2-8	---	---	---	---
low sagebrush	ARAR8	---	---	35-45	---	---
mountain big sagebrush	ARVA2	10-20	---	---	5-15	---
snowberry	SYMPH	---	---	---	2-5	---
Range site number		023XY018NV	none	023XY008NV	023XY054NV	023XY053NV
Potential production (lb/acre):						
Favorable years		1200		400	1500	1000
Normal years		1000		250	1200	800
Unfavorable years		800		200	900	600

535--LOCANE VERY COBBLY LOAM, 4 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		LOCANE	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	2-5	---	---
Indian ricegrass	ORHY	---	5-15	---
Sandberg bluegrass	POSE	---	2-8	---
Thurber needlegrass	STTH2	15-20	15-25	---
basin wildrye	ELCI2	5-10	---	---
bluebunch wheatgrass	AGSP	30-40	---	---
bottlebrush squirreltail	SIBY	---	2-5	---
globemallow	SPHAE	---	1-2	---
Wyoming big sagebrush	ARTRW	---	20-35	---
antelope bitterbrush	PUR2	2-10	---	---
big sagebrush	ARTR2	15-25	---	---
spiny hopsage	GRSP	---	5-20	---
Range site number		023XY020NV	024XY020NV	none
Potential production (lb/acre):				
Favorable years		1100	700	
Normal years		900	450	
Unfavorable years		600	300	

550--WELCH LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		WELCH	Inclusion 1	Inclusion 2
Nevada bluegrass	PONE3	---	40-50	2-8
basin wildrye	ELCI2	---	---	65-75
bluegrass	POA++	10-20	---	---
meadow barley	HOBR2	5-10	---	---
rush	JUNCU	5-10	---	---
sedge	CAREX	5-10	5-15	---
tufted hairgrass	DECE	30-50	---	---
basin big sagebrush	ARTRT	---	---	5-10
rubber rabbitbrush	CHNA2	---	---	1-3
Range site number		023XY025NV	023XY013NV	023XY009NV
Potential production (lb/acre):				
Favorable years		4000	2200	5500
Normal years		3000	1700	4500
Unfavorable years		2000	1300	2500

563--SONDOA-ISOLDE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SONDOA	ISOLDE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	---	20-30	10-15	---	---
bottlebrush squirreltail	SIHY	---	---	5-10	---	---
inland saltgrass	DISPS2	2-10	2-5	2-5	---	---
Bailey greasewood	SAVEB	---	---	T-5	---	---
black greasewood	SAVE4	60-70	30-50	20-30	---	---
bud sagebrush	ARSP5	---	---	2-5	---	---
fourwing saltbush	ATCA2	---	2-5	---	---	---
seepweed	SUAED	2-8	---	---	---	---
shadscale	ATCO	2-10	2-5	20-35	---	---
Range site number		027XY025NV	027XY016NV	027XY024NV	none	none
Potential production (lb/acre):						
Favorable years		500	500	500		
Normal years		350	300	350		
Unfavorable years		200	150	150		

574--MAZUMA FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		MAZUMA	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	10-15	---	5-10
bottlebrush squirreltail	SIHY	5-10	---	5-10
inland saltgrass	DISPS2	2-5	2-10	---
Bailey greasewood	SAVEB	T-5	---	---
Nevada ephedra	EPNE	---	---	5-10
black greasewood	SAVE4	20-30	60-70	---
bud sagebrush	ARSP5	2-5	---	---
burrobrush	HYMEN3	---	---	5-10
fourwing saltbush	ATCA2	---	---	5-10
littleleaf horsebrush	TEGL	---	---	10-20
rubber rabbitbrush	CHNA2	---	---	10-20
seepweed	SUAED	---	2-8	---
shadscale	ATCO	20-35	2-10	---
spiny hopsage	GRSP	---	---	10-20

Range site number	027XY024NV	027XY025NV	027XY022NV
Potential production (lb/acre):			
Favorable years	500	500	400
Normal years	350	350	200
Unfavorable years	150	200	50

575--MAZUMA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		MAZUMA	MAZUMA	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	25-45	10-15	---	5-10	50-70
bottlebrush squirreltail	SIHY	---	5-10	---	5-10	---
desert needlegrass	STSP3	2-8	---	---	---	---
inland saltgrass	DISPS2	---	2-5	---	---	---
needleandthread	STCO4	---	---	---	---	5-15
Bailey greasewood	SAVEB	20-30	T-5	---	---	---
Nevada dalea	PSPO	---	---	---	---	0-5
Nevada ephedra	EPNE	---	---	---	5-10	---
black greasewood	SAVE4	---	20-30	---	---	---
bud sagebrush	ARSP5	2-8	2-5	---	---	---
burrobrush	HYMEN3	---	---	---	5-10	---
fourwing saltbush	ATCA2	---	---	---	5-10	10-20
littleleaf horsebrush	TEGL	---	---	---	10-20	---
rubber rabbitbrush	CHNA2	---	---	---	10-20	---
shadscale	ATCO	5-15	20-35	---	---	---
spiny hopsage	GRSP	---	---	---	10-20	2-5
winterfat	EULA5	2-8	---	---	---	2-8

Range site number	027XY050NV	027XY024NV	none	027XY022NV	027XY009NV
Potential production (lb/acre):					
Favorable years	500	500		400	700
Normal years	350	350		200	450
Unfavorable years	200	150		50	250

576--MAZUMA VERY FINE SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		MAZUMA	Inclusion 1
Indian ricegrass	ORHY	10-20	5-10
Sandberg bluegrass	POSE	5-10	---
bottlebrush squirreltail	SIHY	2-8	5-10
Bailey greasewood	SAVEB	20-30	---
Nevada ephedra	EPNE	---	5-10
bud sagebrush	ARSP5	5-15	---
burrobrush	HYMEN3	---	5-10
fourwing saltbush	ATCA2	---	5-10
littleleaf horsebrush	TEGL	---	10-20
rubber rabbitbrush	CHNA2	---	10-20
shadscale	ATCO	15-30	---
spiny hopsage	GRSP	---	10-20

Range site number	027XY018NV	027XY022NV
Potential production (lb/acre):		
Favorable years	400	400
Normal years	250	200
Unfavorable years	100	50

577--MAZUMA-ISOLDE-TYPIC TORRIORHENTS ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		MAZUMA	ISOLDE	TYPIC TORRIO	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	10-15	20-30	---	---	10-20
Sandberg bluegrass	POSE	---	---	---	---	5-10
alkali sacaton	SPAI	---	---	---	5-25	---
basin wildrye	ELCY2	---	---	---	50-60	---
bottlebrush squirreltail	SIHY	5-10	---	---	---	2-8
inland saltgrass	DISPS2	2-5	2-5	---	---	---
Bailey greasewood	SAVEB	T-5	---	---	---	20-30
black greasewood	SAVE4	20-30	30-50	---	5-15	---
bud sagebrush	ARSP5	2-5	---	---	---	5-15
fourwing saltbush	ATCA2	---	2-5	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	2-5	---
shadscale	ATCO	20-35	2-5	---	---	15-30

Range site number	027XY024NV	027XY016NV	none	024XY007NV	027XY018NV
Potential production (lb/acre):					
Favorable years	500	500		1900	400
Normal years	350	300		1400	250
Unfavorable years	150	150		800	100

578--MAZUMA-TOULON-ISOLDE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		MAZUMA	TOULON	ISOLDE	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	10-15	10-20	20-30	5-10	---
Sandberg bluegrass	POSE	---	5-10	---	---	---
bottlebrush squirreltail	SIHY	5-10	2-8	---	5-10	---
inland saltgrass	DISPS2	2-5	---	2-5	---	---
Bailey greasewood	SAVEB	T-5	20-30	---	---	---
Nevada ephedra	EPNE	---	---	---	5-10	---
black greasewood	SAVE4	20-30	---	30-50	---	---
bud sagebrush	ARSP5	2-5	5-15	---	---	---
burrobrush	HYMEN3	---	---	---	5-10	---
fourwing saltbush	ATCA2	---	---	2-5	5-10	---
littleleaf horsebrush	TEGL	---	---	---	10-20	---
rubber rabbitbrush	CHNA2	---	---	---	10-20	---
shadscale	ATCO	20-35	15-30	2-5	---	---
spiny hopsage	GRSP	---	---	---	10-20	---
Range site number		027XY024NV	027XY018NV	027XY016NV	027XY022NV	none
Potential production (lb/acre):						
Favorable years		500	400	500	400	
Normal years		350	250	300	200	
Unfavorable years		150	100	150	50	

580--MCCONNEL VERY STONY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		MCCONNEL	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	---	2-5
Indian ricegrass	ORHY	5-15	5-15	2-10	---
Sandberg bluegrass	POSE	2-8	---	2-5	---
Thurber needlegrass	STH2	15-25	---	---	15-20
basin wildrye	ELCI2	---	---	10-20	5-10
bluebunch wheatgrass	AGSP	---	---	---	30-40
bottlebrush squirreltail	SIHY	2-5	5-10	2-5	---
globemallow	SFRAE	1-2	---	---	---
Anderson peachbrush	FRAN2	---	---	2-8	---
Wyoming big sagebrush	ARTRW	20-35	---	---	---
antelope bitterbrush	POTR2	---	---	---	2-10
basin big sagebrush	ARTRT	---	---	15-25	---
big sagebrush	ARTR2	---	---	---	15-25
black greasewood	SAVE4	---	---	2-8	---
bud sagebrush	ARSP5	---	20-30	---	---
other shrubs	SSSS	---	---	2-8	---
shadscale	ATCO	5-20	30-40	---	---
spiny hopsage	GRSP	---	2-5	15-30	---
winterfat	EULA5	---	2-5	---	---
Range site number		024XY020NV	024XY002NV	024XY041NV	023XY020NV
Potential production (lb/acre):					
Favorable years		700	750	1000	1100
Normal years		450	450	800	900
Unfavorable years		300	300	600	600

581--MCCONNEL VERY GRAVELLY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		MCCONNEL	Inclusion 1
Indian ricegrass	ORHY	5-15	5-15
Sandberg bluegrass	POSE	2-8	2-8
Thurber needlegrass	STH2	15-25	15-25
bottlebrush squirreltail	SIHY	2-5	2-5
globemallow	SPHAE	1-2	1-2
Wyoming big sagebrush	ARTRW	20-35	20-35
spiny hopsage	GRSP	5-20	5-20

Range site number	024XY020NV	024XY020NV
Potential production (lb/acre):		
Favorable years	700	700
Normal years	450	450
Unfavorable years	300	300

620--CROESUS-ROCK OUTCROP COMPLEX

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		CROESUS	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	5-10	---	5-15	---	---
Idaho fescue	FEID	20-40	---	50-60	15-25	X
Nevada bluegrass	PONE3	---	---	---	---	X
basin wildrye	ELCI2	---	---	2-5	---	---
big squirreltail	SIJU	---	---	---	---	X
bluebunch wheatgrass	AGSP	2-5	---	5-15	---	---
bluegrass	POA++	---	---	---	5-15	---
melic	MELIC	---	---	---	---	X
mountain brome	BRCA5	---	---	---	---	X
needlegrass	STIPA	5-15	---	---	---	---
slender wheatgrass	AGTR	---	---	---	---	X
goldenweed	HAPLO2	---	---	---	2-5	---
meadowrue	TEALI2	---	---	---	---	X
Douglas rabbitbrush	CRV18	---	---	---	2-5	---
low sagebrush	ARAR8	---	---	---	35-45	---
mountain big sagebrush	ARVA2	15-25	---	5-15	---	X
snowberry	SYMPH	---	---	2-5	---	X
quaking aspen	POTRT	---	---	---	---	X

Range site number	023XY061NV	none	023XY054NV	023XY008NV	023XY028NV
Potential production (lb/acre):					
Favorable years	900		1500	400	600
Normal years	700		1200	250	400
Unfavorable years	500		900	200	250

630--NINEMILE VERY STONY LOAM, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		NINEMILE	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	30-50	---	30-40	---
Sandberg bluegrass	POSE	---	30-45	---	---
Thurber needlegrass	STTH2	2-8	---	2-8	---
Webber needlegrass	STWE	---	2-5	---	---
basin wildrye	ELCI2	---	---	5-10	---
bluebunch wheatgrass	AGSP	15-30	---	25-40	---
bluegrass	POA++	2-8	---	2-5	---
antelope bitterbrush	PUTR2	---	---	2-10	---
low sagebrush	ARAR8	10-20	30-45	---	---
mountain big sagebrush	ARVA2	---	---	10-20	---
Range site number		023XY017NV	023XY021NV	023XY007NV	none
Potential production (lb/acre):					
Favorable years		900	300	1600	
Normal years		700	200	1200	
Unfavorable years		500	150	900	

647--WENDANE-HUMBOLDT COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		WENDANE	HUMBOLDT	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	---	---	2-5	---
Nevada bluegrass	PONE3	---	5-15	---	---
alkali sacaton	SFAI	5-25	---	---	---
basin wildrye	ELCI2	50-60	---	5-20	5-15
bottlebrush squirreltail	SIRY	---	---	2-5	---
inland saltgrass	DISPS2	---	2-5	---	5-10
mat muhly	MURI	---	2-5	---	---
sedge	CAREX	---	2-10	---	---
wildrye	ELYMU	---	60-80	---	---
globemallow	SPHAE	---	---	1-2	---
thelypody	TRELY	---	---	2-4	---
big sagebrush	ARTR2	---	---	10-25	---
black greasewood	SAVE4	5-15	---	20-30	60-75
rubber rabbitbrush	CHNA2	2-5	---	---	---
spiny hopsage	GRSP	---	---	5-15	---
willow	SALIX	---	5-10	---	---
Range site number		024XY007NV	025XY001NV	024XY022NV	024XY011NV
Potential production (lb/acre):					
Favorable years		1900	3500	800	500
Normal years		1400	2500	600	350
Unfavorable years		800	1800	350	200

648--WENDANE SILT LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		WENDANE	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	---	30-40	---
alkali sacaton	SPAI	5-25	---	---
basin wildrye	ELCI2	50-60	2-8	5-15
inland saltgrass	DISPS2	---	---	5-10
needleandthread	STCO4	---	5-15	---
thickspike wheatgrass	AGDA	---	5-10	---
canaigre	RUEY	---	1-3	---
lemon scurfpea	PSLA	---	1-3	---
tufted eveningprimrose	OEC22	---	1-3	---
basin big sagebrush	ARTRT	---	25-30	---
black greasewood	SAVE4	5-15	---	60-75
fourwing saltbush	ATCA2	---	2-8	---
rubber rabbitbrush	CHNA2	2-5	---	---
spiny hopsage	GRSP	---	2-8	---

Range site number	024XY007NV	024XY001NV	024XY011NV
Potential production (lb/acre):			
Favorable years	1900	800	500
Normal years	1400	500	350
Unfavorable years	800	300	200

660--SOUGHE-HOOT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		SOUGHE	HOOT	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	5-15	2-5	25-35	---
Sandberg bluegrass	POSE	2-8	---	---	---
Thurber needlegrass	STTH2	15-25	---	5-10	---
bottlebrush squirreltail	SIHY	2-5	2-10	---	---
desert needlegrass	STSP3	---	2-10	---	---
globemallow	SPHAE	1-2	---	2-4	---
Douglas rabbitbrush	CHV18	---	---	2-5	---
Wyoming big sagebrush	ARTRW	20-35	---	25-35	---
bud sagebrush	ARSP5	---	15-30	---	---
shadscale	ATCO	---	30-50	2-5	---
spiny hopsage	GRSP	5-20	---	2-5	---

Range site number	024XY020NV	024XY025NV	024XY045NV	none
Potential production (lb/acre):				
Favorable years	700	250	350	
Normal years	450	150	200	
Unfavorable years	300	75	100	

662--JAYBEE-SOUGHE-HOOT COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		JAYBEE	SOUGHE	HOOT	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	2-8	5-15	2-5	2-8	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	---
Thurber needlegrass	STTH2	15-30	20-40	---	2-8	---
Webber needlegrass	STWE	---	2-8	---	---	---
bluebunch wheatgrass	AGSP	---	---	---	10-30	---
bottlebrush squirreltail	SIHY	2-5	2-5	2-10	---	---
desert needlegrass	STSP3	2-10	---	2-10	15-30	---
Lahontan sagebrush	ARARL*	30-45	---	---	---	---
Wyoming big sagebrush	ARTRW	---	20-30	---	20-30	---
bud sagebrush	ARSP5	---	---	15-30	---	---
ephedra	EPHED	2-5	---	---	2-10	---
purple sage	SADOC2	---	---	---	10-15	---
shadscale	ATCO	2-5	---	30-50	---	---
spiny hopsage	GRSP	2-5	2-5	---	---	---
Range site number		023XY047NV	023XY006NV	024XY025NV	023XY030NV	none
Potential production (lb/acre):						
Favorable years		500	800	250	500	
Normal years		350	600	150	300	
Unfavorable years		200	400	75	150	

663--SOUGHE-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		SOUGHE	ROCK OUTCROP	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	5-15	---	---	2-5
Sandberg bluegrass	POSE	2-5	---	---	---
Thurber needlegrass	STTH2	20-40	---	10-20	---
Webber needlegrass	STWE	2-8	---	---	---
basin wildrye	ELCI2	---	---	2-10	---
bluebunch wheatgrass	AGSP	---	---	40-60	---
bottlebrush squirreltail	SIHY	2-5	---	---	2-10
desert needlegrass	STSP3	---	---	---	2-10
Wyoming big sagebrush	ARTRW	20-30	---	10-20	---
antelope bitterbrush	PUTR2	---	---	2-5	---
big sagebrush	ARTR2	---	---	15-25	---
bud sagebrush	ARSP5	---	---	---	15-30
mountain big sagebrush	ARVA2	---	---	10-20	---
shadscale	ATCO	---	---	---	30-50
spiny hopsage	GRSP	2-5	---	---	---
Range site number		023XY006NV	none	023XY039NV	024XY025NV
Potential production (lb/acre):					
Favorable years		800		900	250
Normal years		600		700	150
Unfavorable years		400		500	75

664--SOUGHE VERY COBBLY LOAM, 15 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		SOUGHE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	2-5	2-8	---
Sandberg bluegrass	POSE	2-5	---	2-5	---
Thurber needlegrass	STH2	20-40	---	15-30	---
Webber needlegrass	STWE	2-8	---	---	---
bottlebrush squirreltail	SIHY	2-5	2-10	2-5	---
desert needlegrass	STSP3	---	2-10	2-10	---
Lahontan sagebrush	ARARL*	---	---	30-45	---
Wyoming big sagebrush	ARTRW	20-30	---	---	---
bud sagebrush	ARSP5	---	15-30	---	---
ephedra	EPED	---	---	2-5	---
shadscale	ATCO	---	30-50	2-5	---
spiny hopsage	GRSP	2-5	---	2-5	---

Range site number	023XY006NV	024XY025NV	023XY047NV	none
Potential production (lb/acre):				
Favorable years	800	250	500	
Normal years	600	150	350	
Unfavorable years	400	75	200	

670--DENIO GRAVELLY SANDY LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		DENIO	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-10	2-10	5-15	15-25
Sandberg bluegrass	POSE	2-5	2-5	---	---
Thurber needlegrass	STH2	20-30	---	---	---
basin wildrye	ELCI2	---	10-20	---	---
bottlebrush squirreltail	SIHY	2-5	2-5	5-10	2-8
needleandthread	STCO4	5-15	---	---	---
Anderson peachbrush	PRAN2	---	2-8	---	---
Wyoming big sagebrush	ARTRW	20-30	---	---	---
basin big sagebrush	ARTRT	---	15-25	---	---
black greasewood	SAVE4	---	2-8	---	---
bud sagebrush	ARSP5	---	---	20-30	2-5
other shrubs	SSSS	---	2-8	---	---
shadscale	ATCO	---	---	30-40	---
spiny hopsage	GRSP	2-5	15-30	2-5	---
winterfat	EULA5	---	---	2-5	60-70

Range site number	023XY068NV	024XY041NV	024XY002NV	024XY004NV
Potential production (lb/acre):				
Favorable years	800	1000	750	500
Normal years	600	800	450	350
Unfavorable years	400	600	300	200

679--OUTERKIRK SANDY LOAM, 1 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		OUTERKIRK	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	2-5	30-40	15-30	---
basin wildrye	ELCI2	5-20	2-8	5-10	---
bottlebrush squirreltail	SIHY	2-5	---	---	5-10
needleandthread	STCO4	---	5-15	30-40	---
thickspike wheatgrass	AGDA	---	5-10	---	---
canalgre	RUHY	---	1-3	---	---
globemallow	SPBAE	1-2	---	---	---
lemon scurfpea	PSLA	---	1-3	---	---
thelypody	THELY	2-4	---	---	---
tufted eveningprimrose	OECE2	---	1-3	---	---
basin big sagebrush	ARTRT	---	25-30	---	---
big sagebrush	ARTR2	10-25	---	15-25	---
black greasewood	SAVE4	20-30	---	---	15-30
bud sagebrush	ARSP5	---	---	---	2-8
fourwing saltbush	ATCA2	---	2-8	---	---
seepweed	SUAED	---	---	---	2-8
shadscale	ATCO	---	---	---	30-50
spiny hopsage	GRSP	5-15	2-8	1-5	---

Range site number	024XY022NV	024XY001NV	024XY017NV	024XY003NV
Potential production (lb/acre):				
Favorable years	800	800	900	600
Normal years	600	500	700	450
Unfavorable years	350	300	500	300

683--OXCOREL VERY STONY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		OXCOREL	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	5-15	---	2-10
Sandberg bluegrass	POSE	---	---	2-5
basin wildrye	ELCI2	---	---	10-20
bottlebrush squirreltail	SIHY	5-10	5-10	2-5
Anderson peachbrush	PRAN2	---	---	2-8
basin big sagebrush	ARTRT	---	---	15-25
black greasewood	SAVE4	---	15-30	2-8
bud sagebrush	ARSP5	20-30	2-8	---
other shrubs	SSSS	---	---	2-8
seepweed	SUAED	---	2-8	---
shadscale	ATCO	30-40	30-50	---
spiny hopsage	GRSP	2-5	---	15-30
winterfat	EULA5	2-5	---	---

Range site number	024XY002NV	024XY003NV	024XY041NV
Potential production (lb/acre):			
Favorable years	750	600	1000
Normal years	450	450	800
Unfavorable years	300	300	600

703--PICKUP-GRUMBLIN-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		PICKUP	GRUMBLIN	ROCK OUTCROP	Inclusion 1	Inclusion 2
Idaho fescue	FEID	---	---	---	25-35	---
Indian ricegrass	ORHY	---	10-20	---	---	15-25
Sandberg bluegrass	POSE	2-8	2-10	---	---	---
Thurber needlegrass	STTH2	20-35	---	---	---	---
basin wildrye	ELCI2	---	---	---	---	5-15
bluegrass	POA++	---	---	---	5-15	---
desert needlegrass	STSP3	2-5	5-15	---	---	---
needlegrass	STIPA	---	---	---	5-10	---
Bailey greasewood	SAVEB	---	10-20	---	---	---
Lahontan sagebrush	ARARL*	30-35	35-50	---	---	---
Nevada ephedra	EPNE	---	2-8	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	20-30
low sagebrush	ARAR8	---	---	---	20-30	---
rabbitbrush	CHRY99	---	---	---	---	2-5
shadscale	ATCO	---	2-5	---	---	---
spiny hopsage	GRSP	2-5	2-5	---	---	10-20

Range site number	027XY079NV	027XY070NV	none	027XY046NV	027XY029NV
Potential production (lb/acre):					
Favorable years	500	400		600	800
Normal years	350	250		400	500
Unfavorable years	200	100		250	300

715--WHOLAN SILT LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		WHOLAN	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	15-25	2-10	5-15	5-10
Sandberg bluegrass	POSE	---	2-5	---	2-5
Thurber needlegrass	STTH2	---	---	---	20-30
basin wildrye	ELCI2	---	10-20	---	---
bottlebrush squirreltail	SIHY	2-8	2-5	5-10	2-5
needleandthread	STCO4	---	---	---	5-15
Anderson peachbrush	FRAN2	---	2-8	---	---
Wyoming big sagebrush	ARTRW	---	---	---	20-30
basin big sagebrush	ARTRT	---	15-25	---	---
black greasewood	SAVE4	---	2-8	---	---
bud sagebrush	ARSP5	2-5	---	20-30	---
other shrubs	SSSS	---	2-8	---	---
shadscale	ATCO	---	---	30-40	---
spiny hopsage	GRSP	---	15-30	---	2-5
winterfat	EULA5	60-70	---	2-5	---

Range site number	024XY004NV	024XY041NV	024XY002NV	023XY068NV
Potential production (lb/acre):				
Favorable years	500	1000	750	800
Normal years	350	800	450	600
Unfavorable years	200	600	300	400

716--WHOLAN SILT LOAM, RARELY FLOODED, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		WHOLAN	Inclusion 1
Indian ricegrass	ORHY	20-40	5-15
bottlebrush squirreltail	SIHY	2-10	5-10
bud sagebrush	ARSF5	15-30	20-30
shadscale	ATCO	2-8	30-40
spiny hopsage	GRSP	---	2-5
winterfat	EULA5	30-40	2-5

Range site number	024XY014NV	024XY002NV
Potential production (lb/acre):		
Favorable years	700	750
Normal years	500	450
Unfavorable years	200	300

720--PICKUP-BUCKLAKE-PUETT COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		PICKUP	BUCKLAKE	PUETT	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	---	---	---	---	30-50	---
Indian ricegrass	ORHY	---	---	2-8	5-15	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Thurber needlegrass	STTR2	5-15	10-20	2-8	20-40	2-8	---
Webber needlegrass	STWE	---	---	---	2-8	---	---
basin wildrye	ELCI2	---	2-10	---	---	---	---
bluebunch wheatgrass	AGSP	40-60	40-60	10-30	---	15-30	---
bluegrass	POA++	---	2-8	---	---	2-8	---
bottlebrush squirreltail	SIHY	---	---	---	2-5	---	5-15
creeping wildrye	ELTR3	---	---	---	---	---	5-10
desert needlegrass	STSP3	---	---	15-30	---	---	---
western wheatgrass	AGSM	---	---	---	---	---	15-25
Hooker balsamroot	BARO	2-5	---	---	---	---	---
tapertip hawkbeard	CRAC2	1-2	---	---	---	---	---
Lahontan sagebrush	ARARL*	10-20	---	---	---	---	---
Wyoming big sagebrush	ARTRW	---	10-20	20-30	20-30	---	---
antelope bitterbrush	PUTR2	---	2-5	---	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	---	10-25
big sagebrush	ARTR2	---	15-25	---	---	---	---
ephedra	EPHED	---	---	2-10	---	---	---
littleleaf horsebrush	TEGL	---	---	---	---	---	5-10
low sagebrush	ARAR8	---	---	---	---	10-20	---
mountain big sagebrush	ARVA2	---	10-20	---	---	---	---
purple sage	SADOC2	---	---	10-15	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
spiny hopsage	GRSP	---	---	---	2-5	---	---

Range site number	023XY037NV	023XY039NV	023XY030NV	023XY006NV	023XY017NV	023XY033NV
Potential production (lb/acre):						
Favorable years	700	900	500	800	900	800
Normal years	600	700	300	600	700	600
Unfavorable years	400	500	150	400	500	350

758--LONGCREEK-SOFTSCRABBLE-ANAWALT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		LONGCREEK	SOFTSCRABBLE	ANAWALT	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCU3	---	---	---	5-10	---	---	---
Idaho fescue	FEID	---	30-40	---	40-50	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-8	---
Sandberg bluegrass	POSE	---	---	30-45	---	---	---	---
Thurber needlegrass	STTH2	5-10	2-8	---	---	10-20	---	---
Webber needlegrass	STWE	---	---	2-5	---	---	---	---
basin wildrye	ELCI2	20-40	5-10	---	---	2-10	65-75	---
bluebunch wheatgrass	AGSP	40-50	25-40	---	2-5	40-60	---	---
bluegrass	POA++	---	2-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW	---	---	---	---	10-20	---	---
antelope bitterbrush	PUTR2	2-8	2-10	---	---	2-5	---	---
basin big sagebrush	ARTRT	---	---	---	---	---	5-10	---
big sagebrush	ARTR2	---	---	---	---	15-25	---	---
low sagebrush	ARAR8	---	---	30-45	---	---	---	---
mountain big sagebrush	ARVA2	10-20	10-20	---	---	10-20	---	---
rubber rabbitbrush	CHNA2	---	---	---	---	---	1-3	---

Range site number	023XY018NV	023XY007NV	023XY021NV	023XY053NV	023XY039NV	023XY009NV	none
Potential production (lb/acre):							
Favorable years	1200	1600	300	1000	900	5500	
Normal years	1000	1200	200	800	700	4500	
Unfavorable years	800	900	150	600	500	2500	

775--REDNIK-JUNGO-ABOTEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		REDNIK	JUNGO	ABOTEN	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	15-25	10-20	15-30	5-15	15-25
Sandberg bluegrass	POSE	---	2-10	2-15	---	---
basin wildrye	ELCI2	---	---	---	---	5-15
bottlebrush squirreltail	SINY	---	---	2-8	---	---
desert needlegrass	STSP3	2-10	5-15	---	40-60	---
globemallow	SPRAE	---	---	---	1-3	---
Anderson wolfberry	LYAN	---	---	---	2-5	---
Bailey greasewood	SAVEB	---	10-20	---	---	---
Lahontan sagebrush	ARARL+	---	35-50	---	---	---
Nevada ephedra	EPNE	2-5	2-8	---	2-5	---
basin big sagebrush	ARTRT	---	---	---	---	20-30
bud sagebrush	ARSP5	2-8	---	15-25	---	---
rabbitbrush	CHRY59	---	---	---	---	2-5
shadscale	ATCO	30-40	2-5	20-35	20-35	---
spiny hopsage	GRSP	---	2-5	---	2-8	10-20
winterfat	EULA5	2-8	---	5-10	---	---

Range site number	027XY027NV	027XY070NV	027XY013NV	027XY017NV	027XY029NV
Potential production (lb/acre):					
Favorable years	200	400	600	400	800
Normal years	100	250	450	200	500
Unfavorable years	50	100	250	100	300

781--PICKUP-BUCKLAKE-COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		PICKUP	BUCKLAKE	Inclusion 1	Inclusion 2
Cusick bluegrass	POCU3	---	---	5-10	---
Idaho fescue	FEID	---	---	40-50	---
Thurber needlegrass	STTH2	5-15	10-20	---	---
basin wildrye	ELCI2	---	2-10	---	---
bluebunch wheatgrass	AGSP	40-60	40-60	2-5	---
bluegrass	POA++	2-8	---	---	---
Hooker balsamroot	BABO	2-5	---	---	---
tapertip hawksbeard	CRAC2	1-2	---	---	---
Lahontan sagebrush	ARARL*	10-20	---	---	---
Wyoming big sagebrush	ARTRW	---	10-20	---	---
antelope bitterbrush	PUTR2	---	2-5	---	---
big sagebrush	ARTR2	---	15-25	---	---
mountain big sagebrush	ARVA2	---	10-20	---	---
Range site number		023XY037NV	023XY039NV	023XY053NV	none
Potential production (lb/acre):					
Favorable years		700	900	1000	
Normal years		600	700	800	
Unfavorable years		400	500	600	

782--SKEDADDLE-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		SKEDADDLE	ROCK OUTCROP	Inclusion 1	Inclusion 2
Indian ricegrass	ORBY	2-8	---	5-15	---
Sandberg bluegrass	POSE	2-5	---	2-5	---
Thurber needlegrass	STTH2	15-30	---	20-40	10-25
Webber needlegrass	STWE	---	---	2-8	---
bluebunch wheatgrass	AGSP	---	---	---	20-50
bluegrass	POA++	---	---	---	5-10
bottlebrush squirreltail	SIHY	2-5	---	2-5	---
desert needlegrass	STSP3	2-10	---	---	---
Lahontan sagebrush	ARARL*	30-45	---	---	---
Wyoming big sagebrush	ARTRW	---	---	20-30	---
ephedra	EPHED	2-5	---	---	---
low sagebrush	ARAR8	---	---	---	10-20
shadscale	ATCO	2-5	---	---	---
spiny hopsage	GRSP	2-5	---	2-5	---
Range site number		023XY047NV	none	023XY006NV	023XY031NV
Potential production (lb/acre):					
Favorable years		500		800	900
Normal years		350		600	700
Unfavorable years		200		400	500

783--ROCCONDA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		ROCCONDA	ROCCONDA	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	2-8	---	5-15	2-5	---
Sandberg bluegrass	POSE	2-5	---	2-5	---	---
Thurber needlegrass	STH2	15-30	5-15	20-40	---	---
Webber needlegrass	STWE	---	---	2-8	---	---
bluebunch wheatgrass	AGSP	---	40-60	---	---	---
bluegrass	POA++	---	2-8	---	---	---
bottlebrush squirreltail	SIHY	2-5	---	2-5	2-10	---
desert needlegrass	STSP3	2-10	---	---	2-10	---
Hooker balsamroot	BAHO	---	2-5	---	---	---
tapertip hawkbeard	CRAC2	---	1-2	---	---	---
Lahontan sagebrush	ARARL*	30-45	10-20	---	---	---
Wyoming big sagebrush	ARTRW	---	---	20-30	---	---
bud sagebrush	ARSP5	---	---	---	15-30	---
ephedra	EPHED	2-5	---	---	---	---
shadscale	ATCO	2-5	---	---	30-50	---
spiny hopsage	GRSP	2-5	---	2-5	---	---

Range site number	023XY047NV	023XY037NV	023XY006NV	024XY025NV	none
Potential production (lb/acre):					
Favorable years	500	700	800	250	
Normal years	350	600	600	150	
Unfavorable years	200	400	400	75	

785--RODELL-RUBBLE LAND COMPLEX

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		RODELL	RUBBLE LAND	Inclusion 1	Inclusion 2	Inclusion 3
Columbia needlegrass	STNE3	X	---	---	---	---
Idaho fescue	FEID	---	---	---	X	---
Nevada bluegrass	PONE3	---	---	2-5	X	---
big squirreltail	SIJU	X	---	5-10	X	---
melic	MELIC	---	---	---	X	---
mountain brome	BRCA5	X	---	2-5	X	---
slender wheatgrass	AGTR	---	---	---	X	---
meadowrue	THALI2	---	---	---	X	---
antelope bitterbrush	POTR2	---	---	2-5	---	---
mountain big sagebrush	ARVA2	X	---	5-10	X	---
snowberry	SYMPH	---	---	---	X	---
snowbrush ceanothus	CEVE	---	---	---	---	70-80
curleaf mountainmahogany	CELE3	---	---	40-65	---	---
quaking aspen	POTRT	---	---	---	X	---

Range site number	023XY070NV	none	023XY073NV	023XY028NV	025XY052NV
Potential production (lb/acre):					
Favorable years	300		3200	600	2800
Normal years	150		2900	400	2000
Unfavorable years	100		2300	250	1700

790--VALMY VERY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		VALMY	Inclusion 1	Inclusion 2
basin wildrye	ELCI2	55-65	---	5-15
bottlebrush squirreltail	SIHY	---	5-10	---
creeping wildrye	ELTR3	5-15	---	---
inland saltgrass	DISPS2	---	---	5-10
western wheatgrass	AGSM	5-15	---	---
basin big sagebrush	ARTRT	10-15	---	---
black greasewood	SAVE4	2-8	15-30	60-75
bud sagebrush	ARSP5	---	2-8	---
seepweed	SUAED	---	2-8	---
shadscale	ATCO	---	30-50	---

Range site number	024XY006NV	024XY003NV	024XY011NV
Potential production (lb/acre):			
Favorable years	1500	600	500
Normal years	1100	450	350
Unfavorable years	600	300	200

803--NINEMILE-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		NINEMILE	ROCK OUTCROP	Inclusion 1	Inclusion 2
Cusick bluegrass	POCU3	---	---	5-10	---
Idaho fescue	FEID	---	---	40-50	---
Thurber needlegrass	STTH2	10-25	---	---	5-10
basin wildrye	ELCI2	---	---	---	20-40
bluebunch wheatgrass	AGSP	20-50	---	2-5	40-50
bluegrass	POA++	5-10	---	---	---
antelope bitterbrush	PUR2	---	---	---	2-8
low sagebrush	ARAR8	10-20	---	---	---
mountain big sagebrush	ARVA2	---	---	---	10-20

Range site number	023XY031NV	none	023XY053NV	023XY018NV
Potential production (lb/acre):				
Favorable years	900		1000	1200
Normal years	700		800	1000
Unfavorable years	500		600	800

804--SINGATSE-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SINGATSE	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	15-25	---	25-35	15-25	---
Sandberg bluegrass	POSE	---	---	---	---	2-5
Thurber needlegrass	STTH2	---	---	5-10	---	10-20
basin wildrye	ELCI2	---	---	---	5-15	---
bottlebrush squirreltail	SIHY	---	---	---	---	2-5
desert needlegrass	STSP3	2-10	---	---	---	2-5
globemallow	SPHAE	---	---	2-4	---	---
milkvetch	ASTRA	---	---	---	---	1-3
skeletonweed	LYGOD	---	---	---	---	1-3
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---
Lahontan sagebrush	ARARL*	---	---	---	---	30-40
Nevada ephedra	EPNE	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW	---	---	25-35	---	---
basin big sagebrush	ARTRT	---	---	---	20-30	---
bud sagebrush	ARSP5	2-8	---	---	---	---
common pricklygilia	LEPU	---	---	---	---	2-5
purple sage	SADOC2	---	---	---	---	5-15
rabbitbrush	CHRY9	---	---	---	2-5	---
shadscale	ATCO	30-40	---	2-5	---	---
spiny hopsage	GRSP	---	---	2-5	10-20	---
winterfat	EULA5	2-8	---	---	---	---
Range site number		027XY027NV	none	024XY045NV	027XY029NV	023XY063NV
Potential production (lb/acre):						
Favorable years		200		350	800	350
Normal years		100		200	500	250
Unfavorable years		50		100	300	100

805--SINGATSE-JAYBEE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SINGATSE	JAYBEE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	15-25	2-8	---	---	---
Nevada bluegrass	PONE3	---	---	2-10	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5
Thurber needlegrass	STTH2	---	15-30	---	---	10-20
basin wildrye	ELCI2	---	---	40-60	---	---
bottlebrush squirreltail	SIHY	---	2-5	---	---	2-5
desert needlegrass	STSP3	2-10	2-10	---	---	2-5
western wheatgrass	AGSM	---	---	2-10	---	---
milkvetch	ASTRA	---	---	---	---	1-3
povertyweed	IVAX	---	---	2-5	---	---
skeletonweed	LYGOD	---	---	---	---	1-3
thelypody	THELY	---	---	1-3	---	---
Lahontan sagebrush	ARARL*	---	30-45	---	---	30-40
Nevada ephedra	EPNE	2-5	---	---	---	---
basin big sagebrush	ARTRT	---	---	5-15	---	---
bud sagebrush	ARSP5	2-8	---	---	---	---
common pricklygilia	LEPU	---	---	---	---	2-5
ephedra	EPHD	---	2-5	---	---	---
purple sage	SADOC2	---	---	---	---	5-15
shadscale	ATCO	30-40	2-5	---	---	---
spiny hopsage	GRSP	---	2-5	---	---	---
winterfat	EULA5	2-8	---	---	---	---
Range site number		027XY027NV	023XY047NV	023XY005NV	none	023XY063NV
Potential production (lb/acre):						
Favorable years		200	500	3000		350
Normal years		100	350	2000		250
Unfavorable years		50	200	1300		100

806--SINGATSE-ROCCONDA-BADLAND ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SINGATSE	ROCCONDA	BADLAND	Inclusion 1	Inclusion 2
Indian ricegrass	OREY	15-25	2-8	---	5-10	---
Sandberg bluegrass	POSE	---	2-5	---	---	---
Thurber needlegrass	STH2	---	15-30	---	---	---
bottlebrush squirreltail	SIBY	---	2-5	---	5-10	---
desert needlegrass	STSP3	2-10	2-10	---	---	---
Lahontan sagebrush	ARARL*	---	30-45	---	---	---
Nevada ephedra	EPNE	2-5	---	---	5-10	---
bud sagebrush	ARSP5	2-8	---	---	---	---
burrobrush	HYMEN3	---	---	---	5-10	---
ephedra	EPHED	---	2-5	---	---	---
fourwing saltbush	ATCA2	---	---	---	5-10	---
littleleaf horsebrush	TEGL	---	---	---	10-20	---
rubber rabbitbrush	CHNA2	---	---	---	10-20	---
shadscale	ATCO	30-40	2-5	---	---	---
spiny hopsage	GRSP	---	2-5	---	10-20	---
winterfat	EULA5	2-8	---	---	---	---
Range site number		027XY027NV	023XY047NV	none	027XY022NV	none
Potential production (lb/acre):						
Favorable years		200	500		400	
Normal years		100	350		200	
Unfavorable years		50	200		50	

818--SISCAB-AYCAB-OLA ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		SISCAB	AYCAB	OLA	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	---	5-10	30-40	X	---	---	15-25
Nevada bluegrass	PONE3	---	---	---	X	2-5	---	---
Thurber needlegrass	STH2	5-10	---	---	---	---	---	---
basin wildrye	ELCI2	---	5-10	---	---	---	---	---
big squirreltail	SIJU	---	---	---	X	5-10	---	---
bluebunch wheatgrass	AGSP	50-60	---	15-30	---	---	---	---
bluegrass	POA++	---	2-5	2-8	---	---	---	5-15
melic	MELIC	---	---	---	X	---	---	---
mountain brome	BRCA5	---	20-30	---	X	2-5	---	---
needlegrass	STIPA	---	5-10	---	---	---	---	---
purple oniongrass	MESP	---	---	---	---	2-5	---	---
slender wheatgrass	AGTR	---	---	---	X	---	---	---
arrowleaf balsamroot	BASA3	1-2	---	2-5	---	---	---	---
goldenweed	HAPLO2	---	---	---	---	---	---	2-5
meadowrus	THALI2	---	---	---	X	---	---	---
tapertip hawkbeard	CRAC2	1-2	---	2-5	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	---	2-5
antelope bitterbrush	PURR2	5-10	2-5	2-5	---	2-5	---	---
low sagebrush	ARAR8	---	---	---	---	---	---	35-45
mountain big sagebrush	ARVA5	15-25	10-20	15-20	X	5-10	---	---
snowberry	SYMPH	---	2-8	2-5	X	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	40-65	---	---
quaking aspen	POTRT	---	---	---	X	---	---	---
Range site number		023XY042NV	023XY048NV	023XY043NV	023XY028NV	023XY073NV	none	023XY008NV
Potential production (lb/acre):								
Favorable years		1000	1300	1300	600	3200		400
Normal years		800	1100	700	400	2900		250
Unfavorable years		600	900	400	250	2300		200

819--SISCAB-OLA-ROCK OUTCROP COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		SISCAB	OLA	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	---	30-40	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	2-8
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Thurber needlegrass	STTH2	5-10	---	---	10-20	---	---
basin wildrye	ELCI2	---	---	---	---	---	65-75
big squirreltail	SIJU	---	---	---	---	5-10	---
bluebunch wheatgrass	AGSP	50-60	15-30	---	---	---	---
bluegrass	POA++	---	2-8	---	---	---	---
bottlebrush squirreltail	SINY	---	---	---	2-5	---	---
desert needlegrass	STSP3	---	---	---	2-5	---	---
mountain brome	BRCA5	---	---	---	---	2-5	---
arrowleaf balsamroot	BASA3	1-2	2-5	---	---	---	---
milkvetch	ASTRA	---	---	---	1-3	---	---
skeletonweed	LYGOD	---	---	---	1-3	---	---
tapertip hawksbeard	CRAC2	1-2	2-5	---	---	---	---
Lahontan sagebrush	ARARL+	---	---	---	30-40	---	---
antelope bitterbrush	PUTR2	5-10	2-5	---	---	2-5	---
basin big sagebrush	ARTRT	---	---	---	---	---	5-10
common pricklygilia	LEPU	---	---	---	2-5	---	---
mountain big sagebrush	ARVA2	15-25	15-20	---	---	5-10	---
purple sage	SADOC2	---	---	---	5-15	---	---
rubber rabbitbrush	CHNA2	---	---	---	---	---	1-3
snowberry	SYMPH	---	2-5	---	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	40-65	---
Range site number		023XY042NV	023XY043NV	none	023XY063NV	023XY073NV	023XY009NV
Potential production (lb/acre):							
Favorable years		1000	1300		350	3200	5500
Normal years		800	700		250	2900	4500
Unfavorable years		600	400		100	2300	2500

820--SISCAB-POISONCREEK-OLA COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		SISCAB	POISONCREEK	OLA	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	---	15-25	30-40	---	---	---
Letterman needlegrass	STLE4	---	---	---	---	2-10	---
Nevada bluegrass	PONE3	---	---	---	---	2-10	2-8
Thurber needlegrass	STTH2	5-10	---	---	---	---	---
basin wildrye	ELCI2	---	---	---	---	---	65-75
big squirreltail	SIJU	---	---	---	---	2-5	---
bluebunch wheatgrass	AGSP	50-60	---	15-30	---	---	---
bluegrass	POA++	---	5-15	---	---	---	---
mountain brome	BRCA5	---	---	---	---	2-5	---
arrowleaf balsamroot	BASA3	1-2	---	2-5	---	---	---
goldenweed	HAPLO2	---	2-5	---	---	---	---
tapertip hawksbeard	CRAC2	1-2	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---
antelope bitterbrush	PUTR2	5-10	---	2-5	---	5-10	---
basin big sagebrush	ARTRT	---	---	---	---	---	5-10
low sagebrush	ARAR8	---	35-45	---	---	---	---
mountain big sagebrush	ARVA2	15-25	---	15-20	---	15-25	---
rubber rabbitbrush	CHNA2	---	---	---	---	---	1-3
snowberry	SYMPH	---	---	2-5	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	30-40	---
Range site number		023XY042NV	023XY008NV	023XY043NV	none	023XY069NV	023XY009NV
Potential production (lb/acre):							
Favorable years		1000	400	1300		2500	5500
Normal years		800	250	700		1800	4500
Unfavorable years		600	200	400		1200	2500

821--SISCAB-POISONCREEK-ALTA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		SISCAB	POISONCREEK	ALTA	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	---	15-25	---	---	30-40	---	---
Letterman needlegrass	STLE4	---	---	---	---	---	2-10	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	2-10	2-8
Thurber needlegrass	STTH2	5-10	---	---	---	---	---	---
basin wildrye	ELCI2	---	---	---	---	---	---	65-75
big squirreltail	SIJU	---	---	5-10	---	---	2-5	---
bluebunch wheatgrass	AGSP	50-60	---	---	---	15-30	---	---
bluegrass	POA++	---	5-15	---	---	2-8	---	---
mountain brome	BRCA5	---	---	2-5	---	---	2-5	---
arrowleaf balsamroot	BASA3	1-2	---	---	---	2-5	---	---
goldenweed	HAPLO2	---	2-5	---	---	---	---	---
tapertip hawksbeard	CRAC2	1-2	---	---	---	2-5	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
antelope bitterbrush	PUTR2	5-10	---	2-5	---	2-5	5-10	---
basin big sagebrush	ARTRT	---	---	---	---	---	---	5-10
low sagebrush	ARAR8	---	35-45	---	---	---	---	---
mountain big sagebrush	ARVA2	15-25	---	5-10	---	15-20	15-25	---
rubber rabbitbrush	CHNA2	---	---	---	---	---	---	1-3
snowberry	SYMPH	---	---	---	---	2-5	---	---
curlleaf mountainmahogany	CELE3	---	---	40-65	---	---	30-40	---
Range site number		023XY042NV	023XY008NV	023XY073NV	none	023XY043NV	023XY069NV	023XY009NV
Potential production (lb/acre):								
Favorable years		1000	400	3200		1300	2500	5500
Normal years		800	250	2900		700	1800	4500
Unfavorable years		600	200	2300		400	1200	2500

823--SOFTSCRABBLE-CLEAVAGE-HARCANY ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		SOFTSCRABBLE	CLEAVAGE	HARCANY	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	---	---	5-15	5-10	---	---
Idaho fescue	FEID	30-40	15-25	50-60	40-50	X	---
Nevada bluegrass	PONE3	---	---	---	---	X	40-50
Thurber needlegrass	STTH2	2-8	---	---	---	---	---
basin wildrye	ELCI2	5-10	---	2-5	---	---	---
big squirreltail	SIJU	---	---	---	---	X	---
bluebunch wheatgrass	AGSP	25-40	---	5-15	2-5	---	---
bluegrass	POA++	2-5	5-15	---	---	---	---
melic	MELIC	---	---	---	---	X	---
mountain brome	BRCA5	---	---	---	---	X	---
sedge	CAREX	---	---	---	---	---	5-15
slender wheatgrass	AGTR	---	---	---	---	X	---
goldenweed	HAPLO2	---	2-5	---	---	---	---
meadowrue	THALI2	---	---	---	---	X	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---
antelope bitterbrush	PUTR2	2-10	---	---	---	---	---
low sagebrush	ARAR8	---	35-45	---	---	---	---
mountain big sagebrush	ARVA2	10-20	---	5-15	---	X	---
snowberry	SYMPH	---	---	2-5	---	X	---
quaking aspen	POTRT	---	---	---	---	X	---
Range site number		023XY007NV	023XY008NV	023XY054NV	023XY053NV	023XY028NV	023XY013NV
Potential production (lb/acre):							
Favorable years		1600	400	1500	1000	600	2200
Normal years		1200	250	1200	800	400	1700
Unfavorable years		900	200	900	600	250	1300

824--SIMON LOAM, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		SIMON	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5	---	---	---
Idaho fescue	FEID	---	---	30-40	---
Nevada bluegrass	PONE3	---	2-8	---	---
Thurber needlegrass	STH2	15-20	---	2-8	---
basin wildrye	ELCI2	5-10	65-75	5-10	---
bluebunch wheatgrass	AGSP	30-40	---	25-40	---
bluegrass	POA++	---	---	2-5	10-20
meadow barley	HOBR2	---	---	---	5-10
rush	JUNCU	---	---	---	5-10
sedge	CAREX	---	---	---	5-10
tufted hairgrass	DECE	---	---	---	30-50
antelope bitterbrush	PUTR2	2-10	---	2-10	---
basin big sagebrush	ARTRT	---	5-10	---	---
big sagebrush	ARTR2	15-25	---	---	---
mountain big sagebrush	ARVA2	---	---	10-20	---
rubber rabbitbrush	CHNA2	---	1-3	---	---

Range site number	023XY020NV	023XY009NV	023XY007NV	023XY025NV
Potential production (lb/acre):				
Favorable years	1100	5500	1600	4000
Normal years	900	4500	1200	3000
Unfavorable years	600	2500	900	2000

825--SOJUR EXTREMELY CHANNERY SILT LOAM, 15 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		SOJUR	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	15-25	15-25	10-20	---
Sandberg bluegrass	POSE	---	---	2-10	---
basin wildrye	ELCI2	---	5-15	---	---
desert needlegrass	STSP3	2-10	---	5-15	---
Bailey greasewood	SAVEB	---	---	10-20	---
Lahontan sagebrush	ARARL*	---	---	35-50	---
Nevada ephedra	EPNE	2-5	---	2-8	---
basin big sagebrush	ARTRT	---	20-30	---	---
bud sagebrush	ARSP5	2-8	---	---	---
rabbitbrush	CHRY99	---	2-5	---	---
shadscale	ATCO	30-40	---	2-5	---
spiny hopsage	GRSP	---	10-20	2-5	---
winterfat	EULA5	2-8	---	---	---

Range site number	027XY027NV	027XY029NV	027XY070NV	none
Potential production (lb/acre):				
Favorable years	200	800	400	
Normal years	100	500	250	
Unfavorable years	50	300	100	

826--SIMON-FULSTONE COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		SIMON	FULSTONE	Inclusion 1
Canby bluegrass	POCA	2-5	---	---
Indian ricegrass	ORHY	---	2-8	---
Nevada bluegrass	PONE3	---	---	2-8
Sandberg bluegrass	POSE	---	2-5	---
Thurber needlegrass	STHE2	15-20	15-30	---
basin wildrye	ELCI2	5-10	---	65-75
bluebunch wheatgrass	AGSP	30-40	---	---
bottlebrush squirreltail	SIHY	---	2-5	---
desert needlegrass	STSP3	---	2-10	---
Lahontan sagebrush	ARARL*	---	30-45	---
antelope bitterbrush	PUTR2	2-10	---	---
basin big sagebrush	ARTRT	---	---	5-10
big sagebrush	ARTR2	15-25	---	---
ephedra	EPHED	---	2-5	---
rubber rabbitbrush	CHNA2	---	---	1-3
shadscale	ATCO	---	2-5	---
spiny hopsage	GRSP	---	2-5	---
Range site number		023XY020NV	023XY047NV	023XY009NV
Potential production (lb/acre):				
Favorable years		1100	500	5500
Normal years		900	350	4500
Unfavorable years		600	200	2500

829--SKEDADDLE-SOFTSCRABBLE-CLEAVAGE ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SKEDADDLE	SOFTSCRABBLE	CLEAVAGE	Inclusion 1	Inclusion 2
Idaho fescue	FEID	---	30-40	15-25	---	---
Indian ricegrass	ORHY	---	---	---	X	---
Sandberg bluegrass	POSE	---	---	---	X	---
Thurber needlegrass	STHE2	---	2-8	---	X	---
basin wildrye	ELCI2	---	5-10	---	---	---
bluebunch wheatgrass	AGSP	---	25-40	---	---	---
bluegrass	POA++	---	2-5	5-15	---	---
bottlebrush squirreltail	SIHY	2-5	---	---	X	---
desert needlegrass	STSP3	---	---	---	X	---
goldenweed	HAPLO2	---	---	2-5	---	---
Bailey greasewood	SAVEB	10-20	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	X	---
Wyoming big sagebrush	ARTRW	---	---	---	X	---
antelope bitterbrush	PUR2	---	2-10	---	---	---
bud sagebrush	ARSP5	2-8	---	---	---	---
ephedra	EPHED	---	---	---	X	---
low sagebrush	ARAR8	---	---	35-45	---	---
mountain big sagebrush	ARVA2	---	10-20	---	---	---
purple sage	SADOC2	---	---	---	X	---
seepweed	SUAED	2-8	---	---	---	---
shadscale	ATCO	45-60	---	---	---	---
Utah juniper	JUOS	---	---	---	X	---
Range site number		027XY076NV	023XY007NV	023XY008NV	023XY046NV	none
Potential production (lb/acre):						
Favorable years		250	1600	400	350	
Normal years		150	1200	250	250	
Unfavorable years		75	900	200	100	

830--SKEDADDLE-ROCK OUTCROP-SUMYA COMPLEX

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SKEDADDLE	ROCK OUTCROP	SUMYA	Inclusion 1	Inclusion 2
Indian ricegrass	ORRY	---	---	X	---	---
Salmon wildrye	ELAMS2	30-50	---	---	5-10	15-25
Sandberg bluegrass	POSE	2-5	---	X	T-5	2-5
Thurber needlegrass	STH2	---	---	X	---	---
bottlebrush squirreltail	SIHY	2-5	---	X	2-5	5-10
desert needlegrass	STSP3	---	---	X	---	---
milkvetch	ASTRA	1-3	---	---	1-3	1-3
skeletonweed	LYGOD	1-3	---	---	1-3	1-3
Douglas rabbitbrush	CHVI8	---	---	X	---	---
Lahontan sagebrush	ARARL+	---	---	---	---	30-40
Nevada ephedra	EPNE	---	---	---	---	5-10
Wyoming big sagebrush	ARTRW	30-40	---	X	30-40	---
common pricklygilia	LEPU	2-5	---	---	2-5	---
ephedra	EPHED	---	---	X	---	---
goldenweed	HAPLO2	---	---	---	2-5	---
purple sage	SADOC2	---	---	X	5-10	2-5
Utah juniper	JUOS	2-8	---	X	2-8	T-5
Range site number		023XY076NV	none	023XY046NV	023XY077NV	023XY075NV
Potential production (lb/acre):						
Favorable years		450		350	200	250
Normal years		350		250	100	200
Unfavorable years		200		100	50	150

835--OLA-AYCAB-TOSP COMPLEX

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		OLA	AYCAB	TOSP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	30-40	5-10	X	---	---	---	15-25
Letterman needlegrass	STLE4	---	---	---	---	2-10	---	---
Nevada bluegrass	PONE3	---	---	X	40-50	2-10	---	---
basin wildrye	ELCI2	---	5-10	---	---	---	---	---
big squirreltail	SIJU	---	---	X	---	2-5	---	---
bluebunch wheatgrass	AGSP	15-30	---	---	---	---	---	---
bluegrass	POA++	2-8	2-5	---	---	---	---	5-15
melic	MELIC	---	---	X	---	---	---	---
mountain brome	BRCA5	---	20-30	X	---	2-5	---	---
needlegrass	STIPA	---	5-10	---	---	---	---	---
purple oniongrass	MESP	---	2-5	---	---	---	---	---
sedge	CAREX	---	---	---	5-15	---	---	---
slender wheatgrass	AGTR	---	---	X	---	---	---	---
arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---	---
goldenweed	HAPLO2	---	---	---	---	---	---	2-5
meadowrue	THALI2	---	---	X	---	---	---	---
tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	---	2-5
antelope bitterbrush	PUTR2	2-5	2-5	---	---	5-10	---	---
low sagebrush	ARAR8	---	---	---	---	---	---	35-45
mountain big sagebrush	ARVA2	15-20	10-20	X	---	15-25	---	---
snowberry	SYMPH	2-5	2-8	X	---	---	---	---
curlleaf mountainmahogany	CELE3	---	---	---	---	30-40	---	---
quaking aspen	POTRT	---	---	X	---	---	---	---
Range site number		023XY043NV	023XY048NV	023XY028NV	023XY013NV	023XY069NV	none	023XY008NV
Potential production (lb/acre):								
Favorable years		1300	1300	600	2200	2500		400
Normal years		700	1100	400	1700	1800		250
Unfavorable years		400	900	250	1300	1200		200

840--SARAPH-YELLOWHILLS ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		SARAPH	YELLOWHILLS	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	2-5	---	---	---	---	---
Idaho fescue	FEID	---	40-50	---	---	---	---
Indian ricegrass	ORRY	---	---	---	15-30	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-10	---
Thurber needlegrass	STTH2	15-20	10-20	10-25	---	---	---
basin wildrye	ELCI2	5-10	2-5	---	5-10	40-60	---
bluebunch wheatgrass	AGSP	30-40	2-8	20-50	---	---	---
bluegrass	POA++	---	---	5-10	---	---	---
needleandthread	STCO4	---	---	---	30-40	---	---
western wheatgrass	AGSM	---	---	---	---	2-10	---
povertyweed	IVAX	---	---	---	---	2-5	---
thelypod	THELY	---	---	---	---	1-3	---
antelope bitterbrush	PUTR2	2-10	---	---	---	---	---
basin big sagebrush	ARTRT	---	15-25	---	---	5-15	---
big sagebrush	ARTR2	15-25	---	---	15-25	---	---
low sagebrush	ARAR8	---	---	10-20	---	---	---
spiny hopsage	GRSP	---	---	---	1-5	---	---
Range site number		023XY020NV	023XY071NV	023XY031NV	024XY017NV	023XY005NV	none
Potential production (lb/acre):							
Favorable years		1100	1000	900	900	3000	
Normal years		900	800	700	700	2000	
Unfavorable years		600	600	500	500	1300	

841--SARAPH-TUFFO-YELLOWHILLS ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		SARAPH	TUFFO	YELLOWHILLS	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	---	2-5	---	---	---
Idaho fescue	FEID	---	---	40-50	---	---
Indian ricegrass	ORRY	5-15	---	---	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	---
Thurber needlegrass	STTH2	20-40	15-20	10-20	---	10-25
Webber needlegrass	STWE	2-8	---	---	---	---
basin wildrye	ELCI2	---	5-10	2-5	---	---
bluebunch wheatgrass	AGSP	---	30-40	2-8	---	20-50
bluegrass	POA++	---	---	---	---	5-10
bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW	20-30	---	---	---	---
antelope bitterbrush	PUTR2	---	2-10	---	---	---
basin big sagebrush	ARTRT	---	---	15-25	---	---
big sagebrush	ARTR2	---	15-25	---	---	---
low sagebrush	ARAR8	---	---	---	---	10-20
spiny hopsage	GRSP	2-5	---	---	---	---
Range site number		023XY006NV	023XY020NV	023XY071NV	none	023XY031NV
Potential production (lb/acre):						
Favorable years		800	1100	1000		900
Normal years		600	900	800		700
Unfavorable years		400	600	600		500

842--DEPPY-TUMTUM-PUETT COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		DEPPY	TUMTUM	PUETT	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORBY	5-15	---	25-35	2-10	2-5	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Thurber needlegrass	STHE2	---	40-50	5-10	---	---	---
basin wildrye	ELCI2	---	---	---	10-20	---	---
bluebunch wheatgrass	AGSP	---	2-10	---	---	---	---
bottlebrush squirreltail	SINY	5-10	---	---	2-5	2-10	---
desert needlegrass	STSP3	---	---	---	---	2-10	---
globemallow	SPHAE	---	1-3	2-4	---	---	---
Anderson peachbrush	PRAN2	---	---	---	2-8	---	---
Douglas rabbitbrush	CEVI8	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW	---	25-35	25-35	---	---	---
basin big sagebrush	ARTRT	---	---	---	15-25	---	---
black greasewood	SAVE4	---	---	---	2-8	---	---
bud sagebrush	ARSP5	20-30	---	---	---	15-30	---
other shrubs	SSSS	---	---	---	2-8	---	---
shadscale	ATCO	30-40	---	2-5	---	30-50	---
spiny hopsage	GRSP	2-5	2-5	2-5	15-30	---	---
winterfat	EULA5	2-5	---	---	---	---	---

Range site number	024XY002NV	024XY005NV	024XY045NV	024XY041NV	024XY025NV	none
Potential production (lb/acre):						
Favorable years	750	800	350	1000	250	
Normal years	450	600	200	800	150	
Unfavorable years	300	400	100	600	75	

843--DEPPY-PUETT-OROVADA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		DEPPY	PUETT	OROVADA	Inclusion 1	Inclusion 2
Indian ricegrass	ORBY	5-15	25-35	15-30	2-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	---
Thurber needlegrass	STHE2	---	5-10	---	---	---
basin wildrye	ELCI2	---	---	5-10	10-20	---
bottlebrush squirreltail	SINY	5-10	---	---	2-5	---
needleandthread	STCO4	---	---	30-40	---	---
globemallow	SPHAE	---	2-4	---	---	---
Anderson peachbrush	PRAN2	---	---	---	2-8	---
Douglas rabbitbrush	CEVI8	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW	---	25-35	---	---	---
basin big sagebrush	ARTRT	---	---	---	15-25	---
big sagebrush	ARTR2	---	---	15-25	---	---
black greasewood	SAVE4	---	---	---	2-8	---
bud sagebrush	ARSP5	20-30	---	---	---	---
other shrubs	SSSS	---	---	---	2-8	---
shadscale	ATCO	30-40	2-5	---	---	---
spiny hopsage	GRSP	2-5	2-5	1-5	15-30	---
winterfat	EULA5	2-5	---	---	---	---

Range site number	024XY002NV	024XY045NV	024XY017NV	024XY041NV	none
Potential production (lb/acre):					
Favorable years	750	350	900	1000	
Normal years	450	200	700	800	
Unfavorable years	300	100	500	600	

847--TOULON-BADLAND-TYPIC TORRIORIENTS COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		TOULON	BADLAND	TYPIC TORRIO	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	10-20	---	---	5-10	20-30	10-15
Sandberg bluegrass	POSE	5-10	---	---	---	---	---
bottlebrush squirreltail	SIHY	2-8	---	---	5-10	---	5-10
inland saltgrass	DISPS2	---	---	---	---	2-5	2-5
Bailey greasewood	SAVEB	20-30	---	---	---	---	T-5
Nevada ephedra	EPNE	---	---	---	5-10	---	---
black greasewood	SAVE4	---	---	---	---	30-50	20-30
bud sagebrush	ARSP5	5-15	---	---	---	---	2-5
burrobrush	HYMEN3	---	---	---	5-10	---	---
fourwing saltbush	ATCA2	---	---	---	5-10	2-5	---
littleleaf horsebrush	TEGL	---	---	---	10-20	---	---
rubber rabbitbrush	CHNA2	---	---	---	10-20	---	---
shadscale	ATCO	15-30	---	---	---	2-5	20-35
spiny hopsage	GRSP	---	---	---	10-20	---	---

Range site number	027XY018NV	none	none	027XY022NV	027XY016NV	027XY024NV
Potential production (lb/acre):						
Favorable years	400			400	500	500
Normal years	250			200	300	350
Unfavorable years	100			50	150	150

850--PLAYAS

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		PLAYAS					

Range site number	none
Potential production (lb/acre):	
Favorable years	
Normal years	
Unfavorable years	

875--PUMPER-DUN GLEN-DAVEY ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		PUMPER	DUN GLEN	DAVEY	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	5-15	15-30	20-40	---	2-10
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
basin wildrye	ELCI2	---	---	5-10	---	---	10-20
bottlebrush squirreltail	SIHY	5-10	5-10	---	2-10	5-10	2-5
needleandthread	STCO4	---	---	30-40	---	---	---
Anderson peachbrush	PRAN2	---	---	---	---	---	2-8
basin big sagebrush	ARTRT	---	---	---	---	---	15-25
big sagebrush	ARTR2	---	---	15-25	---	---	---
black greasewood	SAVE4	---	---	---	---	15-30	2-8
bud sagebrush	ARSP5	20-30	20-30	---	15-30	2-8	---
other shrubs	SSSS	---	---	---	---	---	2-8
seepweed	SUAED	---	---	---	---	2-8	---
shadscale	ATCO	30-40	30-40	---	2-8	30-50	---
spiny hopsage	GRSP	2-5	2-5	1-5	---	---	15-30
winterfat	EULA5	2-5	2-5	---	30-40	---	---

Range site number	024XY002NV	024XY002NV	024XY017NV	024XY014NV	024XY003NV	024XY041NV
Potential production (lb/acre):						
Favorable years	750	750	900	700	600	1000
Normal years	450	450	700	500	450	800
Unfavorable years	300	300	500	200	300	600

876--PUMPER-WESO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		PUMPER	WESO	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15	20-30
Sandberg bluegrass	POSE	---	---	2-8	---	---	---
Thurber needlegrass	STTR2	---	---	15-25	---	---	---
bottlebrush squirreltail	SIHY	5-10	5-10	2-5	5-10	5-10	2-5
needleandthread	STCO4	---	---	---	---	---	5-10
globemallow	SPHAE	---	---	1-2	---	---	---
Wyoming big sagebrush	ARTRW	---	---	20-35	---	---	---
black greasewood	SAVE4	---	---	---	15-30	---	---
bud sagebrush	ARSP5	20-30	20-30	---	2-8	20-30	---
dalea	DALEA	---	---	---	---	---	2-5
fourwing saltbush	ATCA2	---	---	---	---	---	5-10
seepweed	SUAED	---	---	---	2-8	---	---
shadscale	ATCO	30-40	30-40	---	30-50	30-40	5-10
spiny hopsage	GRSP	2-5	2-5	5-20	---	2-5	10-20
winterfat	EULA5	2-5	2-5	---	---	2-5	---

Range site number	024XY002NV	024XY002NV	024XY020NV	024XY003NV	024XY002NV	024XY055NV
Potential production (lb/acre):						
Favorable years	750	750	700	600	750	600
Normal years	450	450	450	450	450	400
Unfavorable years	300	300	300	300	300	250

878--CROESUS-ROCK OUTCROP COMPLEX, VERY STEEP

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		CROESUS	ROCK OUTCROP	Inclusion 1	Inclusion 2
Cusick bluegrass	POCU3	5-10	---	5-10	---
Idaho fescue	FEID	20-40	---	40-50	---
Thurber needlegrass	STTH2	---	---	---	5-10
basin wildrye	ELCI2	---	---	---	20-40
bluebunch wheatgrass	AGSP	2-5	---	2-5	40-50
needlegrass	STIPA	5-15	---	---	---
antelope bitterbrush	PUTR2	---	---	---	2-8
mountain big sagebrush	ARVA2	15-25	---	---	10-20
Range site number		023XY061NV	none	023XY053NV	023XY018NV
Potential production (lb/acre):					
Favorable years		900		1000	1200
Normal years		700		800	1000
Unfavorable years		500		600	800

907--BUCKLAKE VERY COBBLY LOAM, 8 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		BUCKLAKE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	OREY	---	---	5-15	---	---
Nevada bluegrass	PONE3	---	2-8	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	30-45	---
Thurber needlegrass	STTH2	10-20	---	20-40	---	---
Webber needlegrass	STWE	---	---	2-8	2-5	---
basin wildrye	ELCI2	2-10	65-75	---	---	---
bluebunch wheatgrass	AGSP	40-60	---	---	---	---
bottlebrush squirreltail	SIRY	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW	10-20	---	20-30	---	---
antelope bitterbrush	PUTR2	2-5	---	---	---	---
basin big sagebrush	ARTR2	---	5-10	---	---	---
big sagebrush	ARTR2	15-25	---	---	---	---
low sagebrush	ARAR8	---	---	---	30-45	---
mountain big sagebrush	ARVA2	10-20	---	---	---	---
rubber rabbitbrush	CHNA2	---	1-3	---	---	---
spiny hopsage	GRSP	---	---	2-5	---	---
Range site number		023XY039NV	023XY009NV	023XY006NV	023XY021NV	none
Potential production (lb/acre):						
Favorable years		900	5500	800	300	
Normal years		700	4500	600	200	
Unfavorable years		500	2500	400	150	

909--BUCKLAKE-SOFTSCRABBLE-RUBBLE LAND ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		BUCKLAKE	SOFTSCRABBLE	RUBBLE LAND	Inclusion 1	Inclusion 2	Inclusion 3
Cusick bluegrass	POCU3	---	---	---	---	5-10	---
Idaho fescue	FEID	---	30-40	---	15-25	40-50	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-8
Thurber needlegrass	STTH2	10-20	2-8	---	---	---	---
basin wildrye	ELCI2	2-10	5-10	---	---	---	65-75
bluebunch wheatgrass	AGSP	40-60	25-40	---	---	2-5	---
bluegrass	POA++	---	2-5	---	5-15	---	---
goldenweed	HAPLO2	---	---	---	2-5	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW	10-20	---	---	---	---	---
antelope bitterbrush	PUTR2	2-5	2-10	---	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	---	5-10
big sagebrush	ARTR2	15-25	---	---	---	---	---
low sagebrush	ARAR8	---	---	---	35-45	---	---
mountain big sagebrush	ARVA2	10-20	10-20	---	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	---	---	1-3
Range site number		023XY039NV	023XY007NV	none	023XY008NV	023XY053NV	023XY009NV
Potential production (lb/acre):							
Favorable years		900	1600		400	1000	5500
Normal years		700	1200		250	800	4500
Unfavorable years		500	900		200	600	2500

935--WESFIL-SOJUR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		WESFIL	SOJUR	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORHY	10-20	15-25	5-15	---	15-25	---
Sandberg bluegrass	POSE	2-10	---	2-8	---	---	2-5
Thurber needlegrass	STTH2	---	---	25-35	---	---	10-20
basin wildrye	ELCI2	---	---	---	---	5-15	---
bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5
desert needlegrass	STSP3	5-15	2-10	---	---	---	2-5
milkvetch	ASTRA	---	---	---	---	---	1-3
skeletonweed	LYGOD	---	---	---	---	---	1-3
Bailey greasewood	SAVEB	10-20	---	---	---	---	---
Lahontan sagebrush	ARARL*	35-50	---	---	---	---	30-40
Nevada ephedra	EPNE	2-8	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW	---	---	25-35	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	20-30	---
bud sagebrush	ARSP5	---	2-8	---	---	---	---
common pricklygilia	LEPU	---	---	---	---	---	2-5
purple sage	SADOC2	---	---	---	---	---	5-15
rabbitbrush	CHRYSS9	---	---	---	---	2-5	---
shadscale	ATCO	2-5	30-40	---	---	---	---
spiny hopsage	GRSP	2-5	---	2-8	---	10-20	---
winterfat	EULA5	---	2-8	---	---	---	---
Range site number		027XY070NV	027XY027NV	027XY007NV	none	027XY029NV	023XY063NV
Potential production (lb/acre):							
Favorable years		400	200	700		800	350
Normal years		250	100	500		500	250
Unfavorable years		100	50	300		300	100

938--WESO VERY FINE SANDY LOAM, MODERATELY SALINE, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		WESO	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	---	2-10	2-5	5-15
Sandberg bluegrass	POSE	---	2-5	---	---
basin wildrye	ELCI2	---	10-20	5-20	---
bottlebrush squirreltail	SIHY	5-10	2-5	2-5	5-10
globemallow	SPHAE	---	---	1-2	---
thelypody	THELY	---	---	2-4	---
Anderson peachbrush	PRAN2	---	2-8	---	---
basin big sagebrush	ARTRT	---	15-25	---	---
big sagebrush	ARTR2	---	---	10-25	---
black greasewood	SAVE4	15-30	2-8	20-30	---
bud sagebrush	ARSP5	2-8	---	---	20-30
other shrubs	SSSS	---	2-8	---	---
seepweed	SUAED	2-8	---	---	---
shadscale	ATCO	30-50	---	---	30-40
spiny hopsage	GRSP	---	15-30	5-15	2-5
winterfat	EULAS	---	---	---	2-5

Range site number	024XY003NV	024XY041NV	024XY022NV	024XY002NV
Potential production (lb/acre):				
Favorable years	600	1000	800	750
Normal years	450	800	600	450
Unfavorable years	300	600	350	300

940--WESTBUTTE-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		WESTBUTTE	ROCK OUTCROP	Inclusion 1
Cusick bluegrass	POCU3	5-15	---	---
Idaho fescue	FEID	50-60	---	30-50
Thurber needlegrass	STTH2	---	---	2-8
basin wildrye	ELCI2	2-5	---	---
bluebunch wheatgrass	AGSP	5-15	---	15-30
bluegrass	POA++	---	---	2-8
low sagebrush	ARAR8	---	---	10-20
mountain big sagebrush	ARVA2	5-15	---	---
snowberry	SYMPH	2-5	---	---

Range site number	023XY054NV	none	023XY017NV
Potential production (lb/acre):			
Favorable years	1500		900
Normal years	1200		700
Unfavorable years	900		500

965--WYLO-BUCKLAKE-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		WYLO	BUCKLAKE	ROCK OUTCROP	Inclusion 1	Inclusion 2
Cusick bluegrass	POCU3	---	---	---	2-8	---
Idaho fescue	FEID	---	---	---	40-60	---
Nevada bluegrass	PONE3	---	---	---	---	2-8
Thurber needlegrass	STTH2	5-15	10-20	---	5-15	---
basin wildrye	ELCI2	---	2-10	---	---	65-75
bluebunch wheatgrass	AGSP	40-60	40-60	---	2-8	---
bluegrass	POA++	2-8	---	---	---	---
Booker balsamroot	BAHO	2-5	---	---	---	---
tapertip hawksbeard	CRAC2	1-2	---	---	---	---
Lahontan sagebrush	ARARL*	10-20	---	---	---	---
Wyoming big sagebrush	ARTRW	---	10-20	---	15-25	---
antelope bitterbrush	PUTR2	---	2-5	---	---	---
basin big sagebrush	ARTRT	---	---	---	---	5-10
big sagebrush	ARTR2	---	15-25	---	---	---
mountain big sagebrush	ARVA2	---	10-20	---	---	---
rubber rabbitbrush	CHNA2	---	---	---	---	1-3

Range site number	023XY037NV	023XY039NV	none	023XY072NV	023XY009NV
Potential production (lb/acre):					
Favorable years	700	900		800	5500
Normal years	600	700		500	4500
Unfavorable years	400	500		350	2500

1000--BROYLES FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		BROYLES	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORHY	5-15	5-15	5-15	---
Sandberg bluegrass	POSE	---	---	2-8	---
Thurber needlegrass	STTH2	---	---	15-25	---
bottlebrush squirreltail	SIHY	5-10	5-10	2-5	5-10
globemallow	SPRAE	---	---	1-2	---
Wyoming big sagebrush	ARTRW	---	---	20-35	---
black greasewood	SAVE4	---	---	---	15-30
bud sagebrush	ARSP5	20-30	20-30	---	2-8
seepweed	SUAED	---	---	---	2-8
shadscale	ATCO	30-40	30-40	---	30-50
spiny hopsage	GRSP	2-5	2-5	5-20	---
winterfat	EULA5	2-5	2-5	---	---

Range site number	024XY002NV	024XY002NV	024XY020NV	024XY003NV
Potential production (lb/acre):				
Favorable years	750	750	700	600
Normal years	450	450	450	450
Unfavorable years	300	300	300	300

1010--BUBUS VERY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		BUBUS	Inclusion 1	Inclusion 2
Indian ricegrass	ORHY	---	2-5	---
basin wildrye	ELCI2	---	5-20	---
bottlebrush squirreltail	SIHY	5-10	2-5	5-10
globemallow	SPHAE	---	1-2	---
thelypody	THELY	---	2-4	---
big sagebrush	ARTR2	---	10-25	---
black greasewood	SAVE4	15-30	20-30	15-30
bud sagebrush	ARSP5	2-8	---	2-8
seepweed	SUAED	2-8	---	2-8
shadscale	ATCO	30-50	---	30-50
spiny hopsage	GRSP	---	5-15	---
<hr/>				
Range site number		024XY003NV	024XY022NV	024XY003NV
Potential production (lb/acre):				
Favorable years		600	800	600
Normal years		450	600	450
Unfavorable years		300	350	300

1030--RIO KING LOAM

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		RIO KING	Inclusion 1	Inclusion 2	Inclusion 3
Nevada bluegrass	PONE3	5-10	5-10	2-8	---
alpine timothy	PEAL2	---	5-10	---	---
basin wildrye	ELCI2	60-70	---	40-60	---
bluegrass	FOA++	---	---	---	10-20
mat muhly	MURI	2-8	---	---	---
meadow barley	HOBR2	---	---	---	5-10
rush	JUNCU	---	---	---	5-10
sedge	CAREX	---	5-10	2-5	5-10
streambank wheatgrass	AGDAR	2-8	---	---	---
tufted hairgrass	DECE	---	30-60	---	30-50
wheatgrass	AGROP2	---	---	5-15	---
Sierra clover	TRWO	---	2-5	---	---
cinquefoil	POTEN	---	2-5	---	---
basin big sagebrush	ARTR2	5-10	---	---	---
mountain big sagebrush	ARVA2	---	---	5-15	---
<hr/>					
Range site number		025XY003NV	025XY005NV	023XY056NV	023XY025NV
Potential production (lb/acre):					
Favorable years		4500	3000	2200	4000
Normal years		3500	1700	1700	3000
Unfavorable years		2000	1000	1200	2000

1032--RAGLAN CLAY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		RAGLAN	Inclusion 1
Nevada bluegrass	PONE3	---	5-15
inland saltgrass	DISPS2	---	2-5
mat muhly	MURI	---	2-5
sedge	CAREX	---	2-10
wildrye	ELYMU	---	60-80
willow	SALIX	---	5-10
Range site number		none	025XY001NV
Potential production (lb/acre):			
Favorable years			3500
Normal years			2500
Unfavorable years			1800

1060--RAGLAN SILT LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name or Inclusion number--	
		RAGLAN	Inclusion 1
Indian ricegrass	ORBY	---	5-15
bottlebrush squirreltail	SIHY	5-10	5-10
black greasewood	SAVE4	15-30	---
bud sagebrush	ARSP5	2-8	20-30
seepweed	SUAED	2-8	---
shadscale	ATCO	30-50	30-40
spiny hopsage	GRSP	---	2-5
winterfat	EULAS	---	2-5
Range site number		024XY003NV	024XY002NV
Potential production (lb/acre):			
Favorable years		600	750
Normal years		450	450
Unfavorable years		300	300

1080--ARGENTA COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or Inclusion number--		
		ARGENTA	ARGENTA	Inclusion 1
alkali sacaton	SPAI	---	5-25	---
basin wildrye	ELCI2	5-15	50-60	---
bottlebrush squirreltail	SIHY	---	---	5-10
inland saltgrass	DISPS2	5-10	---	---
black greasewood	SAVE4	60-75	5-15	15-30
bud sagebrush	ARSP5	---	---	2-8
rubber rabbitbrush	CHNA2	---	2-5	---
seepweed	SUAED	---	---	2-8
shadscale	ATCO	---	---	30-50

Range site number	024XY011NV	024XY007NV	024XY003NV
Potential production (lb/acre):			
Favorable years	500	1900	600
Normal years	350	1400	450
Unfavorable years	200	800	300

1081--ARGENTA-CLEMENTINE-OUTERKIRK COMPLEX

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		ARGENTA	CLEMENTINE	OUTERKIRK	Inclusion 1
Indian ricegrass	ORHY	---	---	2-5	---
Nevada bluegrass	PONE3	---	5-15	---	---
alkali sacaton	SPAI	5-25	---	---	---
basin wildrye	ELCI2	50-60	---	5-20	---
bottlebrush squirreltail	SIHY	---	---	2-5	5-10
inland saltgrass	DISPS2	---	2-5	---	---
mat muhly	MURI	---	2-5	---	---
sedge	CAREX	---	2-10	---	---
wildrye	ELYMU	---	60-80	---	---
globemallow	SPRAE	---	---	1-2	---
thalepody	THELY	---	---	2-4	---
big sagebrush	ARTR2	---	---	10-25	---
black greasewood	SAVE4	5-15	---	20-30	15-30
bud sagebrush	ARSP5	---	---	---	2-8
rubber rabbitbrush	CHNA2	2-5	---	---	---
seepweed	SUAED	---	---	---	2-8
shadscale	ATCO	---	---	---	30-50
spiny hopsage	GRSP	---	---	5-15	---
willow	SALIX	---	5-10	---	---

Range site number	024XY007NV	025XY001NV	024XY022NV	024XY003NV
Potential production (lb/acre):				
Favorable years	1900	3500	800	600
Normal years	1400	2500	600	450
Unfavorable years	800	1800	350	300

1150--SARAPH-HANGROCK-TUFFO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number--						
		SARAPH	HANGROCK	TUFFO	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORHY	5-15	5-15	15-30	---	---	2-8	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	2-5	---
Thurber needlegrass	STTH2	20-40	20-40	---	5-15	---	15-30	---
Webber needlegrass	STWE	2-8	2-8	---	---	5-15	---	---
basin wildrye	ELCY2	---	---	2-8	30-40	---	---	---
bluegrass	POA++	---	---	---	30-40	---	---	---
bottlebrush squirreltail	SIBY	2-5	2-5	5-10	---	---	2-5	---
desert needlegrass	STSP3	---	---	---	---	---	2-10	---
lupine	LUPIN	---	---	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---	---
Lahontan sagebrush	ARARL*	---	---	---	---	---	30-45	---
Wyoming big sagebrush	ARTRW	20-30	20-30	30-40	---	---	---	---
antelope bitterbrush	PTR2	---	---	T-10	---	---	---	---
big sagebrush	ARTR2	---	---	---	15-25	---	---	---
ephedra	EPHED	---	---	---	---	---	2-5	---
shadscale	ATCO	---	---	---	---	---	2-5	---
spiny hopsage	GRSP	2-5	2-5	2-10	---	---	2-5	---
winterfat	EULA5	---	---	T-10	---	---	---	---

Range site number	023XY006NV	023XY006NV	023XY088NV	023XY082NV	023XY093NV	023XY047NV	none
Potential production (lb/acre):							
Favorable years	800	800	350	1100	600	500	
Normal years	600	600	200	800	450	350	
Unfavorable years	400	400	100	600	300	200	

1164--DEVADA-ASHCAMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		DEVADA	ASHCAMP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	---	2-5	---	---	---	---
Indian ricegrass	ORHY	---	---	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Thurber needlegrass	STTH2	10-25	15-20	5-15	20-40	30-40	---
Webber needlegrass	STWE	---	---	---	2-8	5-15	---
basin wildrye	ELCY2	---	5-10	---	---	---	---
bluebunch wheatgrass	AGSP	20-50	30-40	40-60	---	2-8	---
bluegrass	POA++	5-10	---	2-8	---	5-10	---
bottlebrush squirreltail	SIBY	---	---	---	2-5	---	---
Hooker balsamroot	BAHO	---	---	2-5	---	---	---
tapertip hawksbeard	CRAC2	---	---	1-2	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Lahontan sagebrush	ARARL*	---	---	10-20	---	---	---
Wyoming big sagebrush	ARTRW	---	---	---	20-30	---	---
antelope bitterbrush	PTR2	---	2-10	---	---	---	---
big sagebrush	ARTR2	---	15-25	---	---	---	---
low sagebrush	ARAR8	10-20	---	---	---	20-30	---
spiny hopsage	GRSP	---	---	---	2-5	---	---

Range site number	023XY031NV	023XY020NV	023XY037NV	023XY006NV	023XY059NV	none
Potential production (lb/acre):						
Favorable years	900	1100	700	800	600	
Normal years	700	900	600	600	450	
Unfavorable years	500	600	400	400	300	

1400--BOMBADIL-CEEJAY ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		BOMBADIL	CEEJAY	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORHY	5-15	---	5-15	---	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	---	---	---
Thurber needlegrass	STTH2	20-40	---	20-40	10-20	---	---
Webber needlegrass	STWE	2-8	5-15	2-8	---	5-15	---
basin wildrye	ELCI2	---	---	---	2-10	---	---
bluebunch wheatgrass	AGSP	---	---	---	40-60	---	---
bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	2-5	---
Wyoming big sagebrush	ARTRW	20-30	---	20-30	10-20	---	---
antelope bitterbrush	PUTR2	---	---	---	2-5	---	---
big sagebrush	ARTR2	---	---	---	15-25	---	---
mountain big sagebrush	ARVA2	---	---	---	10-20	---	---
spiny hopsage	GRSP	2-5	---	2-5	---	---	---

Range site number	023XY006NV	023XY093NV	023XY006NV	023XY039NV	023XY093NV	none
Potential production (lb/acre):						
Favorable years	800	600	800	900	600	
Normal years	600	450	600	700	450	
Unfavorable years	400	300	400	500	300	

1460--WEEZWEED LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number--			
		WEEZWEED	Inclusion 1	Inclusion 2	Inclusion 3
Baltic rush	JUBA	---	---	---	2-8
Nevada bluegrass	PONE3	2-10	2-8	---	40-60
Thurber needlegrass	STTH2	---	---	5-15	---
basin wildrye	ELCI2	40-60	65-75	30-40	2-8
bluegrass	POA++	---	---	30-40	---
meadow barley	BOBR2	---	---	---	2-8
sedge	CAREX	---	---	---	10-20
western wheatgrass	AGSM	2-10	---	---	---
lupine	LUPIN	---	---	2-5	---
povertyweed	IVAX	2-5	---	---	---
thelypody	THELY	1-3	---	---	---
basin big sagebrush	ARTRT	5-15	5-10	---	---
big sagebrush	ARTR2	---	---	15-25	---
rubber rabbitbrush	CHNA2	---	1-3	---	---

Range site number	023XY005NV	023XY009NV	023XY082NV	023XY089NV
Potential production (lb/acre):				
Favorable years	3000	5500	1100	4000
Normal years	2000	4500	800	3000
Unfavorable years	1300	2500	600	2000

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