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Resources
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Service

In cooperation with
United States Department
of the Interior, Bureau of
Land Management, and
State of California,
California Department of
Parks and Recreation

Soil Survey of Jawbone-Butterbredt ACEC Area, California



How To Use This Soil Survey

General Soil Map

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

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

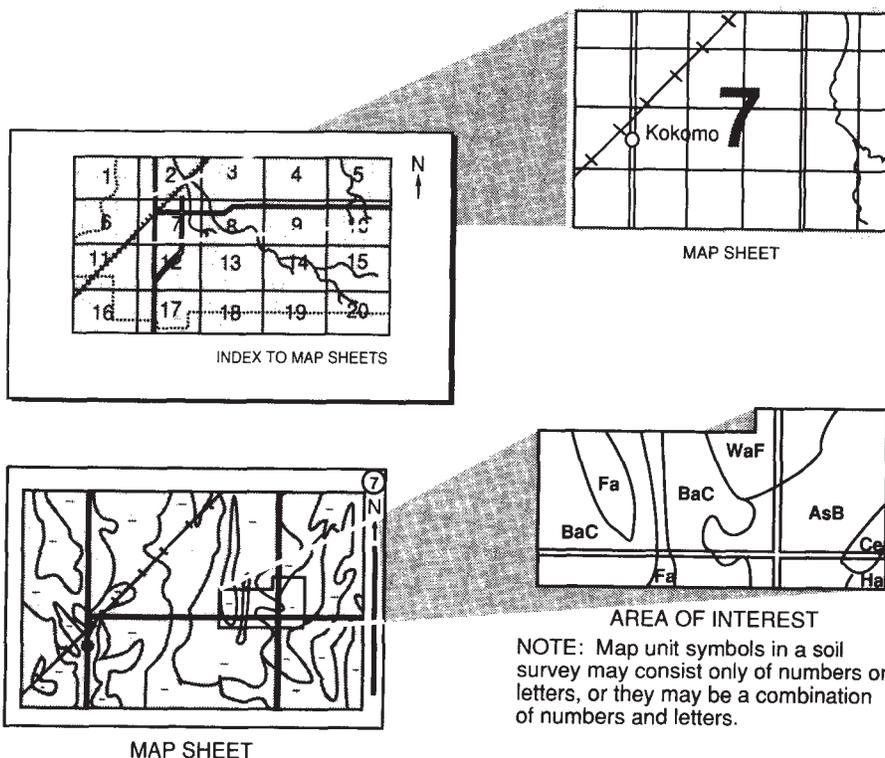
Detailed Soil Maps

The detailed soil maps 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 **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

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



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of the Interior, Bureau of Land Management; and the State of California, California Department of Parks and Recreation. The survey is part of the technical assistance furnished to the Bureau of Land Management and the Eastern Kern County Resource Conservation District.

Major fieldwork for this soil survey was completed in 2006. Soil names and descriptions were approved in 2006. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2006. The most current official data are available on the Internet.

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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http://soils.usda.gov/survey/printed_surveys/.

Cover Caption

An area of Birdcanyon coarse sand, 4 to 15 percent slopes (map unit 5500), in Bird Spring Canyon. The Scodie Mountains are in the background.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

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

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

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

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Soil Survey of Jawbone-Butterbredt ACEC Area, California

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United States Department of Agriculture, Natural Resources
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of the Interior, Bureau of Land Management, and State of California,
California Department of Parks and Recreation

The Jawbone-Butterbredt ACEC Area is in the eastern part of Kern County, California (fig. 1). It is northwest of California City, is at the southern end of the Sierra Nevada Mountains in California, and is directly south of the Scodie Mountains. This survey area has a total of 145,874 acres.

The letters “ACEC” in the name of the survey area mean “Area of Critical Environmental Concern,” a BLM designation for an area of public land where special management is needed to protect natural and historic or cultural resources. Motor vehicle use is restricted to designated roads and trails (Friends of Jawbone, 2005).

The survey area is in two major land resource areas—MLRA 29 (Southern Nevada Basin and Range) and MLRA 30 (Mojave Desert). Most of the survey area is used for recreation, wildlife habitat, or livestock grazing.

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

Soil Survey of Jawbone-Butterbredt ACEC Area, California



Figure 1.—Location of the Jawbone-Butterbredt ACEC Area in California.

Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

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

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

they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses. Soil scientists interpret the data from these analyses 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.

General Soil Map Units

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

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

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

Soils on Fan Piedmonts

This group of map units makes up 59 percent of the survey area.

1. Koehn

Very deep, sandy soils formed in granitic alluvium

Map unit setting

General location: The southern part of the survey area

Landform: Inset fans, fan aprons, stream terraces, and drainageways

Slope: 2 to 8 percent

Elevation: 730 to 1,100 meters

Mean annual air temperature: 16 to 20 degrees C

Frost-free period: 200 to 270 days

Map unit composition

Extent of the map unit:

2 percent of the survey area

Extent of the components in the map unit:

Koehn and similar soils—90 percent

Typic Torriorthents and similar soils—8 percent

Riverwash—2 percent

Soil properties and qualities

Koehn

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Inset fans, fan aprons, stream terraces, and drainageways

Parent material: Granitic alluvium

Texture of the surface layer: Loamy coarse sand and loamy sand

Slope: 2 to 8 percent

Typical vegetation: Desertsenna, creosotebush, cattle saltbush, and white bursage

Minor components

- Typic Torriorthents on fan aprons
- Riverwash in drainageways

2. Dovecanyon-Koehn

Very deep, coarse-loamy and sandy soils formed in granitic alluvium

Map unit setting

General location: The eastern part of the survey area

Landform: Fan remnants, inset fans, and fan aprons

Slope: 2 to 15 percent

Elevation: 700 to 1,280 meters

Mean annual air temperature: 16 to 20 degrees C

Frost-free period: 200 to 270 days

Map unit composition

Extent of the map unit:

31 percent of the survey area

Extent of the components in the map unit:

Dovecanyon and similar soils—75 percent

Koehn and similar soils—15 percent

Cutterbank and similar soils—6 percent

Goldpeak and similar soils—3 percent

Typic Torriorthents and similar soils—1 percent

Soil properties and qualities

Dovecanyon

Depth class: Very deep

Drainage class: Well drained

Landform: Fan remnants

Parent material: Granitic alluvium

Texture of the surface layer: Loamy sand

Slope: 2 to 15 percent

Typical vegetation: Blackbrush, creosotebush, white bursage, Cooper's goldenbush, and Sandberg bluegrass

Koehn

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Inset fans and fan aprons

Parent material: Granitic alluvium

Texture of the surface layer: Sand

Slope: 2 to 8 percent

Typical vegetation: White bursage, creosotebush, and Sandberg bluegrass

Minor components

- Cutterbank soils on the moderately steep, eroded backslopes in areas of uplifted lakebed sediments (the Ricardo Formation)

- Goldpeak soils on the higher elevation fan remnants
- Typic Torriorthents on the moderately steep backslopes of fan remnants

3. Wingap-Goldpeak-Pinyonpeak

Deep, coarse-loamy soils formed in granitic residuum and colluvium; very deep, coarse-loamy soils formed in granitic alluvium; and very shallow and shallow, loamy soils formed in granitic residuum and colluvium

Map unit setting

General location: The central and northern parts of the survey area

Landform: Fan remnants, hills, and mountains

Slope: 2 to 30 percent

Elevation: 1,050 to 1,700 meters

Mean annual air temperature: 13 to 16 degrees C

Frost-free period: 165 to 220 days

Map unit composition

Extent of the map unit:

21 percent of the survey area

Extent of the components in the map unit:

Wingap and similar soils—35 percent

Goldpeak and similar soils—30 percent

Pinyonpeak and similar soils—25 percent

Dovecanyon and similar soils—4 percent

Grandora and similar soils—3 percent

Birdcanyon and similar soils—2 percent

Rock outcrop—1 percent

Soil properties and qualities

Wingap

Depth class: Deep

Drainage class: Well drained

Landform: Footslopes of hills and mountains

Parent material: Granitic colluvium and residuum

Texture of the surface layer: Loamy coarse sand

Slope: 4 to 30 percent

Typical vegetation: Blackbrush, narrowleaf goldenbush, Sandberg bluegrass, Nevada ephedra, and Joshua tree

Goldpeak

Depth class: Very deep

Drainage class: Well drained

Landform: Fan remnants

Parent material: Alluvium derived from granite

Texture of the surface layer: Gravelly loamy sand

Slope: 2 to 30 percent

Typical vegetation: Blackbrush, spiny hopsage, Sandberg bluegrass, and Nevada ephedra

Pinyonpeak

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Shoulders of hills and mountains

Parent material: Residuum and colluvium derived from granitic rocks

Texture of the surface layer: Gravelly sandy loam

Slope: 8 to 30 percent

Typical vegetation: Blackbrush, California buckwheat, Sandberg bluegrass, narrowleaf goldenbush, Nevada ephedra, and Cooper's goldenbush

Minor components

- Dovecanyon soils on the lower elevation fan remnants
- Grandora soils on north-facing hills and mountains
- Birdcanyon soils on fan aprons adjacent to mountains
- Rock outcrop on the backslopes and summits of hills and mountains

4. Birdcanyon

Very deep, sandy soils formed in recent granitic alluvium

Map unit setting

General location: The northern part of the survey area

Landform: Fan aprons

Slope: 4 to 15 percent

Elevation: 1,160 to 1,465 meters

Mean annual air temperature: 13 to 16 degrees C

Frost-free period: 165 to 220 days

Map unit composition

Extent of the map unit:

5 percent of the survey area

Extent of the components in the map unit:

Birdcanyon and similar soils—90 percent

Grandora and similar soils—4 percent

Xyno and similar soils—3 percent

Kernfork and similar soils—2 percent

Riverwash—1 percent

Soil properties and qualities

Birdcanyon

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Fan aprons

Parent material: Granitic alluvium

Texture of the surface layer: Coarse sand

Slope: 4 to 15 percent

Typical vegetation: Burrobrush, horsebrush, Nevada ephedra, Joshua tree, desert needlegrass, and Sandberg bluegrass

Minor components

- Grandora soils on the upper elevation backslopes of mountains
- Xyno soils on the lower elevation backslopes of mountains
- Kernfork soils in drainageways and on inset fans
- Riverwash in drainageways

Soils and Rock Outcrop on Hills and Mountains

This group of map units makes up 41 percent of the survey area.

5. Pasopeak-Rock Outcrop

Areas of shallow, loamy-skeletal soils formed in residuum and colluvium derived from rhyolite and areas of Rock outcrop

Map unit setting

General location: The southern part of the survey area

Landform: Mountains

Slope: 30 to 60 percent

Elevation: 750 to 1,325 meters

Mean annual air temperature: 15 to 22 degrees C

Frost-free period: 210 to 270 days

Map unit composition

Extent of the map unit:

2 percent of the survey area

Extent of the components in the map unit:

Pasopeak and similar soils—65 percent

Rock outcrop—25 percent

Typic Haplargids and similar soils—5 percent

Koehn and similar soils—5 percent

Soil properties and qualities

Pasopeak

Depth class: Shallow

Drainage class: Well drained

Landform: Summits and side slopes of mountains

Parent material: Residuum and colluvium derived from metamorphic rocks

Texture of the surface layer: Sandy loam

Slope: 30 to 60 percent

Typical vegetation: Blackbrush, Mojave buckwheat, and Sandberg bluegrass

Landform of Rock outcrop

Backslopes of mountains

Minor components

- Typic Haplargids on backslopes of mountains
- Koehn soils on inset fans and in drainageways

6. Cutterbank-Jawbone

Very shallow and shallow, loamy and sandy soils formed in uplifted lakebed sediments and in residuum and colluvium derived from granitic hills and mountains

Map unit setting

General location: The southern part of the survey area

Landform: Eroded backslopes in areas of uplifted lakebed sediments and mountains

Slope: 8 to 75 percent

Elevation: 730 to 1,250 meters

Mean annual air temperature: 17 to 20 degrees C

Frost-free period: 200 to 270 days

Map unit composition

Extent of the map unit:

14 percent of the survey area

Extent of the components in the map unit:

Cutterbank and similar soils—50 percent

Jawbone and similar soils—40 percent

Typic Torriorthents and similar soils—4 percent

Typic Haplargids and similar soils—2 percent

Rock outcrop—2 percent

Dovecanyon and similar soils—1 percent

Koehn and similar soils—1 percent

Soil properties and qualities

Cutterbank

Depth class: Very shallow and shallow

Drainage class: Somewhat excessively drained

Landform: Eroded backslopes in areas of uplifted lakebed sediments

Parent material: Nonmarine sediments derived from granite

Texture of the surface layer: Fine sandy loam

Slope: 15 to 75 percent

Typical vegetation: Blackbrush, creosotebush, and white bursage

Jawbone

Depth class: Very shallow and shallow

Drainage class: Somewhat excessively drained

Landform: Mountainous backslopes

Parent material: Residuum and colluvium derived from granite

Texture of the surface layer: Loamy sand

Slope: 8 to 60 percent

Typical vegetation: Blackbrush, white bursage, and creosotebush

Minor components

- Typic Torriorthents on backslopes of mountains
- Typic Haplargids on backslopes of mountains
- Rock outcrop on backslopes and summits of mountains
- Dovecanyon soils on summits of fan remnants
- Koehn soils on inset fans and in drainageways

7. Grandora-Pinyonpeak

Very deep or very shallow and shallow, sandy and loamy soils formed in granitic colluvium and residuum

Map unit setting

General location: The central and northern parts of the survey area

Landform: Mountains

Slope: 8 to 60 percent

Elevation: 1,125 to 1,830 meters

Mean annual air temperature: 9 to 16 degrees C

Frost-free period: 140 to 220 days

Map unit composition

Extent of the map unit:

25 percent of the survey area

Extent of the components in the map unit:

Grandora and similar soils—55 percent

Pinyonpeak and similar soils—30 percent

Scodie and similar soils—6 percent

Xyno and similar soils—4 percent

Inyo and similar soils—3 percent

Rock outcrop—2 percent

Soil properties and qualities

Grandora

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Backslopes of mountains

Parent material: Colluvium and residuum derived from granite

Texture of the surface layer: Coarse sand

Slope: 30 to 60 percent

Typical vegetation: Mountain sagebrush, California buckwheat, Sandberg bluegrass, desert needlegrass, and green ephedra

Pinyonpeak

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Shoulders of hills and mountains

Parent material: Residuum and colluvium derived from granitic rocks

Texture of the surface layer: Gravelly sandy loam

Slope: 8 to 30 percent

Typical vegetation: Blackbrush, California buckwheat, Sandberg bluegrass, narrowleaf goldenbush, Nevada ephedra, and Cooper's goldenbush

Minor components

- Scodie soils on north-facing backslopes of mountains
- Xyno soils on the lower elevation backslopes of mountains
- Inyo soils on inset fans and in drainageways
- Rock outcrop on backslopes and summits of mountains

Detailed Soil Map Units

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis

of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Koehn sand, 2 to 4 percent slopes, frequently flooded, is a phase of the Koehn 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. Goldpeak-Pinyonpeak-Wingap complex, 2 to 30 percent slopes, 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. Scodie-Grandora association, 15 to 60 percent slopes, is an example.

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

Table 1 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

3010—Jawbone-Typic Haplargids-Rock outcrop association, 30 to 60 percent slopes

Map unit setting

General location: North of and in the area around Bluepoint

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Hills

Elevation: 2,595 to 3,720 feet (792 to 1,134 meters)

Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)

Mean annual air temperature: 63 to 68 degrees F (17 to 20 degrees C)

Frost-free period: 210 to 270 days

Map unit composition

Jawbone—35 percent

Typic Haplargids—30 percent

Rock outcrop—20 percent

Minor components—15 percent

Characteristics of Jawbone and similar soils

Slope: 30 to 60 percent

Aspect: Northeast to west

Landform: Backslopes of hills

Parent material: Colluvium derived from granite and/or residuum weathered from granite

Typical vegetation: Creosote bush, white bursage, and desert needlegrass

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 20 to 30 percent by fine, subrounded gravel; 20 to 30 percent by coarse, subrounded gravel; 2 to 10

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percent by subrounded cobbles; 0 to 5 percent by subrounded stones; and 0 to 5 percent by subrounded boulders

Depth to a restrictive feature: Paralithic bedrock—4 to 12 inches

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.3 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand

Bw—2 to 6 inches; loamy sand

Cr—6 to 59 inches; soft bedrock

Characteristics of Typic Haplargids and similar soils

Slope: 30 to 60 percent

Aspect: Northeast to west

Landform: Backslopes of hills

Parent material: Colluvium derived from volcanic rock and/or residuum weathered from volcanic rock

Typical vegetation: Cattle saltbush, Sandberg bluegrass, Mexican bladdersage, burrobrush, and winterfat

pH in the surface layer: 7.4

Percentage of the surface covered by rock fragments: 50 to 75 percent by coarse, subrounded gravel; 3 to 10 percent by subrounded cobbles; 1 to 3 percent by subrounded stones; and 1 to 2 percent by subrounded boulders

Depth to a restrictive feature: Lithic bedrock—30 to 39 inches

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.9 inches (low)

Shrink-swell potential: Moderate (LEP 3 to <6)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: High

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: C

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA050CA, Volcanic Slope 5-7" p.z.

Typical profile

- A—0 to 1 inch; sandy loam
- Bt—1 to 5 inches; sandy clay loam
- Btk—5 to 37 inches; very cobbly clay loam
- R—37 to 47 inches; bedrock

Characteristics of Rock outcrop

Landform: Backslopes of hills

Land capability classification (nonirrigated areas): 8

Minor components

Jawbone, eroded, and similar soils

Extent (percent of map unit): About 5 percent

Slope: 30 to 60 percent

Landform: Eroded backslopes of hills

Typical vegetation: White bursage, Eastern Mojave buckwheat, and Mojave indigobush

Ecological site: R030XA046CA, Steep Granitic Slope 5-7" p.z.

Koehn, rarely flooded, and similar soils

Extent (percent of map unit): About 5 percent

Slope: 2 to 8 percent

Landform: Summits of fan aprons

Typical vegetation: Cattle saltbush, burrobrush, creosote bush, Indian ricegrass, and desert needlegrass

Ecological site: R030XA018CA, Dry Wash

Garlock and similar soils

Extent (percent of map unit): About 3 percent

Slope: 30 to 60 percent

Landform: Backslopes of hills

Typical vegetation: Cattle saltbush, Sandberg bluegrass, Mexican bladdersage, burrobrush, and winterfat

Ecological site: R030XA050CA, Volcanic Slope 5-7" p.z.

Typic Torripsamments and similar soils

Extent (percent of map unit): About 2 percent

Slope: 30 to 60 percent

Landform: Backslopes of hills

Typical vegetation: Creosote bush, white bursage, and Indian ricegrass

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

3250—Jawbone association, 30 to 60 percent slopes

Map unit setting

General location: The lower granitic hills and mountains in the southern part of the survey area; hills and mountains due south of Jawbone wash

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Mountains and hills

Elevation: 2,390 to 4,000 feet (730 to 1,220 meters)

Mean annual precipitation: 4 to 7 inches (100 to 175 millimeters)

Mean annual air temperature: 63 to 68 degrees F (17 to 20 degrees C)

Frost-free period: 210 to 270 days

Map unit composition

Jawbone—50 percent
Jawbone, moderately deep—40 percent
Minor components—10 percent

Characteristics of Jawbone and similar soils

Slope: 30 to 60 percent
Aspect: West to southeast
Landform: Backslopes of hills
Parent material: Colluvium derived from granite and/or residuum weathered from granite
Typical vegetation: Creosote bush, white bursage, and Indian ricegrass
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 3 to 25 percent by fine, subangular gravel and 2 to 30 percent by coarse, subangular gravel
Depth to a restrictive feature: Paralithic bedrock—4 to 12 inches
Slowest rate of saturated hydraulic conductivity: High
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.3 inch (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand
Bw—2 to 6 inches; loamy sand
Cr—6 to 59 inches; soft bedrock

Characteristics of Jawbone, moderately deep, and similar soils

Slope: 30 to 60 percent
Aspect: West to southeast
Landform: Backslopes of mountains
Parent material: Colluvium derived from granitoid and/or residuum weathered from granitoid rocks
Typical vegetation: Creosote bush, white bursage, and Indian ricegrass
pH in the surface layer: 7.8
Percentage of the surface covered by rock fragments: 3 to 25 percent by fine, subangular gravel and 2 to 30 percent by coarse, subangular gravel
Depth to a restrictive feature: Lithic bedrock—30 to 39 inches
Slowest rate of saturated hydraulic conductivity: High
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.8 inches (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: High

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Typical profile

A—0 to 1 inch; loamy sand

Bw—1 to 7 inches; loamy sand

C—7 to 34 inches; gravelly coarse sand

R—34 to 44 inches; bedrock

Minor components

Jawbone, cool, and similar soils

Extent (percent of map unit): About 4 percent

Slope: 30 to 60 percent

Landform: The upper elevation backslopes of mountains

Typical vegetation: Blackbrush, creosote bush, and Sandberg bluegrass

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Koehn, frequently flooded, and similar soils

Extent (percent of map unit): About 3 percent

Slope: 4 to 15 percent

Landform: Drainageways

Typical vegetation: California broomsage and California buckwheat

Ecological site: R030XA042CA, Sandy Wash

Rock outcrop

Extent (percent of map unit): About 2 percent

Landform: Backslopes of hills

Ecological site: None assigned

Jawbone, high elevation, and similar soils

Extent (percent of map unit): About 1 percent

Slope: 30 to 60 percent

Landform: North-facing, upper elevation backslopes of mountains

Typical vegetation: California buckwheat, narrowleaf goldenbush, and Sandberg bluegrass

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

3251—Jawbone association, 8 to 50 percent slopes

Map unit setting

General location: The northeast corner of the survey area, south of the Scodie Mountains

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Hills

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Elevation: 3,595 to 4,395 feet (1,097 to 1,341 meters)
Mean annual precipitation: 4 to 7 inches (100 to 175 millimeters)
Mean annual air temperature: 55 to 63 degrees F (13 to 17 degrees C)
Frost-free period: 210 to 270 days

Map unit composition

Jawbone, warm—60 percent
Jawbone—20 percent
Minor components—20 percent

Characteristics of Jawbone, warm, and similar soils

Slope: 8 to 30 percent
Aspect: North to south
Landform: Backslopes of hills
Parent material: Residuum weathered from granite
Typical vegetation: Eastern Mojave buckwheat, green rabbitbrush, and creosote bush
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 30 to 40 percent by fine, subrounded gravel; 15 to 25 percent by coarse, subrounded gravel; and 0 to 5 percent by subrounded cobbles
Depth to a restrictive feature: Paralithic bedrock—4 to 12 inches
Slowest rate of saturated hydraulic conductivity: High
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.3 inch (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand
Bw—2 to 6 inches; loamy sand
Cr—6 to 59 inches; soft bedrock

Characteristics of Jawbone and similar soils

Slope: 30 to 50 percent
Aspect: North to south
Landform: Backslopes of hills
Parent material: Residuum weathered from granite
Typical vegetation: Blackbrush, creosote bush, and Joshua tree
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 30 to 40 percent by fine, subrounded gravel and 0 to 10 percent by coarse, subrounded gravel
Depth to a restrictive feature: Paralithic bedrock—4 to 12 inches

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.3 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand

Bw—2 to 6 inches; loamy sand

Cr—6 to 59 inches; soft bedrock

Minor components

Jawbone, high elevation, and similar soils

Extent (percent of map unit): About 10 percent

Slope: 30 to 50 percent

Landform: North-facing, upper elevation backslopes of hills

Typical vegetation: Blackbrush, Nevada jointfir, Joshua tree, and creosote bush

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Dovecanyon, cool, and similar soils

Extent (percent of map unit): About 3 percent

Slope: 4 to 15 percent

Landform: Summits of fan remnants

Typical vegetation: Blackbrush, creosote bush, Sandberg bluegrass, and white bursage

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Jawbone, dry, and similar soils

Extent (percent of map unit): About 3 percent

Slope: 8 to 30 percent

Landform: Lower elevation backslopes of hills

Typical vegetation: Creosote bush, white bursage, and Indian ricegrass

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Rock outcrop

Extent (percent of map unit): About 2 percent

Landform: Backslopes of hills

Ecological site: None assigned

Typic Torriorthents, rarely flooded, and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 4 percent

Landform: Summits of inset fans

Typical vegetation: Cattle saltbush and Indian ricegrass

Ecological site: R030XY047NV, Alluvial Plain

3280—Typic Torriorthents-Rock outcrop association, 30 to 60 percent slopes

Map unit setting

General location: Near the center of the Cinco quadrangle; includes areas to the south and the west of Sugarloaf Peak

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Hills

Elevation: 2,595 to 4,130 feet (792 to 1,259 meters)

Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)

Mean annual air temperature: 55 to 68 degrees F (13 to 20 degrees C)

Frost-free period: 210 to 270 days

Map unit composition

Typic Torriorthents—65 percent

Rock outcrop—20 percent

Minor components—15 percent

Characteristics of Typic Torriorthents and similar soils

Slope: 30 to 60 percent

Aspect: East to northwest

Landform: Backslopes of hills

Parent material: Colluvium and/or residuum weathered from granitoid rocks

Typical vegetation: Eastern Mojave buckwheat, Mexican bladdersage, fourwing saltbush, and Sandberg bluegrass

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 25 to 35 percent by fine, subrounded gravel; 40 to 50 percent by coarse, subrounded gravel; 0 to 10 percent by subrounded cobbles; 0 to 5 percent by subrounded stones; and 0 to 5 percent by subrounded boulders

Depth to a restrictive feature: Paralithic bedrock—3 to 8 inches

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.5 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA051CA, Steep Granitic Hills 5-7" p.z.

Typical profile

A—0 to 1 inch; loamy sand

Bw—1 to 8 inches; extremely cobbly sandy loam

Crt—8 to 59 inches; bedrock

Characteristics of Rock outcrop

Landform: Backslopes of hills

Land capability classification (nonirrigated areas): 8

Minor components

Lithic Torripsamments and similar soils

Extent (percent of map unit): About 10 percent

Slope: 30 to 60 percent

Landform: Backslopes of hills

Typical vegetation: Eastern Mojave buckwheat, Mexican bladdersage, fourwing saltbush, and Sandberg bluegrass

Ecological site: R030XA051CA, Steep Granitic Hills 5-7" p.z.

Typic Haplocambids and similar soils

Extent (percent of map unit): About 5 percent

Slope: 30 to 60 percent

Landform: Backslopes of hills

Typical vegetation: Blackbrush, creosote bush, and Cooper's goldenbush

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

3301—Cutterbank association, 15 to 60 percent slopes

Map unit setting

General location: Hills of the Ricardo Formation, west of Red Rock State Park

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Hills

Elevation: 2,195 to 3,605 feet (670 to 1,100 meters)

Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)

Mean annual air temperature: 63 to 68 degrees F (17 to 20 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Cutterbank—50 percent

Cutterbank, warm—25 percent

Cutterbank, steep—15 percent

Minor components—10 percent

Characteristics of Cutterbank and similar soils

Slope: 15 to 50 percent

Aspect: North to south

Landform: The upper elevation, uplifted, eroded backslopes of relict lakebeds

Parent material: Lacustrine deposits derived from granite

Typical vegetation: Blackbrush, creosote bush, white bursage, Fremont's dalea, and Indian ricegrass

pH in the surface layer: 7.8

Percentage of the surface covered by rock fragments: 30 to 70 percent by coarse, subrounded gravel; 1 to 7 percent by subrounded cobbles; and 0 to 5 percent by subrounded stones

Depth to a restrictive feature: Dense material—4 to 14 inches

Slowest rate of saturated hydraulic conductivity: Moderately low

Salinity: Not saline

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Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.7 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA047CA, Shallow Granitic Slope 5-7" p.z.

Typical profile

A—0 to 1 inch; fine sandy loam

Bk—1 to 9 inches; gravelly sandy loam

Cdk—9 to 59 inches; sandy loam

Characteristics of Cutterbank, warm, and similar soils

Slope: 30 to 75 percent

Aspect: North to south

Landform: Lower elevation, uplifted, eroded backslopes of relict lakebeds

Parent material: Lacustrine deposits derived from granite

Typical vegetation: Creosote bush, miscellaneous shrubs, white bursage, and Indian ricegrass

pH in the surface layer: 7.8

Percentage of the surface covered by rock fragments: 30 to 70 percent by coarse, subrounded gravel; 1 to 7 percent by subrounded cobbles; and 0 to 5 percent by subrounded stones

Depth to a restrictive feature: Dense material—4 to 14 inches

Slowest rate of saturated hydraulic conductivity: Moderately low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.7 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Typical profile

A—0 to 1 inch; fine sandy loam

Bk—1 to 9 inches; gravelly sandy loam

Cdk—9 to 59 inches; sandy loam

Characteristics of Cutterbank, steep, and similar soils

Slope: 30 to 75 percent

Aspect: North to south

Landform: Lower elevation, uplifted, eroded backslopes of relict lakebeds

Parent material: Lacustrine deposits derived from granite

Typical vegetation: White bursage, Eastern Mojave buckwheat, Fremont's dalea, shadscale, creosote bush, and Indian ricegrass

pH in the surface layer: 7.8

Percentage of the surface covered by rock fragments: 30 to 70 percent by coarse, subrounded gravel; 1 to 7 percent by subrounded cobbles; and 0 to 5 percent by subrounded stones

Depth to a restrictive feature: Dense material—4 to 14 inches

Slowest rate of saturated hydraulic conductivity: Moderately low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.7 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R030XA046CA, Steep Granitic Slope 5-7" p.z.

Typical profile

A—0 to 1 inch; fine sandy loam

Bk—1 to 9 inches; gravelly sandy loam

Cdk—9 to 59 inches; sandy loam

Minor components

Dovecanyon, cool, and similar soils

Extent (percent of map unit): About 6 percent

Slope: 4 to 15 percent

Landform: The upper elevation shoulders of fan remnants

Typical vegetation: Blackbrush, creosote bush, Cooper's goldenbush, Sandberg bluegrass, and Eastern Mojave buckwheat

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Koehn, frequently flooded, and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 4 percent

Landform: Drainageways

Typical vegetation: California broomsage, Eastern Mojave buckwheat, rubber rabbitbrush, and burrobrush

Ecological site: R030XA042CA, Sandy Wash

Badlands

Extent (percent of map unit): About 1 percent

Slope: 50 to 75 percent

Landform: Eroded backslopes of relict lakebeds

Ecological site: None assigned

Koehn, rarely flooded, and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 8 percent

Landform: Stream terraces

Typical vegetation: Cattle saltbush, burrobrush, creosote bush, miscellaneous shrubs, Indian ricegrass, and desert needlegrass

Ecological site: R030XA018CA, Dry Wash

3430—Pasopeak-Rock outcrop association, 30 to 75 percent slopes

Map unit setting

General location: The southwestern part of the survey area

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Mountains

Elevation: 2,460 to 4,345 feet (750 to 1,325 meters)

Mean annual precipitation: 4 to 7 inches (100 to 175 millimeters)

Mean annual air temperature: 61 to 65 degrees F (16 to 18 degrees C)

Frost-free period: 210 to 270 days

Map unit composition

Pasopeak—60 percent

Rock outcrop—25 percent

Minor components—15 percent

Characteristics of Pasopeak and similar soils

Slope: 30 to 75 percent

Aspect: South to east

Landform: Backslopes of mountains

Parent material: Colluvium and/or residuum weathered from rhyolite

Typical vegetation: Blackbrush, spiny hopsage, Sandberg bluegrass, and mormon tea
pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 75 to 90 percent by coarse, subrounded gravel; 0 to 5 percent by subrounded cobbles; and 0 to 3 percent by subrounded stones

Depth to a restrictive feature: Lithic bedrock—8 to 19 inches

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 1.5 inches (very low)

Shrink-swell potential: Moderate (LEP 3 to <6)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 7e
Ecological site: R029XY183CA, Shallow Granitic Slope 7-9" p.z.

Typical profile

A—0 to 2 inches; sandy loam
Bt1—2 to 8 inches; gravelly sandy loam
Bt2—8 to 11 inches; gravelly sandy clay loam
Bt3—11 to 17 inches; extremely gravelly sandy clay
R—17 to 27 inches; bedrock

Characteristics of Rock outcrop

Landform: Backslopes of mountains
Land capability classification (nonirrigated areas): 8

Minor components

Lithic Haplargids and similar soils

Extent (percent of map unit): About 5 percent
Slope: 30 to 60 percent
Landform: Backslopes of mountains
Typical vegetation: Mexican bladdersage, Acton's brittlebush, and Eastern Mojave buckwheat
Ecological site: R030XA051CA, Steep Granitic Hills 5-7" p.z.

Typic Haplargids and similar soils

Extent (percent of map unit): About 5 percent
Slope: 30 to 60 percent
Landform: Backslopes of mountains
Typical vegetation: Blackbrush, Sandberg bluegrass, and Eastern Mojave buckwheat
Ecological site: R029XY183CA, Shallow Granitic Slope 7-9" p.z.

Typic Torripsamments and similar soils

Extent (percent of map unit): About 5 percent
Slope: 30 to 60 percent
Landform: Backslopes of mountains
Typical vegetation: Creosote bush, white bursage, and Indian ricegrass
Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

3630—Koehn coarse sand, 2 to 8 percent slopes, very rarely flooded

Map unit setting

General location: The east side of the Cinco quadrangle, near Red Rock State Park
Major uses: Recreation, grazing, and wildlife habitat
MLRA: 30—Mojave Desert
Landscape: Fan piedmonts
Elevation: 2,230 to 2,785 feet (680 to 850 meters)
Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)
Mean annual air temperature: 61 to 68 degrees F (16 to 20 degrees C)
Frost-free period: 200 to 240 days

Map unit composition

Koehn, very rarely flooded—85 percent
Minor components—15 percent

Characteristics of Koehn, very rarely flooded, and similar soils

Slope: 2 to 8 percent

Aspect: Northeast to south

Landform: Summits of fan aprons

Parent material: Alluvium derived from granite

Typical vegetation: Desertsenna, creosote bush, miscellaneous shrubs, white bursage, miscellaneous perennial forbs, and miscellaneous perennial grasses

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 5 to 35 percent by coarse, subrounded gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Very rare

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XY159CA, Gravelly Outwash

Typical profile

A—0 to 1 inch; coarse sand

C—1 to 63 inches; sand

Minor components

Typic Torriorthents, occasionally flooded, and similar soils

Extent (percent of map unit): About 8 percent

Slope: 2 to 4 percent

Landform: Drainageways

Typical vegetation: California broomsage, Eastern Mojave buckwheat, rubber rabbitbrush, desertsenna, and white bursage

Ecological site: R030XA042CA, Sandy Wash

Koehn, rarely flooded, and similar soils

Extent (percent of map unit): About 6 percent

Slope: 2 to 4 percent

Landform: Summits of alluvial fans

Typical vegetation: Cattle saltbush, creosote bush, miscellaneous shrubs, burrobrush, and Indian ricegrass

Ecological site: R030XA020CA, Limy 5-7" p.z.

Typic Torriorthents and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 8 percent

Landform: Stream terraces

Typical vegetation: Cattle saltbush, burrobrush, and creosote bush

Ecological site: R030XA018CA, Dry Wash

3670—Inyo loamy coarse sand, 0 to 9 percent slopes, occasionally flooded

Map unit setting

General location: The east side of the southern Sierra Nevada Mountains

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Fan piedmonts

Elevation: 2,495 to 4,100 feet (762 to 1,250 meters)

Mean annual precipitation: 5 to 8 inches (127 to 203 millimeters)

Mean annual air temperature: 57 to 63 degrees F (14 to 17 degrees C)

Frost-free period: 190 to 220 days

Map unit composition

Inyo—85 percent

Minor components—15 percent

Characteristics of Inyo and similar soils

Slope: 0 to 9 percent

Aspect: Northeast to north

Landform: Footslopes of alluvial and inset fans

Parent material: Alluvium derived from mixed sources

Typical vegetation: Nevada jointfir, rabbitbrush, horsebrush, California buckwheat, Joshua tree, and blackbrush

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 40 to 80 percent by coarse, subangular gravel and 1 to 5 percent by subangular cobbles

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.5 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Occasional

Present annual ponding: None

Surface runoff class: Low

Current water table: None noted

Natural drainage class: Excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R029XF054CA, Dry Wash 8-10" p.z.

Typical profile

A—0 to 12 inches; loamy coarse sand

C—12 to 60 inches; gravelly loamy coarse sand

Minor components

Kelval and similar soils

Extent (percent of map unit): About 7 percent

Slope: 0 to 2 percent
Landform: Flood plains
Ecological site: None assigned

Kernfork wet, flooded, and similar soils

Extent (percent of map unit): About 4 percent
Slope: 0 to 2 percent
Landform: Drainageways and the lower flood plains
Ecological site: None assigned

Urban land

Extent (percent of map unit): About 2 percent
Slope: 0 to 2 percent
Landform: Alluvial fans, flood plains, and mountain valleys
Ecological site: None assigned

Pinyonpeak and similar soils

Extent (percent of map unit): About 1 percent
Slope: 9 to 15 percent
Landform: Backslopes of hills
Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

Riverwash

Extent (percent of map unit): About 1 percent
Slope: 1 to 9 percent
Landform: Drainageways and mountain valleys
Ecological site: None assigned

3671—Inyo loamy coarse sand, 0 to 5 percent slopes

Map unit setting

General location: The east side of the southern Sierra Nevada Mountains
Major uses: Rangeland, recreation, and wildlife habitat
MLRA: 29—Southern Nevada Basin and Range
Landscape: Fan piedmonts
Elevation: 2,495 to 3,995 feet (762 to 1,219 meters)
Mean annual precipitation: 5 to 8 inches (127 to 203 millimeters)
Mean annual air temperature: 57 to 61 degrees F (14 to 16 degrees C)
Frost-free period: 190 to 220 days

Map unit composition

Inyo—75 percent
Minor components—25 percent

Characteristics of Inyo and similar soils

Slope: 0 to 5 percent
Aspect: Southeast to northwest
Landform: Footslopes of alluvial and inset fans
Parent material: Alluvium derived from mixed sources
Typical vegetation: Rabbitbrush, burrobrush, California buckwheat, Nevada jointfir, squirreltail, and Joshua tree

Soil Survey of Jawbone-Butterbredt ACEC Area, California

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 40 to 80 percent by fine, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.5 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Rare

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R029XF054CA, Dry Wash 8-10" p.z.

Typical profile

A—0 to 8 inches; loamy coarse sand

C—8 to 60 inches; gravelly loamy coarse sand

Minor components

Chollawell and similar soils

Extent (percent of map unit): About 9 percent

Slope: 2 to 6 percent

Landform: Alluvial fans and fan remnants

Ecological site: None assigned

Riverwash

Extent (percent of map unit): About 9 percent

Slope: 0 to 2 percent

Landform: Drainageways and intermittent streams

Ecological site: None assigned

Kelval and similar soils

Extent (percent of map unit): About 5 percent

Slope: 0 to 2 percent

Landform: Flood plains

Ecological site: None assigned

Kernfork and similar soils

Extent (percent of map unit): About 1 percent

Slope: 0 to 1 percent

Landform: The lower flood plains

Ecological site: None assigned

Urban land

Extent (percent of map unit): About 1 percent

Slope: 0 to 2 percent

Landform: Alluvial fans

Ecological site: None assigned

3672—Inyo loamy coarse sand, 5 to 15 percent slopes

Map unit setting

General location: The east side of the southern Sierra Nevada Mountains

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Fan piedmonts

Elevation: 2,495 to 4,195 feet (762 to 1,280 meters)

Mean annual precipitation: 6 to 8 inches (153 to 203 millimeters)

Mean annual air temperature: 59 to 61 degrees F (15 to 16 degrees C)

Frost-free period: 190 to 220 days

Map unit composition

Inyo—80 percent

Minor components—20 percent

Characteristics of Inyo and similar soils

Slope: 5 to 15 percent

Aspect: South to north

Landform: Foothills of alluvial and inset fans

Parent material: Alluvium derived from mixed sources

Typical vegetation: Eastern Mojave buckwheat, desert needlegrass, burrobrush, Nevada jointfir, Acton's brittlebush, and Joshua tree

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 40 to 80 percent by fine, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.5 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Rare

Present annual ponding: None

Surface runoff class: Low

Current water table: None noted

Natural drainage class: Excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R029XY189CA, South Sandy Slope 9-11" p.z.

Typical profile

A—0 to 6 inches; loamy coarse sand

C—6 to 60 inches; gravelly loamy coarse sand

Minor components

Chollawell and similar soils

Extent (percent of map unit): About 7 percent

Slope: 2 to 8 percent

Landform: Alluvial fans and fan remnants

Ecological site: None assigned

Kelval and similar soils

Extent (percent of map unit): About 6 percent

Slope: 1 to 2 percent

Landform: Flood plains and stream terraces

Ecological site: None assigned

Riverwash

Extent (percent of map unit): About 5 percent

Slope: 2 to 8 percent

Landform: Drainageways and intermittent streams

Ecological site: None assigned

Unnamed soil

Extent (percent of map unit): About 1 percent

Slope: 2 to 8 percent

Landform: Drainageways and mountain valleys

Ecological site: None assigned

Urban land

Extent (percent of map unit): About 1 percent

Slope: 0 to 2 percent

Landform: Alluvial and inset fans and mountain valleys

Ecological site: None assigned

4160—Dovecanyon-Cutterbank association, 4 to 50 percent slopes

Map unit setting

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,950 to 3,935 feet (900 to 1,200 meters)

Mean annual precipitation: 5 to 7 inches (125 to 178 millimeters)

Mean annual air temperature: 61 to 68 degrees F (16 to 20 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Dovecanyon—70 percent

Cutterbank—15 percent

Minor components—15 percent

Characteristics of Dovecanyon and similar soils

Slope: 4 to 15 percent

Aspect: North to south

Landform: Summits of fan remnants

Parent material: Alluvium derived from granite

Typical vegetation: Blackbrush, creosote bush, Sandberg bluegrass, and white bursage

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 35 to 60 percent by medium, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.6 inches (low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 7e
Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand
ABt—2 to 5 inches; coarse sandy loam
Bt1 and Bt2—5 to 36 inches; gravelly coarse sandy loam
Bt3 and Bt4—36 to 63 inches; gravelly loamy coarse sand
Bt5 and Bt6—63 to 79 inches; gravelly coarse sandy loam

Characteristics of Cutterbank and similar soils

Slope: 15 to 50 percent
Aspect: North to south
Landform: Uplifted, eroded backslopes of relict lakebeds
Parent material: Lacustrine deposits derived from granite
Typical vegetation: Blackbrush, Sandberg bluegrass, creosote bush, white bursage, Fremont's dalea, desert needlegrass, and Nevada jointfir
pH in the surface layer: 7.8
Percentage of the surface covered by rock fragments: 15 to 40 percent by fine, subrounded gravel; 5 to 30 percent by coarse, subrounded gravel; 0 to 15 percent by subrounded cobbles; 0 to 5 percent by subrounded stones; and 0 to 2 percent by subrounded boulders
Depth to a restrictive feature: Dense material—4 to 14 inches
Slowest rate of saturated hydraulic conductivity: Moderately low
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.7 inch (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: R030XA047CA, Shallow Granitic Slope 5-7" p.z.

Typical profile

A—0 to 1 inch; fine sandy loam

Bk—1 to 9 inches; gravelly sandy loam
Cdk—9 to 59 inches; sandy loam

Minor components

Dovecanyon, warm, and similar soils

Extent (percent of map unit): About 5 percent

Slope: 2 to 8 percent

Landform: Smooth fan remnants

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

Typic Haplargids and similar soils

Extent (percent of map unit): About 5 percent

Slope: 4 to 15 percent

Landform: The upper backslopes of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, white bursage, and creosote bush

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Typic Torriorthents, dry, and similar soils

Extent (percent of map unit): About 3 percent

Slope: 15 to 50 percent

Landform: The upper backslopes of fan remnants

Typical vegetation: White bursage, creosote bush, miscellaneous shrubs, desert needlegrass, and Indian ricegrass

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Koehn, rarely flooded, and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 8 percent

Landform: Drainageways

Typical vegetation: Cattle saltbush, creosote bush, miscellaneous shrubs, burrobrush, and Indian ricegrass

Ecological site: R030XA018CA, Dry Wash

4161—Dovecanyon loamy sand, 2 to 8 percent slopes

Map unit setting

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,950 to 4,000 feet (900 to 1,220 meters)

Mean annual precipitation: 5 to 7 inches (127 to 178 millimeters)

Mean annual air temperature: 61 to 64 degrees F (16 to 18 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Dovecanyon—85 percent

Minor components—15 percent

Characteristics of Dovecanyon and similar soils

Slope: 2 to 8 percent

Aspect: North to southeast

Landform: Summits of fan remnants

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Parent material: Alluvium derived from granite

Typical vegetation: Blackbrush, creosote bush, Sandberg bluegrass, and white bursage

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 35 to 60 percent by medium, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand

ABt—2 to 5 inches; coarse sandy loam

Bt1 and Bt2—5 to 36 inches; gravelly coarse sandy loam

Bt3 and Bt4—36 to 63 inches; gravelly loamy coarse sand

Bt5 and Bt6—63 to 79 inches; gravelly coarse sandy loam

Minor components

Typic Haplargids and similar soils

Extent (percent of map unit): About 5 percent

Slope: 2 to 8 percent

Landform: The upper backslopes of fan remnants

Typical vegetation: Blackbrush, creosote bush, Sandberg bluegrass, and white bursage

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Dovecanyon, warm, and similar soils

Extent (percent of map unit): About 4 percent

Slope: 2 to 8 percent

Landform: The lower elevation summits of fan remnants

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

Goldpeak and similar soils

Extent (percent of map unit): About 3 percent

Slope: 2 to 8 percent

Landform: The upper elevation summits of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typic Torriorthents and similar soils

Extent (percent of map unit): About 2 percent

Slope: 8 to 30 percent

Landform: The upper backslopes of fan remnants

Typical vegetation: Blackbrush, creosote bush, white bursage, and Indian ricegrass

Ecological site: R030XA047CA, Shallow Granitic Slope 5-7" p.z.

Koehn and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 4 percent

Landform: Inset fans

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

4170—Dovecanyon association, 2 to 8 percent slopes

Map unit setting

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,295 to 4,000 feet (700 to 1,220 meters)

Mean annual precipitation: 5 to 7 inches (127 to 178 millimeters)

Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Dovecanyon, warm—50 percent

Dovecanyon—35 percent

Minor components—15 percent

Characteristics of Dovecanyon, warm, and similar soils

Slope: 2 to 8 percent

Aspect: North to south

Landform: The lower elevation summits of fan remnants

Parent material: Alluvium derived from granite

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 35 to 60 percent by medium, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA020CA, Limy 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand

ABt—2 to 5 inches; coarse sandy loam

Bt1 and Bt2—5 to 36 inches; gravelly coarse sandy loam

Bt3 and Bt4—36 to 63 inches; gravelly loamy coarse sand

Bt5 and Bt6—63 to 79 inches; gravelly coarse sandy loam

Characteristics of Dovecanyon and similar soils

Slope: 2 to 8 percent

Aspect: North to south

Landform: The upper elevation summits of fan remnants

Parent material: Alluvium derived from granite

Typical vegetation: Blackbrush, creosote bush, Sandberg bluegrass, and white bursage

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 35 to 60 percent by medium, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Low

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand

ABt—2 to 5 inches; coarse sandy loam

Bt1 and Bt2—5 to 36 inches; gravelly coarse sandy loam

Bt3 and Bt4—36 to 63 inches; gravelly loamy coarse sand

Bt5 and Bt6—63 to 79 inches; gravelly coarse sandy loam

Minor components

Koehn and similar soils

Extent (percent of map unit): About 7 percent

Slope: 2 to 4 percent

Landform: Smooth summits of fan aprons

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

Goldpeak and similar soils

Extent (percent of map unit): About 5 percent

Slope: 2 to 8 percent

Landform: The upper elevation summits of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typic Torriorthents and similar soils

Extent (percent of map unit): About 3 percent

Slope: 4 to 15 percent

Landform: Convex shoulders of fan remnants

Typical vegetation: Blackbrush, creosote bush, Sandberg bluegrass, and white bursage

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

4171—Dovecanyon-Koehn association, 2 to 8 percent slopes

Map unit setting

Major uses: Recreation, wildlife habitat, and grazing

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,995 to 4,195 feet (914 to 1,280 meters)

Mean annual precipitation: 5 to 7 inches (125 to 178 millimeters)

Mean annual air temperature: 61 to 68 degrees F (16 to 20 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Dovecanyon, warm—70 percent

Koehn, dry—20 percent

Minor components—10 percent

Characteristics of Dovecanyon, warm, and similar soils

Slope: 2 to 8 percent

Aspect: North to south

Landform: Summits of fan remnants

Parent material: Alluvium derived from granite

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 35 to 60 percent by medium, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA020CA, Limy 5-7" p.z.

Typical profile

A—0 to 2 inches; loamy sand

ABt—2 to 5 inches; coarse sandy loam

Bt1 and Bt2—5 to 36 inches; gravelly coarse sandy loam

Bt3 and Bt4—36 to 63 inches; gravelly loamy coarse sand

Bt5 and Bt6—63 to 79 inches; gravelly coarse sandy loam

Characteristics of Koehn, dry, and similar soils

Slope: 2 to 8 percent

Aspect: North to south

Landform: Summits of fan aprons

Parent material: Alluvium derived from granite

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 5 to 10 percent by fine, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.7 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA020CA, Limy 5-7" p.z.

Typical profile

A—0 to 1 inch; sand

C—1 to 63 inches; sand

Minor components

Dovecanyon, sloping, and similar soils

Extent (percent of map unit): About 3 percent

Slope: 4 to 15 percent

Landform: Backslopes of fan remnants

Typical vegetation: White bursage, Sandberg bluegrass, miscellaneous shrubs, spiny hopsage, and winterfat

Ecological site: R030XA044CA, Droughty Sand 5-7" p.z.

Dovecanyon, cool, and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 8 percent

Landform: The upper elevation summits of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, white bursage, and creosote bush

Ecological site: R030XA048CA, Shallow Granitic Loam 5-7" p.z.

Garlock and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 8 percent

Landform: Summits of fan remnants

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

Koehn, occasionally flooded, and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 8 percent

Landform: Drainageways

Typical vegetation: Cattle saltbush, creosote bush, miscellaneous shrubs, burrobrush, and Indian ricegrass

Ecological site: R030XA018CA, Dry Wash

Koehn, rarely flooded, and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 4 percent

Landform: Drainageways

Typical vegetation: Creosote bush, burrobrush, cattle saltbush, white bursage, and desert needlegrass

Ecological site: R030XA065NV, Dry Wash

Typic Haplocalcids and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 4 percent

Landform: Smooth summits of fan remnants

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

4430—Koehn coarse sand, 2 to 8 percent slopes

Map unit setting

Major uses: Recreation, wildlife habitat, and grazing

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,995 to 3,605 feet (914 to 1,100 meters)

Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)

Mean annual air temperature: 61 to 68 degrees F (16 to 20 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Koehn—80 percent

Minor components—20 percent

Characteristics of Koehn and similar soils

Slope: 2 to 8 percent

Aspect: Northwest to southwest

Landform: Summits of inset fans

Parent material: Alluvium derived from granite

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 35 to 60 percent by medium, subrounded gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.5 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Rare

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA020CA, Limy 5-7" p.z.

Typical profile

A—0 to 1 inch; coarse sand

C—1 to 63 inches; sand

Minor components

Koehn, steep, and similar soils

Extent (percent of map unit): About 10 percent

Slope: 50 to 75 percent

Landform: Steep backslopes of fan remnants

Typical vegetation: White bursage, creosote bush, miscellaneous shrubs, desert needlegrass, and Indian ricegrass

Ecological site: R030XA054NV, Limy Hill 5-7" p.z.

Koehn, occasionally flooded, and similar soils

Extent (percent of map unit): About 10 percent

Slope: 2 to 4 percent

Landform: Summits of inset fans

Typical vegetation: Creosote bush, burrobrush, cattle saltbush, white bursage, and desert needlegrass

Ecological site: R030XA065NV, Dry Wash

4431—Koehn sand, 2 to 4 percent slopes, frequently flooded

Map unit setting

Major uses: Recreation, wildlife habitat, and grazing

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,395 to 3,195 feet (731 to 975 meters)

Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)

Mean annual air temperature: 61 to 68 degrees F (16 to 20 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Koehn, frequently flooded—90 percent

Minor components—10 percent

Characteristics of Koehn, frequently flooded, and similar soils

Slope: 2 to 4 percent

Aspect: Northeast to southwest

Landform: Drainageways

Parent material: Alluvium derived from granite

Typical vegetation: California broomsage, Eastern Mojave buckwheat, rubber rabbitbrush, desertsenna, and white bursage

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 5 to 35 percent by coarse, subrounded gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Frequent

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA042CA, Sandy Wash

Typical profile

A—0 to 1 inch; sand

C—1 to 63 inches; sand

Minor components

Koehn, very rarely flooded, and similar soils

Extent (percent of map unit): About 5 percent

Slope: 2 to 4 percent

Landform: Summits of inset fans

Typical vegetation: Creosote bush, burrobrush, cattle saltbush, white bursage, and desert needlegrass

Ecological site: R030XA065NV, Dry Wash

Koehn and similar soils

Extent (percent of map unit): About 5 percent

Slope: 2 to 8 percent

Landform: Summits of fan aprons

Typical vegetation: White bursage, creosote bush, desert needlegrass, miscellaneous shrubs, winterfat, and spiny hopsage

Ecological site: R030XA020CA, Limy 5-7" p.z.

4432—Koehn association, 2 to 4 percent slopes

Map unit setting

General location: Jawbone wash

Major uses: Recreation, grazing, and wildlife habitat

MLRA: 30—Mojave Desert

Landscape: Fan piedmonts

Elevation: 2,355 to 2,755 feet (719 to 840 meters)

Mean annual precipitation: 5 to 7 inches (125 to 175 millimeters)

Mean annual air temperature: 61 to 68 degrees F (16 to 20 degrees C)

Frost-free period: 200 to 270 days

Map unit composition

Koehn, occasionally flooded—70 percent

Koehn, frequently flooded—15 percent

Minor components—15 percent

Characteristics of Koehn, occasionally flooded, and similar soils

Slope: 2 to 4 percent

Aspect: North to south

Landform: Summits of inset fans

Parent material: Alluvium derived from granite

Typical vegetation: Cattle saltbush and Indian ricegrass

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 5 to 30 percent by fine, subrounded gravel; 2 to 5 percent by coarse, subrounded gravel; and 0 to 1 percent by subrounded cobbles

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Occasional

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XY047NV, Alluvial Plain

Typical profile

A—0 to 1 inch; sand

C—1 to 63 inches; sand

Characteristics of Koehn, frequently flooded, and similar soils

Slope: 2 to 4 percent

Aspect: North to south

Landform: Drainageways

Parent material: Alluvium derived from mixed sources

Typical vegetation: California broomsage and California buckwheat

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 0 percent

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.6 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Frequent

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R030XA042CA, Sandy Wash

Typical profile

A—0 to 1 inch; sand

C—1 to 63 inches; sand

Minor components

Koehn, very rarely flooded, and similar soils

Extent (percent of map unit): About 10 percent

Slope: 2 to 4 percent

Landform: Summits of inset fans

Typical vegetation: Cattle saltbush, burrobrush, creosote bush, and Indian ricegrass

Ecological site: R030XA018CA, Dry Wash

Typic Torripsamments and similar soils

Extent (percent of map unit): About 3 percent

Slope: 2 to 8 percent

Landform: Summits of fan aprons

Typical vegetation: White bursage, creosote bush, and desert needlegrass

Ecological site: R030XA020CA, Limy 5-7" p.z.

Riverwash

Extent (percent of map unit): About 2 percent

Slope: 2 to 4 percent

Landform: Active drainageways
Ecological site: None assigned

4435—Kernfork fine sandy loam, 0 to 2 percent slopes, frequently flooded

Map unit setting

General location: The southern Sierra Nevada Mountains
Major uses: Rangeland, recreation, and wildlife habitat
MLRA: 29—Southern Nevada Basin and Range
Landscape: Intermontane basins
Elevation: 2,595 to 2,995 feet (792 to 914 meters)
Mean annual precipitation: 6 to 9 inches (152 to 229 millimeters)
Mean annual air temperature: 61 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 200 to 220 days

Map unit composition

Kernfork—80 percent
Minor components—20 percent

Characteristics of Kernfork and similar soils

Slope: 0 to 2 percent
Aspect: Southeast to north
Landform: Toeslopes on flood plains; stream terraces
Parent material: Alluvium derived from granitoid rocks
Typical vegetation: Arroyo willow, saltgrass, cottonwood, and rubber rabbitbrush
pH in the surface layer: 7.5
Percentage of the surface covered by rock fragments: 5 to 15 percent by fine, subangular gravel
Restrictive feature: None noted
Slowest rate of saturated hydraulic conductivity: High
Salinity: Not saline
Sodicity: Sodic within 40 inches
Available water capacity to a depth of 60 inches: About 7.1 inches (moderate)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Frequent
Present annual ponding: Rare
Surface runoff class: Very low
Current water table: Present
Natural drainage class: Somewhat poorly drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 7w
Ecological site: None assigned

Typical profile

Ap—0 to 10 inches; fine sandy loam
Bg—10 to 31 inches; sandy loam
Cg—31 to 60 inches; stratified loamy sand to silt loam

Minor components

Kelval and similar soils

Extent (percent of map unit): About 9 percent

Slope: 0 to 2 percent

Landform: Flood plains and mountain valleys

Ecological site: None assigned

Inyo, gently sloping, and similar soils

Extent (percent of map unit): About 8 percent

Slope: 1 to 5 percent

Landform: Alluvial and inset fans

Ecological site: None assigned

Aquolls wet, flooded, and similar soils

Extent (percent of map unit): About 1 percent

Slope: 0 to 2 percent

Landform: Closed depressions and the lower flood plains

Ecological site: None assigned

Riverwash

Extent (percent of map unit): About 1 percent

Slope: 0 to 2 percent

Landform: Channels and drainageways

Ecological site: None assigned

Southlake and similar soils

Extent (percent of map unit): About 1 percent

Slope: 1 to 4 percent

Landform: Fan remnants and mountain valleys

Ecological site: None assigned

4436—Inyo-Riverwash complex, 0 to 5 percent slopes, frequently flooded

Map unit setting

General location: The east side of the southern Sierra Nevada Mountains

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Mountains and intermontane basins

Elevation: 2,600 to 2,995 feet (793 to 914 meters)

Mean annual precipitation: 5 to 8 inches (127 to 203 millimeters)

Mean annual air temperature: 57 to 63 degrees F (14 to 17 degrees C)

Frost-free period: 190 to 220 days

Map unit composition

Inyo—60 percent

Riverwash—25 percent

Minor components—15 percent

Characteristics of Inyo and similar soils

Slope: 0 to 5 percent

Aspect: Northwest to southwest

Landform: Footslopes of stream terraces

Parent material: Alluvium derived from mixed sources

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Typical vegetation: California broomsage, Eastern Mojave buckwheat, rubber rabbitbrush, desertsenna, and white bursage

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 50 to 80 percent by coarse, subangular gravel and 0 to 10 percent by subangular cobbles

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.5 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Frequent

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 6w

Ecological site: R030XA042CA, Sandy Wash

Typical profile

A—0 to 14 inches; loamy coarse sand

C—14 to 60 inches; gravelly loamy coarse sand

Characteristics of Riverwash

Slope: 1 to 5 percent

Aspect: Northwest to southwest

Landform: Toeslopes of drainageways; intermittent streams

Kind of material: Alluvium derived from granitoid rocks

Percentage of the surface covered by rock fragments: 0 percent

Restrictive feature: None noted

Salinity: Not saline

Sodicity: Not sodic

Hydrologic properties

Present annual flooding: Frequent

Present annual ponding: None

Surface runoff class: High

Current water table: Present

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: None assigned

Minor components

Kernfork, flooded, and similar soils

Extent (percent of map unit): About 10 percent

Slope: 0 to 2 percent

Landform: Stream terraces

Ecological site: None assigned

Goodale, stony and bouldery, and similar soils

Extent (percent of map unit): About 5 percent

Slope: 0 to 5 percent

Landform: Channels

Ecological site: None assigned

5201—Wingap-Pinyonpeak association, 8 to 30 percent slopes

Map unit setting

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Mountains and hills

Elevation: 3,690 to 5,575 feet (1,125 to 1,700 meters)

Mean annual precipitation: 7 to 9 inches (180 to 230 millimeters)

Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)

Frost-free period: 165 to 220 days

Map unit composition

Wingap—55 percent

Pinyonpeak—30 percent

Minor components—15 percent

Characteristics of Wingap and similar soils

Slope: 8 to 30 percent

Aspects: All

Landform: The lower backslopes and footslopes of mountains

Parent material: Colluvium over residuum weathered from granite

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

pH in the surface layer: 6.8

Percentage of the surface covered by rock fragments: 45 to 65 percent by medium, subangular gravel

Depth to a restrictive feature: Paralithic bedrock—39 to 59 inches

Slowest rate of saturated hydraulic conductivity: Low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.0 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Medium

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 6e

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 3 inches; loamy coarse sand

Bt1—3 to 14 inches; loamy sand
Bt2—14 to 41 inches; gravelly coarse sandy loam
C—41 to 54 inches; gravelly loamy coarse sand
Cr—54 to 64 inches; soft bedrock

Characteristics of Pinyonpeak and similar soils

Slope: 8 to 30 percent
Aspects: All
Landform: Backslopes of hills
Parent material: Colluvium and/or residuum weathered from granite
Typical vegetation: Blackbrush, Sandberg bluegrass, California buckwheat, Cooper's goldenbush, Nevada jointfir, and green rabbitbrush
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 60 to 90 percent by fine, angular gravel
Depth to restrictive features: Paralithic bedrock—6 to 14 inches; lithic bedrock—12 to 20 inches
Slowest rate of saturated hydraulic conductivity: Low
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly sandy loam
Bt—2 to 6 inches; gravelly coarse sandy loam
Ct—6 to 8 inches; gravel
Crt—8 to 16 inches; bedrock
R—16 to 26 inches; bedrock

Minor components

Grandora, warm, and similar soils

Extent (percent of map unit): About 7 percent
Slope: 30 to 60 percent
Landform: The upper elevation, south-facing backslopes of mountains
Typical vegetation: Eastern Mojave buckwheat, Sandberg bluegrass, desert needlegrass, narrowleaf goldenbush, and mormon tea
Ecological site: R029XY189CA, South Sandy Slope 9-11" p.z.

Dovecanyon and similar soils

Extent (percent of map unit): About 4 percent
Slope: 4 to 15 percent
Landform: South-facing summits of fan remnants

Typical vegetation: Blackbrush, creosote bush, white bursage, and Indian ricegrass
Ecological site: R030XA047CA, Shallow Granitic Slope 5-7" p.z.

Goldpeak and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 8 percent

Landform: Summits of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Rock outcrop

Extent (percent of map unit): About 2 percent

Landform: Backslopes of hills

Ecological site: None assigned

5205—Scodie-Grandora association, 15 to 60 percent slopes

Map unit setting

General location: The southern tip of the Sierra Nevada Mountains and the northwestern part of the Mojave Desert in the Kiavah Mountains

Major uses: Recreation, wildlife habitat, and rangeland

MLRA: 29—Southern Nevada Basin and Range

Landscape: Mountains

Elevation: 4,590 to 6,820 feet (1,400 to 2,080 meters)

Mean annual precipitation: 10 to 12 inches (250 to 300 millimeters)

Mean annual air temperature: 46 to 55 degrees F (8 to 13 degrees C)

Frost-free period: 120 to 180 days

Map unit composition

Scodie—65 percent

Grandora—20 percent

Minor components—15 percent

Characteristics of Scodie and similar soils

Slope: 30 to 60 percent

Aspect: West to east

Landform: The upper elevation, north-facing backslopes of mountains

Parent material: Colluvium and/or residuum weathered from granite

Typical vegetation: Sandberg bluegrass, bastardsage, mormon tea, mountain big sagebrush, singleleaf pinyon, and sulfur-flower buckwheat

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 55 to 75 percent by fine, angular gravel and 5 to 15 percent by medium, angular gravel

Depth to restrictive features: Paralithic bedrock—8 to 20 inches; lithic bedrock—20 to 39 inches

Slowest rate of saturated hydraulic conductivity: Low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.7 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: F029XY001CA, Pinus monophylla/Artemisia tridentata-Eriogonum wrightii

Typical profile

A—0 to 5 inches; gravelly coarse sand
ABt—5 to 15 inches; gravelly coarse sand
Crt—15 to 24 inches; bedrock
R—24 to 33 inches; bedrock

Characteristics of Grandora and similar soils

Slope: 15 to 50 percent
Aspect: West to southeast
Landform: Lower elevation, north-facing backslopes of mountains
Parent material: Colluvium and/or residuum weathered from granite
Typical vegetation: Mountain big sagebrush, desert needlegrass, bastardsage, and mormon tea
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: 40 to 60 percent by fine, angular gravel and 0 to 20 percent by medium, angular gravel
Restrictive feature: None noted
Slowest rate of saturated hydraulic conductivity: High
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.0 inches (low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Medium
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 6e
Ecological site: R029XY186CA, Sandy Slope 10-12" p.z.

Typical profile

A—0 to 3 inches; coarse sand
Bt—3 to 60 inches; sand

Minor components

Grandora, warm, and similar soils

Extent (percent of map unit): About 8 percent
Slope: 30 to 60 percent
Landform: South-facing backslopes of mountains

Typical vegetation: Eastern Mojave buckwheat, Sandberg bluegrass, desert needlegrass, narrowleaf goldenbush, and mormon tea
Ecological site: R029XY189CA, South Sandy Slope 9-11" p.z.

Rock outcrop

Extent (percent of map unit): About 4 percent
Landform: Backslopes of mountains
Ecological site: None assigned

Pinyonpeak and similar soils

Extent (percent of map unit): About 3 percent
Slope: 8 to 30 percent
Landform: Foothills of mountains
Typical vegetation: Blackbrush, Sandberg bluegrass, California buckwheat, Cooper's goldenbush, Nevada jointfir, and green rabbitbrush
Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

5210—Grandora-Pinyonpeak association, 8 to 60 percent slopes

Map unit setting

General location: The southern tip of the Sierra Nevada Mountains and the northwestern part of the Mojave Desert in the Kiavah Mountains
Major uses: Recreation, wildlife habitat, and rangeland
MLRA: 29—Southern Nevada Basin and Range
Landscape: Mountains
Elevation: 3,690 to 6,000 feet (1,125 to 1,830 meters)
Mean annual precipitation: 7 to 12 inches (180 to 300 millimeters)
Mean annual air temperature: 48 to 61 degrees F (9 to 16 degrees C)
Frost-free period: 140 to 220 days

Map unit composition

Grandora—30 percent
Grandora, warm—30 percent
Pinyonpeak—30 percent
Minor components—10 percent

Characteristics of Grandora and similar soils

Slope: 30 to 60 percent
Aspect: West to southeast
Landform: North-facing backslopes of mountains
Parent material: Colluvium and/or residuum weathered from granite
Typical vegetation: Mountain big sagebrush, desert needlegrass, bastardsage, and mormon tea
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: 40 to 60 percent by fine, angular gravel and 0 to 20 percent by medium, angular gravel
Restrictive feature: None noted
Slowest rate of saturated hydraulic conductivity: High
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.0 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Medium

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R029XY186CA, Sandy Slope 10-12" p.z.

Typical profile

A—0 to 3 inches; coarse sand

Bt—3 to 60 inches; sand

Characteristics of Grandora, warm, and similar soils

Slope: 15 to 50 percent

Aspect: Southeast to west

Landform: South-facing backslopes of mountains

Parent material: Colluvium and/or residuum weathered from granite

Typical vegetation: Eastern Mojave buckwheat, Sandberg bluegrass, desert needlegrass, narrowleaf goldenbush, and mormon tea

pH in the surface layer: 6.8

Percentage of the surface covered by rock fragments: 50 to 60 percent by fine, angular gravel and 5 to 15 percent by medium, angular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.0 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Medium

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R029XY189CA, South Sandy Slope 9-11" p.z.

Typical profile

A—0 to 2 inches; coarse sand

Bt—2 to 60 inches; loamy sand

Characteristics of Pinyonpeak and similar soils

Slope: 8 to 30 percent

Aspects: All

Landform: Shoulders of mountains

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Parent material: Colluvium and/or residuum weathered from granite

Typical vegetation: California buckwheat, Sandberg bluegrass, desert needlegrass, Cooper's goldenbush, Joshua tree, and Nevada jointfir

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 60 to 90 percent by fine, angular gravel

Depth to restrictive features: Paralithic bedrock—6 to 14 inches; lithic bedrock—12 to 20 inches

Slowest rate of saturated hydraulic conductivity: Low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.6 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly sandy loam

Bt—2 to 6 inches; gravelly coarse sandy loam

Ct—6 to 8 inches; gravel

Crt—8 to 16 inches; bedrock

R—16 to 26 inches; bedrock

Minor components

Inyo and similar soils

Extent (percent of map unit): About 5 percent

Slope: 4 to 15 percent

Landform: Backslopes of inset fans

Typical vegetation: Rubber rabbitbrush, peach thorn, burrobrush, mormon tea, and mountain big sagebrush

Ecological site: R029XF054CA, Dry Wash 8-10" p.z.

Rock outcrop

Extent (percent of map unit): About 3 percent

Landform: Backslopes of mountains

Ecological site: None assigned

Scodie and similar soils

Extent (percent of map unit): About 2 percent

Slope: 30 to 60 percent

Landform: The upper elevation, north-facing backslopes of mountains

Typical vegetation: Sandberg bluegrass, bastardsage, mormon tea, mountain big sagebrush, singleleaf pinyon, and sulfur-flower buckwheat

Ecological site: F029XY001CA, Pinus monophylla/Artemisia tridentata-Eriogonum wrightii

5500—Birdcanyon coarse sand, 4 to 15 percent slopes

Map unit setting

General location: The southern tip of the Sierra Nevada Mountains and the northwestern part of the Mojave Desert in the Kiavah Mountains

Major uses: Recreation, wildlife habitat, and rangeland

MLRA: 29—Southern Nevada Basin and Range

Landscape: Fan piedmonts

Elevation: 3,805 to 4,805 feet (1,160 to 1,465 meters)

Mean annual precipitation: 7 to 9 inches (180 to 230 millimeters)

Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)

Frost-free period: 165 to 220 days

Map unit composition

Birdcanyon—85 percent

Minor components—15 percent

Characteristics of Birdcanyon and similar soils

Slope: 4 to 15 percent

Aspects: All

Landform: Summits of fan aprons

Parent material: Alluvium derived from granite

Typical vegetation: Burrobrush, desert needlegrass, longspine horsebrush, Joshua tree, Sandberg bluegrass, Cooper's goldenbush, Nevada jointfir, and rayless goldenhead

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 35 to 50 percent by fine, subangular gravel and 5 to 15 percent by medium, subangular gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: High

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 3.5 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: Rare

Present annual ponding: None

Surface runoff class: Low

Current water table: None noted

Natural drainage class: Somewhat excessively drained

Hydrologic soil group: A

Interpretive groups

Land capability classification (nonirrigated areas): 7e

Ecological site: R029XY190CA, Droughty Sand 7-9" p.z.

Typical profile

A—0 to 2 inches; coarse sand

C—2 to 61 inches; sand

Minor components

Goldpeak and similar soils

Extent (percent of map unit): About 7 percent

Slope: 2 to 8 percent

Landform: Summits of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typic Haplargids and similar soils

Extent (percent of map unit): About 4 percent

Slope: 2 to 8 percent

Landform: Summits of fan remnants

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Pinyonpeak and similar soils

Extent (percent of map unit): About 3 percent

Slope: 4 to 15 percent

Landform: Backslopes of hills

Typical vegetation: Blackbrush, Sandberg bluegrass, California buckwheat, Cooper's goldenbush, Nevada jointfir, and green rabbitbrush

Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

Rock outcrop

Extent (percent of map unit): About 1 percent

Landform: Backslopes of hills

Ecological site: None assigned

6001—Goldpeak-Pinyonpeak-Wingap complex, 2 to 30 percent slopes

Map unit setting

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Mountains and hills

Elevation: 3,690 to 5,575 feet (1,125 to 1,700 meters)

Mean annual precipitation: 7 to 9 inches (180 to 230 millimeters)

Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)

Frost-free period: 165 to 220 days

Map unit composition

Goldpeak—55 percent

Pinyonpeak—15 percent

Wingap—15 percent

Minor components—15 percent

Characteristics of Goldpeak and similar soils

Slope: 2 to 8 percent

Aspect: North to southwest

Landform: Summits of fan remnants

Parent material: Alluvium derived from granite

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 30 to 50 percent by fine, subrounded gravel and 0 to 15 percent by medium, subrounded gravel

Restrictive feature: None noted
Slowest rate of saturated hydraulic conductivity: Moderately high
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.9 inches (moderate)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 6e
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly loamy sand
Bt—2 to 94 inches; gravelly coarse sandy loam

Characteristics of Pinyonpeak and similar soils

Slope: 8 to 30 percent
Aspects: All
Landform: Backslopes of hills; rock pediments
Parent material: Colluvium and/or residuum weathered from granite
Typical vegetation: Blackbrush, Sandberg bluegrass, Cooper's goldenbush, Eastern Mojave buckwheat, Nevada jointfir, and green rabbitbrush
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 60 to 90 percent by fine, angular gravel
Depth to restrictive features: Paralithic bedrock—6 to 14 inches; lithic bedrock—12 to 20 inches
Slowest rate of saturated hydraulic conductivity: Low
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly sandy loam
Bt—2 to 6 inches; gravelly coarse sandy loam
Ct—6 to 8 inches; gravel

Crt—8 to 16 inches; bedrock
R—16 to 26 inches; bedrock

Characteristics of Wingap and similar soils

Slope: 4 to 15 percent

Aspects: All

Landform: Footslopes of hills

Parent material: Colluvium over residuum weathered from granite

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

pH in the surface layer: 6.8

Percentage of the surface covered by rock fragments: 45 to 65 percent by medium, subangular gravel

Depth to a restrictive feature: Paralithic bedrock—39 to 59 inches

Slowest rate of saturated hydraulic conductivity: Low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.0 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Low

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 6e

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 3 inches; loamy coarse sand

Bt1—3 to 14 inches; loamy sand

Bt2—14 to 41 inches; gravelly coarse sandy loam

C—41 to 54 inches; gravelly loamy coarse sand

Cr—54 to 60 inches; soft bedrock

Minor components

Typic Torriorthents and similar soils

Extent (percent of map unit): About 7 percent

Slope: 8 to 30 percent

Landform: Eroded backslopes of rock pediments

Typical vegetation: Blackbrush, Sandberg bluegrass, Eastern Mojave buckwheat, Nevada jointfir, burrobrush, and spiny hopsage

Ecological site: R029XY183CA, Shallow Granitic Slope 7-9" p.z.

Goldpeak, moist, and similar soils

Extent (percent of map unit): About 5 percent

Slope: 4 to 15 percent

Landform: Footslopes of hills

Typical vegetation: Blackbrush, Joshua tree, Sandberg bluegrass, and narrowleaf goldenbush

Ecological site: R029XY184CA, Shallow Granitic Footslope 7-9" p.z.

Inyo, occasionally flooded, and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 8 percent

Landform: Summits of inset fans

Typical vegetation: Rubber rabbitbrush, peach thorn, burrobrush, mountain big sagebrush, and mormon tea

Ecological site: R029XF054CA, Dry Wash 8-10" p.z.

Rock outcrop

Extent (percent of map unit): About 1 percent

Landform:

Ecological site: None assigned

6002—Goldpeak gravelly loamy sand, 2 to 8 percent slopes

Map unit setting

Major uses: Recreation, wildlife habitat, and rangeland

MLRA: 29—Southern Nevada Basin and Range

Landscape: Fan piedmonts

Elevation: 3,705 to 4,140 feet (1,130 to 1,262 meters)

Mean annual precipitation: 7 to 9 inches (180 to 230 millimeters)

Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)

Frost-free period: 165 to 220 days

Map unit composition

Goldpeak—85 percent

Minor components—15 percent

Characteristics of Goldpeak and similar soils

Slope: 2 to 8 percent

Aspect: West to east

Landform: Summits of fan remnants

Parent material: Alluvium derived from granite

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 30 to 50 percent by fine, subrounded gravel and 0 to 15 percent by medium, subrounded gravel

Restrictive feature: None noted

Slowest rate of saturated hydraulic conductivity: Moderately high

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 6.9 inches (moderate)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very low

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 6e
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly loamy sand
Bt—2 to 94 inches; gravelly coarse sandy loam

Minor components

Typic Haplargids, fine-loamy, and similar soils

Extent (percent of map unit): About 7 percent
Slope: 2 to 8 percent
Landform: Summits of fan remnants
Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typic Haplargids, coarse-loamy, and similar soils

Extent (percent of map unit): About 4 percent
Slope: 8 to 30 percent
Landform: Backslopes of fan remnants
Typical vegetation: Blackbrush, Sandberg bluegrass, Eastern Mojave buckwheat, Nevada jointfir, burrobrush, and spiny hopsage
Ecological site: R029XY183CA, Shallow Granitic Slope 7-9" p.z.

Inyo, occasionally flooded, and similar soils

Extent (percent of map unit): About 2 percent
Slope: 2 to 8 percent
Landform: Summits of inset fans
Typical vegetation: Mountain big sagebrush, rubber rabbitbrush, Sandberg bluegrass, burrobrush, peach thorn, and mormon tea
Ecological site: R029XF054CA, Dry Wash 8-10" p.z.

Pinyonpeak and similar soils

Extent (percent of map unit): About 2 percent
Slope: 4 to 15 percent
Landform: Backslopes of hills
Typical vegetation: Blackbrush, Sandberg bluegrass, California buckwheat, Cooper's goldenbush, Nevada jointfir, and green rabbitbrush
Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

6003—Goldpeak-Pinyonpeak association, 2 to 30 percent slopes

Map unit setting

Major uses: Recreation, wildlife habitat, and rangeland
MLRA: 29—Southern Nevada Basin and Range
Landscape: Fan piedmonts and hills
Elevation: 4,035 to 5,000 feet (1,230 to 1,525 meters)
Mean annual precipitation: 7 to 9 inches (180 to 230 millimeters)
Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)
Frost-free period: 165 to 220 days

Map unit composition

Goldpeak—35 percent
Goldpeak, steep—30 percent
Pinyonpeak—20 percent
Minor components—15 percent

Characteristics of Goldpeak and similar soils

Slope: 2 to 8 percent
Aspect: West to east
Landform: Summits of fan remnants
Parent material: Alluvium derived from granite
Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: 40 to 60 percent by fine, subrounded gravel and 5 to 20 percent by coarse, subrounded gravel
Restrictive feature: None noted
Slowest rate of saturated hydraulic conductivity: Moderately high
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.9 inches (moderate)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability classification (nonirrigated areas): 6e
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile
A—0 to 3 inches; gravelly loamy sand
Bt—3 to 94 inches; gravelly coarse sandy loam

Characteristics of Goldpeak, steep, and similar soils

Slope: 8 to 30 percent
Aspect: West to east
Landform: Backslopes of fan remnants
Parent material: Alluvium derived from granite
Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: 40 to 60 percent by fine, subrounded gravel and 5 to 20 percent by coarse, subrounded gravel
Restrictive feature: None noted
Slowest rate of saturated hydraulic conductivity: Moderately high
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.9 inches (moderate)
Shrink-swell potential: Low (LEP <3)

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Medium
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 6e
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly loamy sand
Bt—2 to 94 inches; gravelly coarse sandy loam

Characteristics of Pinyonpeak and similar soils

Slope: 8 to 30 percent
Aspects: All
Landform: Backslopes of hills
Parent material: Colluvium and/or residuum weathered from granite
Typical vegetation: Blackbrush, California buckwheat, California juniper, and Cooper's goldenbush
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 60 to 90 percent by fine, angular gravel
Depth to restrictive features: Paralithic bedrock—6 to 14 inches; lithic bedrock—12 to 20 inches
Slowest rate of saturated hydraulic conductivity: Low
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly sandy loam
Bt—2 to 6 inches; gravelly coarse sandy loam
Ct—6 to 8 inches; gravel
Crt—8 to 16 inches; bedrock
R—16 to 26 inches; bedrock

Minor components

Birdcanyon and similar soils

Extent (percent of map unit): About 6 percent
Slope: 4 to 15 percent

Landform: Summits of fan aprons

Typical vegetation: Burrobrush, Cooper's goldenbush, California buckwheat, longspine horsebrush, Joshua tree, Nevada jointfir, Sandberg bluegrass, and buckhorn cholla

Ecological site: R029XY190CA, Droughty Sand 7-9" p.z.

Goldpeak, moist, and similar soils

Extent (percent of map unit): About 4 percent

Slope: 8 to 30 percent

Landform: Eroded backslopes of fan remnants

Typical vegetation: Blackbrush, California buckwheat, and Sandberg bluegrass

Ecological site: R029XY183CA, Shallow Granitic Slope 7-9" p.z.

Rock outcrop

Extent (percent of map unit): About 2 percent

Landform: Backslopes of hills

Ecological site: None assigned

Typic Haplargids and similar soils

Extent (percent of map unit): About 2 percent

Slope: 2 to 8 percent

Landform: Convex summits of fan remnants

Typical vegetation: Blackbrush, California buckwheat, California juniper, and Cooper's goldenbush

Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Birdcanyon, frequently flooded, and similar soils

Extent (percent of map unit): About 1 percent

Slope: 2 to 4 percent

Landform: Toeslopes of drainageways

Typical vegetation: Burrobrush, creosote bush, cattle saltbush, desert needlegrass, and Sandberg bluegrass

Ecological site: R030XA065NV, Dry Wash

6601—Pinyonpeak-Wingap-Rock outcrop association, 8 to 30 percent slopes

Map unit setting

Major uses: Rangeland, recreation, and wildlife habitat

MLRA: 29—Southern Nevada Basin and Range

Landscape: Mountains and hills

Elevation: 3,690 to 5,575 feet (1,125 to 1,700 meters)

Mean annual precipitation: 7 to 9 inches (180 to 230 millimeters)

Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)

Frost-free period: 165 to 220 days

Map unit composition

Pinyonpeak—45 percent

Wingap—25 percent

Rock outcrop—15 percent

Minor components—15 percent

Characteristics of Pinyonpeak and similar soils

Slope: 8 to 30 percent

Aspects: All

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Landform: Backslopes of hills

Parent material: Colluvium and/or residuum weathered from granite

Typical vegetation: Blackbrush, Sandberg bluegrass, California buckwheat, Cooper's goldenbush, Nevada jointfir, and green rabbitbrush

pH in the surface layer: 7.2

Percentage of the surface covered by rock fragments: 60 to 90 percent by fine, angular gravel

Depth to restrictive features: Paralithic bedrock—6 to 14 inches; lithic bedrock—12 to 20 inches

Slowest rate of saturated hydraulic conductivity: Low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 0.6 inch (very low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Very high

Current water table: None noted

Natural drainage class: Well drained

Hydrologic soil group: D

Interpretive groups

Land capability classification (nonirrigated areas): 8

Ecological site: R029XY185CA, Shallow Granitic Hills 7-9" p.z.

Typical profile

A—0 to 2 inches; gravelly sandy loam

Bt—2 to 6 inches; gravelly coarse sandy loam

Ct—6 to 8 inches; gravel

Crt—8 to 16 inches; bedrock

R—16 to 26 inches; bedrock

Characteristics of Wingap and similar soils

Slope: 8 to 30 percent

Aspects: All

Landform: The lower backslopes and footslopes of mountains

Parent material: Colluvium over residuum weathered from granite

Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage

pH in the surface layer: 6.8

Percentage of the surface covered by rock fragments: 45 to 65 percent by medium, subangular gravel

Depth to a restrictive feature: Paralithic bedrock—39 to 59 inches

Slowest rate of saturated hydraulic conductivity: Low

Salinity: Not saline

Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.0 inches (low)

Shrink-swell potential: Low (LEP <3)

Hydrologic properties

Present annual flooding: None

Present annual ponding: None

Surface runoff class: Medium

Current water table: None noted

Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups

Land capability classification (nonirrigated areas): 6e
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Typical profile

A—0 to 3 inches; loamy coarse sand
Bt1—3 to 14 inches; loamy sand
Bt2—14 to 41 inches; gravelly coarse sandy loam
C—41 to 54 inches; gravelly loamy coarse sand
Cr—54 to 60 inches; soft bedrock

Characteristics of Rock outcrop

Landform: Summits and backslopes of hills
Land capability classification (nonirrigated areas): 8

Minor components

Goldpeak and similar soils

Extent (percent of map unit): About 8 percent
Slope: 2 to 8 percent
Landform: Summits of fan remnants
Typical vegetation: Blackbrush, Sandberg bluegrass, narrowleaf goldenbush, Joshua tree, and spiny hopsage
Ecological site: R029XY182CA, Shallow Granitic Loam 7-9" p.z.

Goldpeak, moist, and similar soils

Extent (percent of map unit): About 5 percent
Slope: 4 to 15 percent
Landform: Footslopes of hills
Typical vegetation: Blackbrush, Joshua tree, Sandberg bluegrass, and narrowleaf goldenbush
Ecological site: R029XY184CA, Shallow Granitic Footslope 7-9" p.z.

Typic Torriorthents and similar soils

Extent (percent of map unit): About 2 percent
Slope: 8 to 30 percent
Landform: Eroded shoulders of hills
Typical vegetation: Blackbrush, Sandberg bluegrass, Eastern Mojave buckwheat, Nevada jointfir, burrobrush, and spiny hopsage
Ecological site: R029XY183CA, Shallow Granitic Slope 7-9" p.z.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils as rangeland; as burrowing habitat for the desert tortoise; and as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate whether the soils are limited by soil features that affect a specified use or in terms that indicate the suitability or potential of the soils for the use. Terms for the limitation classes are *no limitations* and *limitations*. The suitability ratings are expressed as *well suited*, *suitied*, and *poorly suited*. Terms indicating potential are *good*, *fair*, and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Major Land Resource Areas

A major land resource area (MLRA) is a broad geographic area that has a distinct combination of climate, topography, vegetation, land use, and general type of farming (USDA, 2006). Parts of two of these nationally designated areas are in the survey area. These areas and their numbers are Southern Nevada Basin and Range, MLRA 29, and Mojave Desert, MLRA 30. The detailed soil map unit descriptions indicate the MLRA to which each of the map units in the survey area is assigned.

MLRA 29, Southern Nevada Basin and Range.—Less than half of the survey area, including much of the northwestern part, is in MLRA 29. The part of the survey area in this MRLA is characterized by higher elevation granitic hills and mountains and broad, flat fan piedmont slopes of the southern end of the Sierra Nevada Range. Kelso Valley and Dove Spring Canyon are examples of areas assigned to this MLRA. The natural vegetation is mainly perennial grasses and shrubs, dominated by blackbrush and mountain big sagebrush, with scattered Joshua trees. Elevation mainly ranges from 3,500 to 6,800 feet. The average annual precipitation ranges from 7 to 12 inches, the average annual air temperature ranges from 45 to 56 degrees F, and the average frost-free period ranges from 110 to 180 days.

MLRA 30, Mojave Desert.—More than half of the survey area is in MLRA 30, including most of the eastern and southern parts of the survey area. The part of the survey area in this MRLA is characterized by lower elevation granitic hills and mountains and broad, flat fan piedmont slopes. The vegetation is mainly creosotebush, white bursage, blackbrush, Sandberg bluegrass, and desert needlegrass. Elevation ranges from 2,200 to 4,400 feet. The average annual precipitation ranges from 3 to 7 inches, the average annual air temperature ranges from 57 to 69 degrees F, and the average frost-free period ranges from 165 to 270 days.

Most of the land in the survey area is used for recreation, wildlife habitat, or livestock grazing.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 6e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the major soil components in the map units in this survey area is given in the section "Detailed Soil Map Units" and in table 2.

Rangeland

Loretta J. Metz, Marchel Munnecke, and Kendra Moseley, rangeland management specialists, Natural Resources Conservation Service, helped prepare this section.

Rangeland, sometimes referred to as "wildland," has native vegetation consisting of grasses, grasslike plants, forbs, shrubs, and trees with a total tree canopy cover of less than 25 percent. Essentially, rangeland is the interface between cropland and forestland. Rangeland vegetation provides many wildlife habitat components, aids in controlling erosion, and may be suitable for grazing or browsing by wildlife and domestic animals. Rangeland can be scenic and provides opportunities for recreational activities. It is important environmentally and economically.

Characterization and Management

Rangeland or forest understory vegetation is used for many purposes; therefore, it is important to characterize and quantify rangeland on the basis of its ability to produce various kinds, proportions, and amounts of plants. The plant communities are largely dependent on the soils, climate, topography, aspect, slope, and other abiotic features of the landscape. To assist in the understanding of soil-plant interaction and the effect of selected management practices, the Natural Resources Conservation Service classifies rangeland and forest into ecological sites. An ecological site is a distinctive kind of land with specific physical characteristics that

differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (USDA, National Range and Pasture Handbook).

Soil types and plant communities are correlated and serve as the basis for the development of each ecological site description. Soil properties that affect moisture supply and plant nutrients, such as texture, depth, and amount of coarse fragments, have the greatest influence on the productivity of rangeland plants and the composition and distribution of the plant community. Soil reaction, salt content, and a seasonal high water table are also important. Geography and climate influence the location of plant communities across the landscape and affect various soil properties. For example, soils on the steeper south- and west-facing slopes commonly support the less productive plant communities dominated by species that are better suited to intense heat, high evapotranspiration rates, and the resultant droughtiness than other species. Soils on the steeper north- and east-facing slopes are exposed to less solar radiation and generally support more productive plant communities adapted to a cooler climate. Differences in the soil properties that affect the composition, production, and distribution of the plant community are considered when ecological sites are correlated to individual soil map unit components.

Table 3 shows, for the soils in the map units in the survey are, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the existing vegetation; and the expected percentage of each species. An explanation of the column headings in the table follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, which has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production.

The ecological site descriptions indicate the climax plant community for the sites. The existing vegetation may differ significantly from the vegetation in the climax community because of fire or another surface disturbance leading to a seral stage.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Yields are adjusted to a common percent of air-dry moisture content. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods. The total production figures can be used to calculate carrying capacity and stocking rates for management of domestic animals or wildlife and to determine fuel loading for prescribed burning plans or fire modeling.

Existing vegetation is the grasses, grasslike plants, forbs, and shrubs that make up most of the present natural plant community. The species are listed by common name. (See the Appendix). All of the plant names are correlated directly with the NRCS "PLANTS Database" (<http://plants.usda.gov>). Under *composition*, the expected

percentage of the total annual production is given for each species making up the existing vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Ecological Sites in the Survey Area

A brief description of the major ecological sites in the survey area is given in the following paragraphs. A complete description of the sites can be obtained from the local office of the Natural Resources Conservation Service or downloaded from the Ecological Site Information System Web site (<http://esis.sc.egov.usda.gov/>).

Scrub vegetation is the most common kind of vegetation in the survey area. It can be loosely divided into four groups. These are creosotebush (*Larrea tridentata*) scrub, blackbrush (*Coleogyne ramosissima*) scrub, sagebrush (*Artemisia tridentata*) scrub, and desert wash scrub.

Creosotebush scrub occurs in the warmer areas at the lower elevations and in areas less affected by the cooler climatic influences of the southern Sierra Nevada Mountains. In most areas white bursage (*Ambrosia dumosa*) co-dominates with creosotebush.

Blackbrush scrub occurs in the cooler areas. Blackbrush typically is the dominant species. It co-dominates with creosotebush in some areas.

Sagebrush scrub occurs at the higher elevations on mountains. Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) is the dominant shrub. Sagebrush scrub is closely associated with plant communities dominated by California buckwheat (*Eriogonum fasciculatum*) and perennial grasses, such as desert needlegrass (*Achnatherum speciosum*) and Sandberg bluegrass (*Poa secunda*).

Desert wash scrub occurs in drainageways and on stream terraces throughout the survey area. The dominant species in a desert wash community include California broomsage (*Lepidospartum squamatum*), cattle saltbush (*Atriplex polycarpa*), and desertsenna (*Senna armata*).

Singleleaf pinyon woodland is an important nonscrub community in the survey area, mainly in the northwest corner of the area, near the Pacific Crest Trail. It occurs at the highest elevations in the area. It has an overstory of singleleaf pinyon (*Pinus monophylla*) and an understory of mountain big sagebrush and perennial grasses.

Climatic and edaphic factors play a significant role in shaping the plant communities in the survey area. The climate of the southern Sierra Nevada Mountains influences some parts of the survey area, creating a cooler growing environment for some of the plant communities. Other areas are affected by edaphic factors, such as depth to bedrock and the amount of fracturing in the bedrock. Geologic factors play a less significant role in shaping the plant communities because most of the survey area has granitic parent material. The frequency of flash flooding affects the plant communities in drainageways.

Creosotebush Scrub

R030XA020CA, Limy 5-7" p.z.—This is one of the most extensive sites in the survey area. It occurs on fan remnants, fan aprons, and inset fans at elevations of 700 to 1,280 meters. Slopes range from 2 to 8 percent. The soils are very deep, coarse-loamy to sandy, and well drained to excessively drained. Permeability is moderate to rapid, and runoff is low to negligible. The dominant species are creosotebush and white bursage. The minor species include desert needlegrass and winterfat (*Krascheninnikovia lanata*).

R030XA054NV, Limy Hill 5-7" p.z.—This site occurs on hills at elevations of 670 to 1,220 meters (fig. 2). Slopes range from 30 to 75 percent. The soils are shallow to very deep, coarse-loamy to sandy, and well drained or somewhat excessively drained. Permeability is very slow to moderate because of the depth to weathered



Figure 2.—An area of the ecological site Limy Hill 5-7" p.z. on a Cutterbank soil in map unit 3301.

bedrock. Runoff is very high to medium. The dominant species are creosotebush and white bursage. The minor species include desert needlegrass, ephedra (*Ephedra* spp.), and saltbushes (*Atriplex* spp.).

Blackbrush Scrub

R030XA047CA, Shallow Granitic Slope 5-7" p.z.—This site occurs on hills and fan remnants at elevations of 670 to 1,200 meters. Slopes range from 15 to 50 percent. The soils are coarse-loamy, very deep, and well drained. Permeability is very

slow, and runoff is medium to high. The major species is blackbrush. Creosotebush and white bursage are important minor species.

R030XA048CA, Shallow Granitic Loam 5-7" p.z.—This site occurs on hills and fan remnants at elevations of 900 to 1,340 meters (fig. 3). Slopes range from 2 to 50 percent. The soils are shallow to very deep, coarse-loamy to sandy, and well drained or somewhat excessively drained. Permeability is moderate, and runoff is very high to very low. The major plant species are blackbrush, creosotebush, and Sandberg bluegrass. The minor species include white bursage.



Figure 3.—An area of the ecological site Shallow Granitic Loam 5-7" p.z. on a Dovecanyon soil in map unit 4160.

R029XY182CA, Shallow Granitic Loam 7-9" p.z.—This site occurs on fan remnants, hills, and mountains at elevations of 1,125 to 1,700 meters (fig. 4). Slopes range from 2 to 30 percent. The soils are moderately deep to very deep, coarse-loamy to sandy, and well drained. Permeability is moderate or moderately rapid, and runoff is very high to very low. The major species is blackbrush, and Sandberg bluegrass is the dominant grass. Other species occur in small amounts.

R029XY183CA, Shallow Granitic Slope 7-9" p.z.—This site occurs on mountains at elevations of 750 to 1,325 meters. Slopes range from 30 to 60 percent. The soils are shallow, loamy, and well drained. They formed mainly in material weathered from extrusive volcanic rocks. Permeability is slow, and runoff is high. The major species are blackbrush and Sandberg bluegrass. The minor species include California buckwheat and burrobrush (*Hymenoclea salsola*).

Sagebrush Scrub

R029XY186CA, Sandy Slope 10-12" p.z.—This site occurs on hills and mountains at elevations of 1,200 and 1,830 meters. It typically is on the cooler north-facing slopes (fig. 5). Slopes range from 15 to 60 percent. The soils are very deep, sandy, and somewhat excessively drained. Permeability is rapid, and runoff is medium. The dominant species are mountain big sagebrush and bastardsage

Soil Survey of Jawbone-Butterbret ACEC Area, California

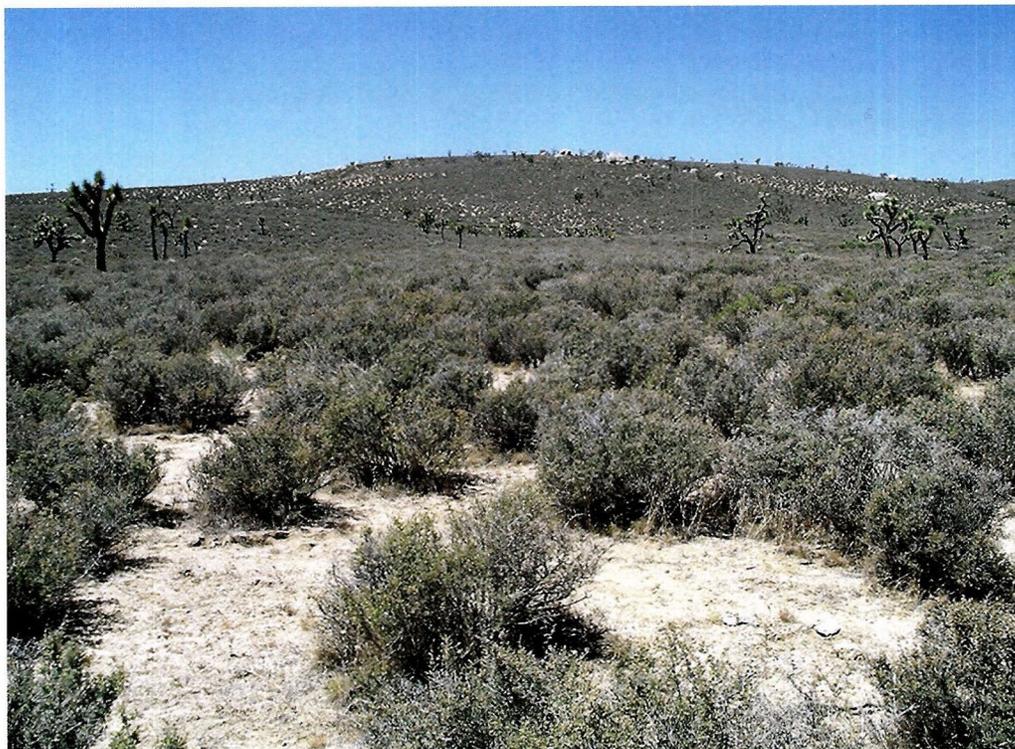


Figure 4.—An area of the ecological site Shallow Granitic Loam 7-9" p.z. on a Goldpeak soil in map unit 6001.

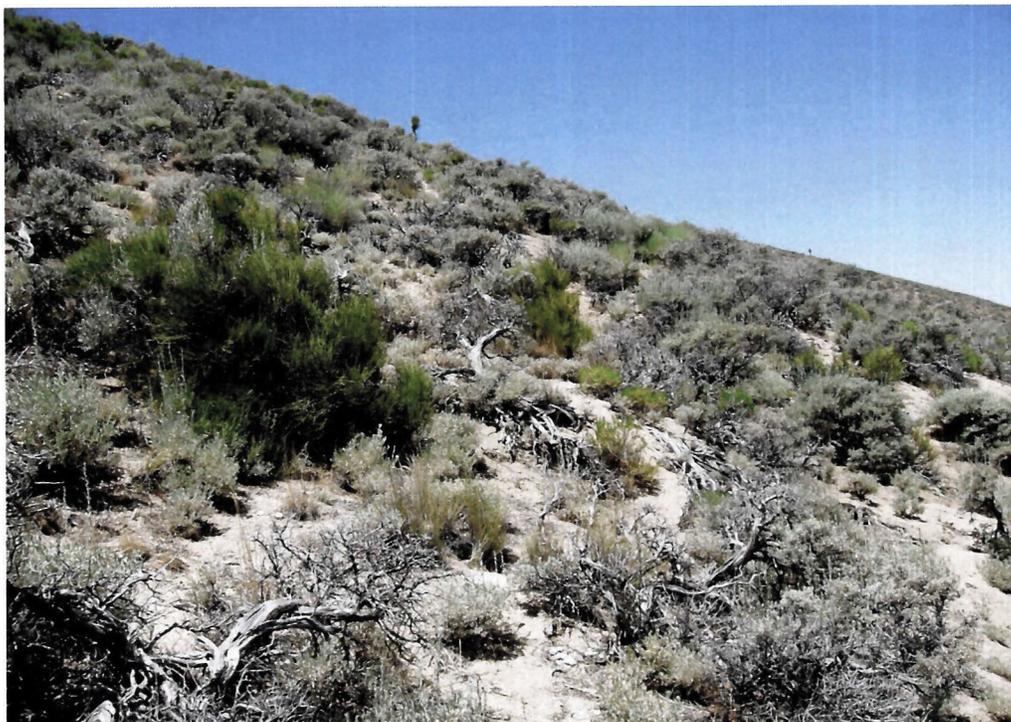


Figure 5.—An area of the ecological site Sandy Slope 10-12" p.z. on a north-facing Grandora soil in map unit 5210.

(*Eriogonum wrightii*). Sandberg bluegrass and desert needlegrass are the major grasses. The minor species include mormon tea (*Ephedra viridis*) and rabbitbrush species (*Ericameria* spp.).

R029XY189CA, South Sandy Slope 9-11" p.z.—This site occurs on warm, south-facing slopes on hills and mountains at elevations of 1,200 to 1,830 meters (fig. 6). Slopes range from 15 to 50 percent. The soils are very deep, sandy, and somewhat excessively drained. Permeability is rapid, and runoff is medium. The dominant species are California buckwheat and desert needlegrass. The minor species include Sandberg bluegrass, narrowleaf goldenbush (*Ericameria linearifolia*), mormon tea, and mountain big sagebrush.



Figure 6.—An area of the ecological site South Sandy Slope 9-11" p.z. on a south-facing, warm Grandora soil in map unit 5210.

F029XY001CA, Pinus monophylla/Artemisia tridentata/Eriogonum wrightii.—This site occurs on north-facing mountains at elevations of 1,460 to 2,080 meters (fig. 7). Slopes range from 30 to 60 percent. The soils are shallow, sandy, and somewhat excessively drained. Permeability is rapid above the impermeable bedrock, and runoff is very high. The major overstory species is singleleaf pinyon. The major understory species are mountain big sagebrush and Sandberg bluegrass. The minor species include mormon tea.

Desert Wash Shrub

R030XA018CA, Dry Wash.—This site occurs in drainageways and on stream terraces at elevations of 680 to 850 meters. Slopes range from 2 to 8 percent. The soils are very deep, sandy, and somewhat excessively drained. Permeability is rapid or very rapid, and runoff is very low or negligible. Available water capacity is very low.



Figure 7.—Singleleaf pinyon woodland on a Scodie soil in map unit 5205.

This site is subject to rare flooding. The major species are cattle saltbush and creosotebush. The minor species include burrobrush and Indian ricegrass (*Achnatherum hymenoides*).

R030XA042CA, Sandy Wash.—This site occurs in drainageways and on stream terraces at elevations of 730 to 2,760 meters (fig. 8). Slopes range from 2 to 15 percent. The soils are very deep, sandy, and somewhat excessively drained. Permeability is moderate, and runoff is negligible. Available water capacity is very



Figure 8.—An area of the ecological site Sandy Wash on a Koehn soil in map unit 4432.

low. This site is occasionally flooded or frequently flooded. The dominant species is California broomsage. Other species occur in small amounts.

R030XY159CA, Gravelly Outwash.—This site occurs on fan aprons and inset fans at elevations of 680 to 850 meters (fig. 9). Slopes range from 2 to 8 percent. The soils are very deep, sandy, and somewhat excessively drained. Permeability is moderate, and runoff is very low. Available water capacity is very low. This site is subject to very rare flooding. The major species are desertsenna and creosotebush. The minor species include white bursage.

Burrowing Habitat for the Desert Tortoise

The desert tortoise (*Gopherus agassizii*) was listed by the Federal government as a “threatened” species in April 1990 under provisions of the Endangered Species Act of 1973 (USDI, 1992). The burrowing habitat of the desert tortoise is of special interest in the survey area. The desert tortoise spends at least 95 percent of its life in burrows (Burge and Royo, 2000).

The presence of soil suitable for the digging of burrows affects the distribution of the tortoise. Some of the burrows are just deep enough for a tortoise to fit into, while others extend for several feet (Burge and Royo, 2000). The amount of soil development affects the depth, distribution, and location of the burrows.

In this survey area, the soils on mountains and hills typically are poorly suited to burrowing. The shallow depth to bedrock and excessive rock fragments make burrowing difficult. The soils on bolson floors typically are poorly suited because of a hazard of flooding or ponding, the fine texture of the soils, and/or the presence of gypsum layers.

The soils on fan piedmonts range from well suited to poorly suited. They can be divided into two broad categories—those on recent alluvial fans and fan aprons and those on stable, more developed fan remnants. The soils on recent alluvial fans and fan aprons have undergone little soil development. These soils tend to be coarse textured and therefore commonly are poorly suited to burrowing. Moderately coarse textured and medium textured soils, which are common on the fan remnants, are



Figure 9.—An area of the ecological site Gravelly Outwash on a Koehn soil in map unit 3630.

typically better suited to burrowing. The soil properties that limit the suitability of a soil for use as burrowing habitat include flooding, excess sand or clay, rock fragments, and dense layers.

Soils on some fan remnants have undergone soil development, including increases in lime and silica deposition, which leads to the formation of petrocalcic materials and duripans. In addition to the soil properties mentioned in the previous paragraph, a shallow depth to a duripan can reduce the suitability of a soil for use as burrowing habitat. Drainageways that are incised below the duripan are commonly used for opportunistic burrowing by the desert tortoise. Field examination is recommended for these drainageways and other micro-environmental characteristics that are too small to be noted at the scale of mapping used in this survey.

Table 4 shows the suitability of the soils as burrowing habitat for the desert tortoise. The soils are rated according to their potential to be excavated for burrows by the desert tortoise. Burrows are considered a necessary part of the local habitat. The ratings help in the identification and selection of sites that have the best potential for preserving, maintaining, or increasing local populations of the desert tortoise. The table evaluates only the suitability for one habitat need. Other habitat needs include food, cover, and water. Ecological site descriptions provide important information about the kinds and amounts of vegetation that can be expected on different soils.

The information in the table is of a general nature. It is designed to be used during the planning process to identify areas of concern prior to the application of conservation practices. Based on objectives for wildlife, areas can be avoided or practices can be adjusted to minimize damage to the burrow habitat. The table does not take into account climate or soil temperature, which may influence the presence or distribution of the species at the local level.

The table gives a suitability class and identifies the dominant soil characteristics that limit the suitability. This information can be used to plan and develop alternatives by identifying sites that best meet the wildlife habitat requirements. The ecological site descriptions can be consulted if a more complete evaluation of habitat requirements is needed.

Soils that are rated *well suited* have no restrictions as burrowing habitat. Colonization and population densities may be above average if other habitat factors are favorable. Soils that are rated *suitied* can be used as burrowing habitat but have some restrictive features that may limit the use of the site. Colonization and population densities may be average for the area if the other habitat requirements are met. Soils that are rated *poorly suited* have soil characteristics that may limit establishment, maintenance, or use of the site. Colonization and population densities may be restricted even if all of the other habitat requirements are met.

Suitability for burrowing by the desert tortoise is determined by the soil characteristics that limit excavation, maintenance, and preservation of the burrows. The limitations that have the most significant effect on habitat and the assumptions made about the rating criteria are as follows:

1.—Flooding from stream overflow adversely affects the suitability for burrowing. In areas that are subject to flooding, the tortoises may be evicted or can be drowned and the walls of the burrows may collapse or become filled with debris. After the flooding is over, the tortoise's return to the site is delayed until the floodwater has receded and the soils have dried sufficiently to allow renewed activity.

2.—Ponding or standing water adversely affects the suitability for burrowing.

3.—Bedrock adversely affects the potential depth of excavation by the tortoises. It is listed as a limiting factor in the table if the layers are either too hard or too dense for the tortoises to excavate.

4.—Highly gypsiferous layers are thought to adversely affect the potential depth of excavation by the tortoises. Gypsum is listed as a limiting factor in the table if the layers are too dense for the tortoises to excavate or are undesirable as habitat because of a high amount of gypsum crystals.

5.—Cemented layers adversely affect the potential depth of excavation by the tortoises. They are listed as a limiting factor in the table if the layers are either too hard or too dense for the tortoises to excavate.

6.—A seasonal high water table can restrict burrowing and can result in drowning or otherwise affect the tortoises. A seasonal high water table is listed as a limiting factor in table 4 if tunnels can cave or collapse, especially in those parts of the soil affected by the capillary fringe.

7.—Sandy layers, which are soft and loose, adversely affect the excavation and maintenance of burrows. They are listed as a limiting factor in the table if sidewalls can be unstable and tunnels can collapse.

8.—Clayey layers adversely affect the excavation and maintenance of burrows. They are slippery and sticky when wet, are slow to dry, and are commonly hard when dry.

9.—A high content of organic matter adversely affects maintenance of the burrows by reducing sidewall stability. Organic matter is listed as a limiting factor in the table if the burrows have a tendency to collapse because of the organic matter. Highly fibrous organic material is difficult for the tortoises to excavate.

10.—High concentrations of rock fragments adversely affect the suitability for burrowing. Rock fragments are listed as a limiting factor in the table if the tortoises are physically incapable of dislodging or transporting the rock fragments from the burrow.

11.—Dense layers adversely affect the potential depth of excavation by the tortoises. They are listed as a limiting factor in the table if they are either too hard or too dense for the tortoises to excavate.

Recreation

The soils of the survey area are rated in tables 5 and 6 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. A rating of *no limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* with numerical ratings of less than 1.00 can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limitations* with numerical ratings of 1.00 generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 5 and 6 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

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 data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index,

soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, topsoil, reclamation material, and roadfill; plan structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 7 and 8 show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. A rating of *no limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* with numerical ratings of less than 1.00 can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limitations* with numerical ratings of 1.00 generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility.

Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Sanitary Facilities

Tables 9 and 10 show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. A rating of *no limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* with numerical ratings of less than 1.00 can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limitations* with numerical ratings of 1.00 generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the

workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 11 and 12 give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 11, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or

gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.08 to 0.74 indicate the degree to which the layer is a likely source. The numbers 0.75 to 1.00 indicate that the layer is a good source.

The soils are rated *good*, *fair*, or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility. Depth to restrictive features, such as a hardpan or bedrock, is not considered in the ratings.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In table 12, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Water Management

Table 13 provides information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for embankments, dikes, and levees and for pond reservoir areas. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. A rating of *no limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* with numerical ratings of less than 1.00 can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limitations* with numerical ratings of 1.00 generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In table 13, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical properties, erosion properties, chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 14 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SC-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 particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

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. They are not included in this soil survey report

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.

Physical Soil Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 15, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and 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 $1/3$ - or $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In table 15, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and

management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in table 15 as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion Properties

Table 16 shows the erosion factors, wind erodibility groups, and wind erodibility index of the soils in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Erosion factors are shown in table 16 as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 17 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in deciSiemens per meter 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 table 17. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in table 18 indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 18 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 19 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. Table 19 indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2006). 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 20 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Aridisols.

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 Argids (*Arg*, meaning argillic horizon, plus *id*, from Aridisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplargids (*Hapl*, meaning minimal horizonation, plus *argid*, the suborder of the Aridisols that has an argillic horizon).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haplargids.

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, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, superactive, thermic Typic Haplargids.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each

series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2006). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

Birdcanyon Series

The Birdcanyon series consists of very deep, somewhat excessively drained soils that formed in alluvium derived from granite. These soils are on fan aprons. Slopes range from 4 to 15 percent. The mean annual precipitation is about 200 millimeters, and the mean annual air temperature is about 15 degrees C. The frost-free period is 165 to 220 days.

Taxonomic classification: Mixed, thermic Typic Torripsamments

Typical pedon

Birdcanyon coarse sand, 4 to 15 percent slopes (fig. 10), at an elevation of 1,278 meters; Kern County, California; about 53 kilometers north and 9 kilometers east of Mojave, California, in Bird Spring Canyon; in a unsectionalized area 730 meters south and 3.8 kilometers west of the northwest corner of sec. 6, T. 27 S., R. 37 E., MDBM; USGS Horse Canyon, California, 7.5-minute topographic quadrangle; 35 degrees, 31 minutes, 40.7 seconds north latitude and 118 degrees, 5 minutes, 13.6 seconds west longitude; UTM 11S 401437 e, 3932139 n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 40 percent by fine gravel and 10 percent by medium and coarse gravel

A—0 to 6 centimeters (0 to 2 inches); brown (10YR 5/3) coarse sand, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 4 percent fine and 1 percent medium gravel; neutral (pH 7.0); abrupt wavy boundary.

C1—6 to 53 centimeters (2 to 22 inches); yellowish brown (10YR 5/4) sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and few fine and coarse roots; few very fine interstitial pores; 4 percent fine and 1 percent medium gravel; neutral (pH 7.2); clear wavy boundary.

C2—53 to 155 centimeters (22 to 61 inches); light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and coarse roots; common very fine interstitial pores; 7 percent fine and 3 percent medium gravel; neutral (pH 7.2).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 15 to 18 degrees C

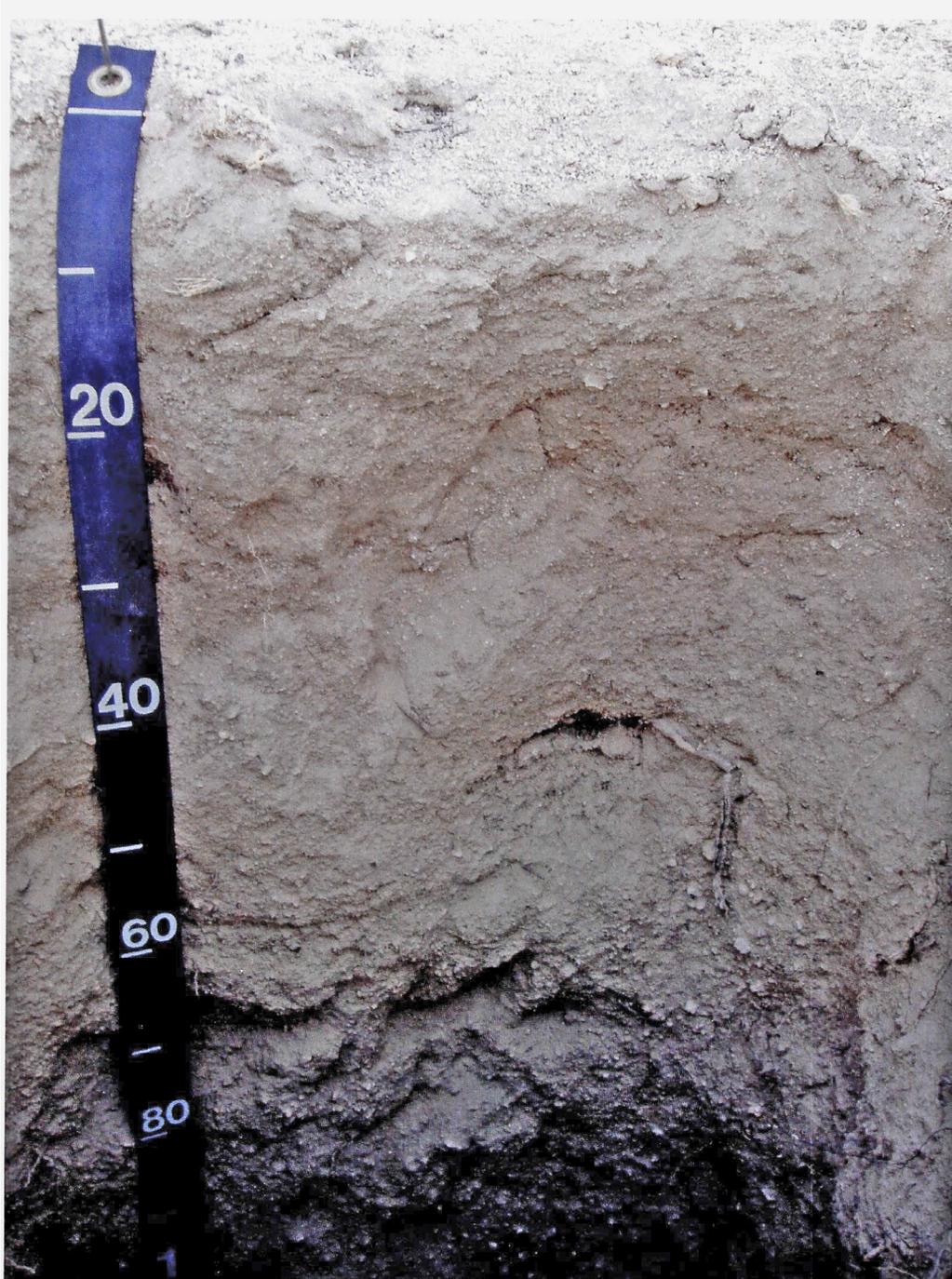


Figure 10.—Typical pedon of Birdcanyon coarse sand, 4 to 15 percent slopes. Depth is marked in centimeters.

Control section

Content of rock fragments—averages 5 to 20 percent, ranges from 5 to 30 percent, mainly fine gravel

Content of clay—2 to 8 percent

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry and moist

Reaction—neutral or slightly alkaline

C horizons

Value—5 or 6 dry, 3 to 5 moist

Chroma—3, 4, or 6 moist

Texture of the fine-earth fraction—sand, coarse sand, loamy coarse sand, or loamy sand

Structure—weak or moderate, medium or coarse, subangular blocky or massive

Consistence—soft to hard

Content of rock fragments—5 to 30 percent

Reaction—neutral or slightly alkaline

Note: Clay films are in the lower part of some pedons. The increase in content of clay does not meet the requirements for an argillic horizon.

Cutterbank Series

The Cutterbank series consists of very shallow or shallow, somewhat excessively drained soils that formed in nonmarine sediments derived from granite. These soils are on the eroded backslopes in areas of uplifted lakebed sediments. Slopes range from 15 to 75 percent. The mean annual precipitation is about 150 millimeters, and the mean annual air temperature is about 19 degrees C. The frost-free period is 200 to 270 days.

Taxonomic classification: Loamy, mixed, superactive, calcareous, thermic, shallow Typic Torriorthents

Typical pedon

Cutterbank fine sandy loam (fig. 11), in an area of Cutterbank association, 15 to 60 percent slopes, at an elevation of 1,015 meters; Kern County, California; about 33 kilometers north and 15 kilometers east of Mojave, California; about 5 kilometers north and 0.5 kilometer west of Jawbone Canyon OHV Visitors Center, within the BLM Jawbone-Butterbredt ACEC; 675 meters north and 20 meters east of the southwest corner of sec. 32, T. 29 S., R. 37 E., MDBM; 35 degrees, 22 minutes, 0.8 second north latitude and 118 degrees, 2 minutes, 20.7 seconds west longitude; USGS Cinco, California, 7.5-minute quadrangle; UTM 11S 405607e, 3914227n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 10 percent by fine gravel, 40 percent by medium and coarse gravel, 3 percent by cobbles, 1 percent by stones, and 1 percent by boulders

A—0 to 2 centimeters (0 to 1 inch); pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common very fine interstitial pores; 7 percent fine and 3 percent medium and coarse gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bk—2 to 24 centimeters (1 to 9 inches); pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist; moderate coarse and medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine, fine, and very coarse roots; common very fine interstitial pores; 2 percent distinct light gray (10YR 7/2 dry) calcium carbonate coatings on all faces of peds and 2 percent distinct light gray (10YR 7/2 dry) carbonate coatings on rock fragments; 10 percent fine and 5 percent medium and coarse gravel; strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

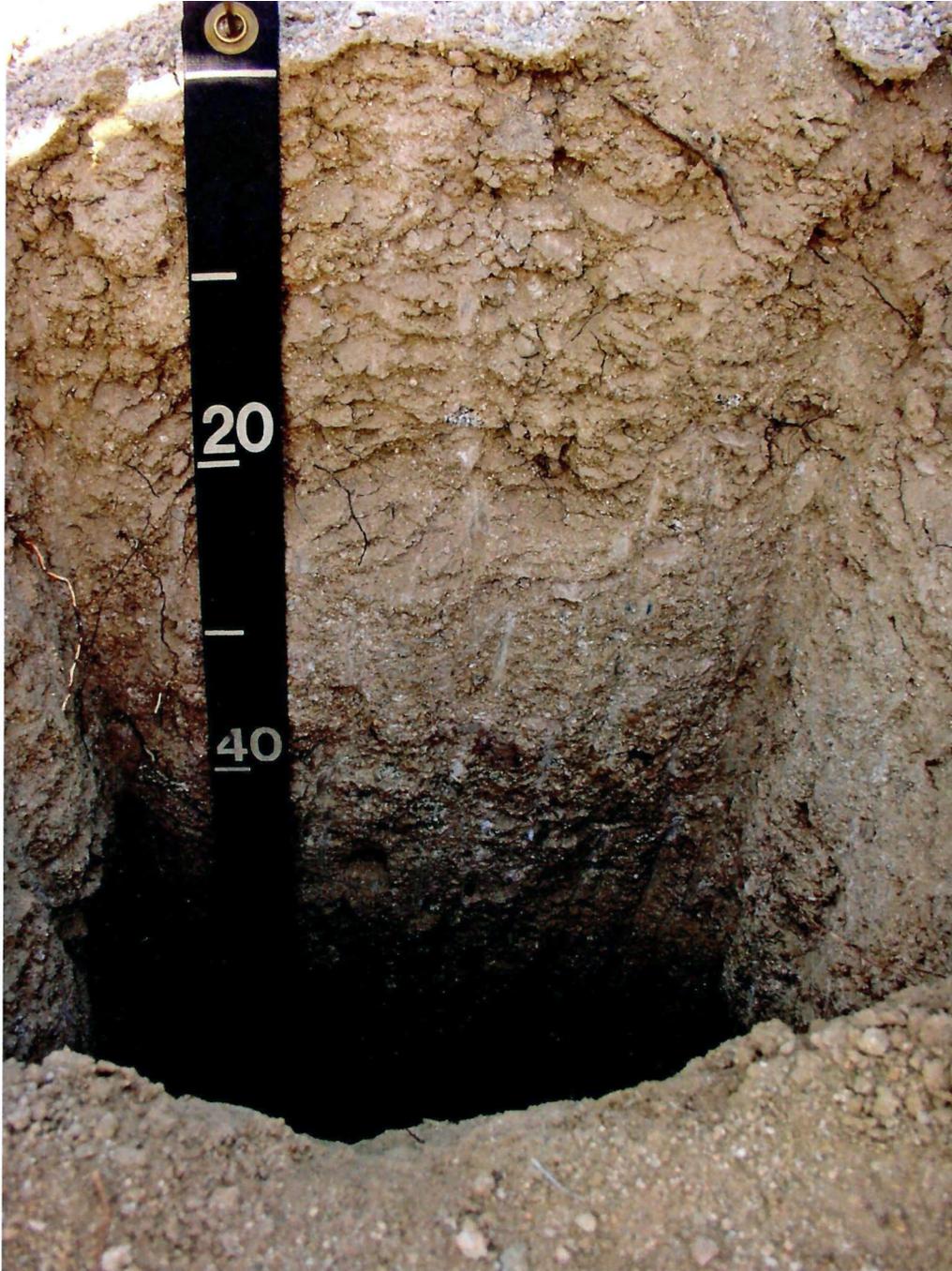


Figure 11.—Pedon of Cutterbank fine sandy loam. Depth is marked in centimeters.

Cdk1—24 to 66 centimeters (9 to 26 inches); pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few fine and very fine roots in fractures more than 10 centimeters apart; common very fine interstitial pores; 10 percent fine and 5 percent medium and coarse gravel; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Cdk2—66 to 78 centimeters (26 to 31 inches); brown (10YR 5/3) sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and

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nonplastic; few fine roots in fractures more than 10 centimeters apart; common very fine interstitial pores; 10 percent fine gravel; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cdk3—78 to 150 centimeters (31 to 60 inches); pale brown (10YR 6/3), stratified loamy coarse sand to sandy loam, brown (10YR 5/3) moist; massive; moderately hard, friable, nonsticky and nonplastic; very few very fine roots in fractures more than 10 centimeters apart; 10 percent fine gravel; strongly effervescent; moderately alkaline (pH 8.4).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical arid soil moisture regime

Soil temperature: 19 to 22 degrees C

Depth to densic contact: 10 to 36 centimeters.

Control section

Content of clay—averages 8 to 16 percent, ranges from 7 to 19 percent

Content of rock fragments—averages 3 to 30 percent, dominantly fine gravel

Content of organic matter—0 to 0.5 percent

Reaction—neutral or slightly alkaline

Effervescence: Very slight to violent

Calcium carbonate equivalence: 0 to 1 percent

A horizon

Value—4 to 7 dry, 3 to 6 moist

Chroma—2 to 4 dry, 2 to 4 moist

Texture of the fine-earth fraction—fine sandy loam or sandy loam

Content of clay—7 to 19 percent

Structure—weak to strong thick platy or medium or coarse subangular blocky

Consistence—soft to hard

Content of rock fragments—3 to 35 percent gravel

Reaction—neutral to moderately alkaline

Bk horizon (where present)

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 or 4 dry and moist

Texture of the fine-earth fraction—fine sandy loam, sandy loam, or coarse sandy loam

Content of clay—10 to 15 percent

Structure—massive or subangular blocky

Consistence—soft to moderately hard dry and very friable or friable moist

Content of rock fragments—5 to 30 percent gravel and 0 to 5 percent cobbles

Reaction—slightly alkaline or moderately alkaline

Cdk horizons

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4 dry and moist

Texture of the fine-earth fraction—loamy coarse sand, loamy sand, or sandy loam

Content of clay—5 to 12 percent

Structure—massive or subangular blocky

Consistence—slightly hard or hard dry and very friable to firm moist

Content of rock fragments—1 to 30 percent gravel and 0 to 20 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Dovecanyon Series

The Dovecanyon series consists of very deep, well drained soils that formed in granitic alluvium. These soils are on fan remnants. Slopes range from 2 to 15 percent. The mean annual precipitation is about 150 millimeters, and the mean annual air temperature is about 17 degrees C. The frost-free period is 200 to 270 days.

Taxonomic classification: Coarse-loamy, mixed, superactive, thermic Typic Haplargids

Typical pedon

Dovecanyon loamy sand, 2 to 8 percent slopes, at an elevation of 1,099 meters; Kern County, California; about 36 kilometers north and 16 kilometers east of Mojave, California, in the foothills of the extreme southern Sierra Nevada Mountains; about 8 kilometers northwest of BLM's Jawbone Canyon OHV Visitor Station and 1 kilometer north of Bishop's mining claim on Road SC 175, within the BLM's Jawbone-Butterbrecht OHV-ACEC; 762 meters west and 152 meters south of the northeast corner of sec. 30, T. 29 S., R. 37 E., MDBM; 35 degrees, 23 minutes, 18.8 seconds north latitude and 118 degrees, 2 minutes, 50.5 seconds west longitude; USGS Dove Springs, California, 7.5-minute topographic quadrangle; UTM 11S 0404879e, 3916637n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 40 percent by gravel

A—0 to 4 centimeters (0 to 2 inches); very pale brown (10YR 7/4) loamy sand, dark yellowish brown (10YR 4/4) moist; strong very thick platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 12 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

ABt—4 to 12 centimeters (2 to 5 inches); pink (7.5YR 7/4) coarse sandy loam, brown (7.5YR 4/4) moist; moderate very thick platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial pores; 20 percent prominent brown (7.5YR 4/4) clay films on faces of peds; 12 percent gravel; neutral (pH 7.0); clear wavy boundary.

Bt1—12 to 37 centimeters (5 to 15 inches); light brown (7.5YR 6/4) gravelly coarse sandy loam, strong brown (7.5YR 5/6) moist; weak coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine interstitial pores; 30 percent prominent brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

Bt2—37 to 92 centimeters (15 to 36 inches); light brown (7.5YR 6/4) gravelly coarse sandy loam, strong brown (7.5YR 5/6) moist; weak coarse subangular blocky structure; very hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine interstitial pores; 40 percent prominent strong brown (7.5YR 5/6) clay films on faces of peds; 20 percent gravel; neutral (pH 6.8); abrupt smooth boundary.

Bt3—92 to 134 centimeters (36 to 53 inches); reddish yellow (7.5YR 6/6) gravelly loamy coarse sand, strong brown (7.5YR 5/6) moist; weak coarse subangular blocky structure; moderately hard, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common very fine interstitial pores; 20 percent prominent strong brown (7.5YR 5/6) clay films between sand grains; 18 percent gravel; neutral (pH 7.0); clear wavy boundary.

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- Bt4—134 to 160 centimeters (53 to 63 inches); reddish yellow (7.5YR 6/6) gravelly coarse sand, strong brown (7.5YR 4/6) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular pores; 20 percent faint clay bridges between sand grains; 15 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.
- Bt5—160 to 192 centimeters (63 to 76 inches); light yellowish brown (10YR 6/4) gravelly coarse sandy loam, strong brown (7.5YR 4/6) moist; massive; hard, very friable, nonsticky and nonplastic; common very fine interstitial pores; 20 percent distinct clay bridges between sand grains; 18 percent gravel; slightly alkaline (pH 7.6); clear wavy boundary.
- Bt6—192 to 200 centimeters (76 to 79 inches); light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; moderately hard, very friable, nonsticky and nonplastic; 20 percent faint clay bridges between sand grains; 8 percent gravel; slightly alkaline (pH 7.6).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 18 to 22 degrees C

Depth to the upper boundary of the argillic horizon: 5 to 50 centimeters

Depth to the base of the argillic horizon: 150 to more than 200 centimeters

Control section

Content of clay—averages 10 to 18 percent

Content of organic matter—0 to 0.5 percent

Content of rock fragments—averages 10 to 20 percent and ranges from 5 to 20 percent, dominantly fine gravel

Reaction—neutral or slightly alkaline

Effervescence: Noneffervescent throughout the control section

A horizon

Value—5 to 7 dry, 3 or 4 moist

Chroma—3 or 4 dry and moist

Content of clay—3 to 10 percent

Consistence—soft to moderately hard

Structure—weak to strong thin to very thick platy or subangular blocky; in some pedons parting to weak or moderate and fine or medium

Content of organic matter—0.25 to 0.60 percent

Content of rock fragments—10 to 20 percent gravel

Reaction—neutral or slightly alkaline

ABt or Bw horizon (where present)

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry and moist

Texture of the fine-earth fraction—loamy sand, coarse sandy loam, or sandy loam

Content of clay—3 to 10 percent

Consistence—slightly hard or moderately hard

Structure—weak or moderate medium to very coarse

Content of rock fragments—5 to 20 percent gravel

Reaction—neutral or slightly alkaline

Bt1 and Bt2 horizons

Hue—7.5YR or 10YR

Value—4 to 6 dry, 4 or 5 moist
Chroma—4 or 6 dry and moist
Texture of the fine-earth fraction—coarse sandy loam or sandy loam
Content of clay—10 to 18 percent
Consistence—slightly hard to very hard dry and very friable to firm moist
Structure—weak or moderate fine to coarse

Bt3 and Bt4 horizons (where present)

Value—5 to 7 dry, 4 to 6 moist
Chroma—4 or 6 dry and moist
Content of clay—3 to 10 percent
Texture of the fine-earth fraction—loamy coarse sand or coarse sand
Content of rock fragments—5 to 25 percent gravel
Consistence—slightly hard to very hard
Structure—massive or weak or moderate subangular blocky
Reaction—neutral or slightly alkaline

Bt5 and Bt6 horizons

Hue—7.5YR or 10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—4 or 6 dry and moist
Content of clay—10 to 20 percent
Texture of the fine-earth fraction—coarse sandy loam or sandy loam
Content of rock fragments—5 to 25 percent gravel, dominantly fine gravel
Consistence—slightly hard to very hard, very friable to firm, nonsticky or slightly sticky and nonplastic or slightly plastic
Structure—massive or weak medium or coarse subangular blocky
Reaction—neutral to moderately alkaline

Goldpeak Series

The Goldpeak series consists of very deep, well drained soils that formed in granitic alluvium. These soils are on fan remnants. Slopes range from 2 to 30 percent. The mean annual precipitation is about 200 millimeters, and the mean annual air temperature is about 14 degrees C. The frost-free period is 165 to 220 days.

Taxonomic classification: Coarse-loamy, mixed, superactive, thermic Typic Haplargids

Typical pedon

Goldpeak gravelly loamy sand, 2 to 8 percent slopes, at an elevation of 1,190 meters; Kern County, California; about 38 kilometers north and 14 kilometers east of Mojave, California, in the foothills of the extreme southern Sierra Nevada Mountains; about 610 meters north of the intersection of BLM Roads SC 99 and SC 171; 550 meters west and 365 meters north of the southeast corner of sec. 13, T. 29 S., R. 36 E., MDBM; 35 degrees, 24 minutes, 24.1 seconds north latitude and 118 degrees, 3 minutes, 48.9 seconds west longitude; USGS Dove Springs, California, 7.5-minute topographic quadrangle; UTM 11S 0403425e, 3918665n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 40 percent by fine gravel and 5 percent by medium and coarse gravel

A—0 to 5 centimeters (0 to 2 inches); brown (10YR 5/3) gravelly loamy sand, brown (10YR 4/3) moist; moderate thick platy structure parting to weak subangular

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- blocky; moderately hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine vesicular pores; 12 percent fine and 3 percent medium and coarse gravel; neutral (pH 7.0); clear wavy boundary.
- ABt—5 to 26 centimeters (2 to 10 inches); yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; many very fine and common fine interstitial pores; 2 percent distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 8 percent fine and 2 percent medium and coarse gravel; neutral (pH 6.6); gradual wavy boundary.
- Bt1—26 to 40 centimeters (10 to 16 inches); yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and fine interstitial pores; 10 percent faint clay bridges between sand grains and 20 percent prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; 14 percent fine and 3 percent medium and coarse gravel; neutral (pH 6.6); clear wavy boundary.
- Bt2—40 to 121 centimeters (16 to 48 inches); light yellowish brown (10YR 6/4) gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine and medium interstitial pores; 15 percent faint clay bridges between sand grains and 7 percent distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 10 percent fine and 5 percent medium and coarse gravel; neutral (pH 6.6); gradual irregular boundary.
- Bt3—121 to 240 centimeters (48 to 95 inches); light yellowish brown (10YR 6/4) coarse sandy loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; very hard, friable, nonsticky and nonplastic; few very fine and fine roots; common medium interstitial pores; 20 percent prominent dark yellowish brown (10YR 4/4) clay films on faces of peds and on surfaces along root channels; 7 percent fine and 3 percent medium and coarse gravel; neutral (pH 6.6).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittently moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 15 to 18 degrees C

Depth to the upper boundary of the argillic horizon: 15 to 35 centimeters

Control section

Content of clay—averages 10 to 18 percent

Content of rock fragments—averages 5 to 25 percent gravel, dominantly fine gravel

Reaction—neutral or slightly alkaline

Effervescence—none throughout the control section

A horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry

Chroma—3 to 6 dry, 2 to 4 moist

Content of clay—3 to 9 percent

Consistence—soft to moderately hard
Structure—weak to strong, fine or medium or thin or thick, subangular blocky or platy
Content of organic matter—0.25 to 0.6 percent
Content of rock fragments—10 to 20 percent gravel
Reaction—slightly acid to slightly alkaline

ABt or Bw horizon

Value—5 or 6 dry, 3 to 5 moist
Chroma—4 or 6 dry, 3 to 6 moist
Texture—coarse sandy loam or sandy loam
Content of clay—6 to 10 percent
Content of rock fragments—10 to 15 percent gravel
Consistence—soft or slightly hard
Structure—weak or moderate fine to coarse subangular blocky
Content of organic matter—0.0 to 0.5 percent

Bt horizons

Hue—7.5YR or 10YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—3, 4, or 6 dry and moist
Texture of the fine-earth fraction—sandy loam, coarse sandy loam, or sandy clay loam
Content of clay—10 to 25 percent
Content of rock fragments—5 to 30 percent gravel
Consistence—slightly hard to hard, very friable or friable, nonsticky or slightly sticky, nonplastic or slightly plastic
Structure—massive or weak or moderate fine to coarse subangular blocky

Grandora Series

The Grandora series consists of very deep, somewhat excessively drained soils that formed in colluvium and residuum derived from granite. These soils are on the backslopes of mountains. Slopes range from 15 to 60 percent. The mean annual precipitation is about 275 millimeters, and the mean annual air temperature is about 10 degrees C. The frost-free period is 140 to 180 days.

Taxonomic classification: Mixed, mesic Xeric Torripsamments

Typical pedon

Grandora coarse sand, in an area of Grandora-Pinyonpeak association, 8 to 60 percent slopes, at an elevation of 1,696 meters; Kern County, California; about 47 kilometers north and 2 kilometers east of Mojave, California, at the southern end of the Scodie Mountains; about 4 kilometers east and 1 kilometer north of Mayan Peak; in an unsectionalized area 710 meters south and 290 meters east of the northeast corner of sec. 25, T. 28 S., R. 35 E., MDBM; USGS Pinyon Mountain, California, 7.5-minute topographic quadrangle; 35 degrees, 28 minutes, 26.4 seconds north latitude and 118 degrees, 9 minutes, 14.0 seconds west longitude; UTM 11S 0395313e, 3926223n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 55 percent by fine gravel and 10 percent by medium and coarse gravel

A—0 to 7 centimeters (0 to 3 inches); brown (10YR 5/3) coarse sand, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable,

nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 5 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

ABt—7 to 22 centimeters (3 to 9 inches); brown (10YR 5/3) sand, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine to very coarse roots; many very fine interstitial and few fine tubular pores; 5 percent faint clay films on rock fragments and bridging sand grains; 10 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

Bt1—22 to 95 centimeters (9 to 37 inches); yellowish brown (10YR 5/4) sand, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; moderately hard, very friable, nonsticky and nonplastic; few very fine to coarse roots; many very fine and few fine to coarse tubular pores; 10 percent faint clay films on rock fragments and bridging sand grains; 10 percent gravel; neutral (pH 7.2); clear wavy boundary.

Bt2—95 to 152 centimeters (37 to 60 inches); yellowish brown (10YR 5/4) paracobbly coarse sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine to medium roots; common very fine interstitial and few fine tubular pores; 5 percent faint clay films on rock fragments and bridging sand grains; 20 percent paracobbles breaking down to 10 percent gravel; slightly alkaline (pH 7.4).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; an aridic soil moisture regime bordering on xeric

Soil temperature: 11 to 15 degrees C

Control section

Content of rock fragments—5 to 30 percent, mainly fine gravel

Content of clay—2 to 6 percent

A and ABt horizons

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 or 6 dry and moist

Texture—sand, coarse sand, loamy sand, or loamy coarse sand

Other features—typically, few or common faint clay films in the ABt horizon

Bt horizons

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 or 6 dry and moist

Texture of the fine-earth fraction—coarse sand, sand, loamy sand, or loamy coarse sand

Structure—weak or moderate, medium or coarse, subangular blocky structure or massive

Consistence—soft to hard, very friable or friable

Content of rock fragments—5 to 30 percent, mainly fine gravel, including crushed paracobbles and parastones

Reaction—neutral or slightly alkaline

Other features—typically, few or common faint clay films; paracobbles and parastones typically the lower part of the profile

Note: The increase in content of clay is not high enough to meet the requirements for an argillic horizon.

Inyo Series

The Inyo series consists of very deep, excessively drained soils that formed in mixed alluvium. These soils are on alluvial fans, stream terraces, inset fans, and fan aprons and in intermountain basins. Slopes range from 0 to 15 percent. The mean annual precipitation is 175 millimeters, and the mean annual air temperature is 16 degrees C. The frost-free period is 190 to 220 days.

Taxonomic classification: Mixed, thermic Xeric Torripsamments

Typical pedon

Inyo gravelly loamy coarse sand, 0 to 5 percent slopes, in the survey area that includes the northeastern part of Kern County (adjacent to the Jawbone-Butterbredt ACEC area); about 270 meters south and 674 meters east of the northwest corner of sec. 22, T. 29 S. R. 35 E., MDBM; 35 degrees, 24 minutes, 15 seconds north latitude and 118 degrees, 12 minutes, 36 seconds west longitude; USGS Pinyon Mountain, California, 7.5-minute topographic quadrangle. (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 0 to 80 percent by gravel and 1 to 5 percent by cobbles

A—0 to 20 centimeters (0 to 8 inches); brown (10YR 5/3) gravelly loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 22 percent gravel; neutral (pH 7.2); gradual smooth boundary.

C1—20 to 51 centimeters (8 to 30 inches); brown (10YR 5/3) gravelly loamy coarse sand, brown (10YR 4/3) moist; single grain, loose, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; 22 percent gravel; slightly alkaline (pH 7.5); gradual smooth boundary.

C2—51 to 152 centimeters (30 to 60 inches); yellowish brown (10YR 5/4) gravelly loamy coarse sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; 22 percent gravel; slightly alkaline (pH 7.5).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; an aridic soil moisture regime bordering on xeric

A horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry, 2 to 4 moist
Content of clay—2 to 8 percent
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 35 percent gravel

C horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry, 2 to 4 moist
Content of clay—2 to 8 percent
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 35 percent gravel

Jawbone Series

The Jawbone series consists of very shallow or shallow, somewhat excessively drained soils that formed in residuum and colluvium derived from granitic rocks. These soils are on the backslopes of hills and mountains. Slopes range from of 8 to 60 percent. The mean annual precipitation is about 145 millimeters, and the mean annual air temperature is about 16.5 degrees C. The frost-free period is 210 to 270 days.

Taxonomic classification: Mixed, thermic, shallow Typic Torripsamments

Typical pedon

Jawbone loamy sand, in an area of Jawbone association, 8 to 50 percent slopes, at an elevation of 1,179 meters; Kern County, California; 490 meters south and 470 meters west of the northeast corner of sec. 12, T. 27 S., R. 37 E., MDBM; USGS Freeman Junction, California, 7.5-minute topographic quadrangle; 35 degrees, 36 minutes, 12.6 seconds north latitude and 117 degrees, 56 minutes, 33.8 seconds west longitude; UTM 11S 414609e, 394038n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 35 percent by fine gravel, 21 percent by medium and coarse gravel, and 1 percent by cobbles

- A—0 to 5 centimeters (0 to 2 inches); pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine irregular pores; 8 percent fine gravel; neutral (pH 7.2); clear wavy boundary.
- Bw—5 to 14 centimeters (2 to 5 inches); pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine irregular and common fine tubular pores; 9 percent fine and 1 percent medium and coarse gravel; slightly alkaline (pH 7.4); abrupt wavy boundary.
- Cr—14 to 150 centimeters (5 to 16 inches); soft, weathered granitic bedrock; moderate excavation difficulty.

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittently moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 15 to 22 degrees C

Depth to paralithic contact: 10 to 30 centimeters

Control section

Content of clay—3 to 7 percent
Content of rock fragments—1 to 20 percent gravel

A horizon

Value—5 to 7 dry, 4 to 6 moist
Chroma—3 or 4 dry and moist

Bw, C, or Ck horizon

Chroma—3 or 4 dry and moist
Texture of the fine-earth fraction—loamy sand, sand, or coarse sand
Content of rock fragments—1 to 20 percent gravel
Effervescence—none to violent

Note: The Jawbone soil in map unit 3250 (Jawbone association, 30 to 60 percent slopes) is a taxadjunct to the series because it is moderately deep (75 to 100 centimeters) to bedrock. This difference does not significantly affect the use and management of the soil.

Kernfork Series

The Kernfork series consists of very deep, somewhat poorly drained soils that formed in alluvium derived from granitoid rocks. These soils are on flood plains and stream terraces. Slopes range from 0 to 5 percent. The mean annual precipitation is 200 millimeters, and the mean annual air temperature is 17 degrees C. The frost-free period is 200 to 220 days.

Taxonomic classification: Coarse-loamy, mixed, superactive, thermic Cumulic Endoaquolls

Typical pedon

Kernfork fine sandy loam, 0 to 2 percent slopes, occasionally flooded, in the survey area that includes the northeastern part of Kern County (adjacent to the Jawbone-Butterbredt ACEC area); about 105 meters south and 75 meters east of the northwest corner of sec. 18, T. 26 S., R. 34 E., MDBM; 35 degrees, 40 minutes, 24 seconds north latitude and 118 degrees, 16 minutes, 17 seconds west longitude; USGS Weldon, California, 7.5-minute quadrangle. (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 5 to 30 percent by gravel

Ap—0 to 15 centimeters (0 to 6 inches); grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; common very fine interstitial pores; 3 percent gravel; slightly alkaline (pH 7.5); clear smooth boundary.

Bg—15 to 69 centimeters (6 to 27 inches); grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; few fine distinct yellowish brown (10YR 5/4 moist) and dark yellowish brown (10YR 4/4 moist) redoximorphic concentrations; 7 percent gravel; slightly alkaline (pH 7.5); abrupt wavy boundary.

Cg1—69 to 76 centimeters (27 to 30 inches); grayish brown (10YR 5/2) loamy sand, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine roots; few very fine interstitial and tubular pores; few fine and medium distinct brown (10YR 5/3 moist), very dark grayish brown (10YR 3/2 moist), and dark yellowish brown (10YR 4/4 moist) redoximorphic concentrations; 7 percent gravel; very slightly effervescent; slightly alkaline (pH 7.5); abrupt wavy boundary.

Cg2—76 to 107 centimeters (30 to 42 inches); light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial and tubular pores; few medium distinct dark yellowish brown (10YR 4/4 moist) redoximorphic concentrations; 7 percent gravel; slightly effervescent; slightly alkaline (pH 7.5); abrupt wavy boundary.

Cg3—107 to 114 centimeters (42 to 45 inches); light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine interstitial and tubular pores; common fine and medium distinct yellowish

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brown (10YR 5/6 moist) and dark yellowish brown (10YR 3/4 and 4/4 moist) redoximorphic concentrations; 7 percent gravel; slightly effervescent; slightly alkaline (pH 7.5); abrupt smooth boundary.

Cg4—114 to 152 centimeters (45 to 60 inches); pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; few very fine interstitial pores; common fine distinct yellowish brown (10YR 5/6 moist) and common fine faint dark yellowish brown (10YR 4/4 moist) redoximorphic concentrations; 7 percent gravel; slightly effervescent; slightly alkaline (pH 7.5).

Range in characteristics

Soil moisture control section

Usually moist in some part for short periods because of flooding and capillary rise above the water table; an aquic soil moisture regime

Soil temperature: 17 to 21 degrees C

Depth to a high water table: 0 to 91 centimeters (0 to 3 feet)

Depth to redoximorphic concentrations: 10 to 20 centimeters

A horizon

Value—4 or 5 dry

Chroma—2 to 4 dry and moist

Texture of the fine-earth fraction—sandy loam, loam, or fine sandy loam

Content of clay—8 to 20 percent

Content of organic matter—1 to 6 percent

Reaction—neutral to strongly alkaline

Content of rock fragments—0 to 9 percent gravel

Bg horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 3 dry and moist

Texture of the fine-earth fraction—sandy loam, fine sandy loam, or loam

Content of clay—8 to 18 percent

Content of organic matter—1 to 3 percent

Reaction—neutral to moderately alkaline

Content of rock fragments—0 to 9 percent gravel

Cg horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry and moist

Texture of the fine-earth fraction—loamy sand, coarse sandy loam, sandy loam, fine sandy loam, loam, or silt loam

Content of clay—3 to 18 percent

Content of organic matter—0.5 to 2 percent

Reaction—neutral to strongly alkaline

Content of rock fragments—0 to 9 percent gravel

Koehn Series

The Koehn series consists of very deep, somewhat excessively drained soils that formed in granitic alluvium. These soils are on inset fans, fan aprons, and stream terraces and in drainageways. Slopes range from 2 to 8 percent. The mean annual precipitation is about 150 millimeters, and the mean annual air temperature is about 18 degrees C. The frost-free period is 200 to 270 days.

Taxonomic classification: Mixed, thermic Typic Torripsamments

Typical pedon

Koehn coarse sand, 2 to 8 percent slopes (fig. 12), at an elevation of 803 meters; Kern County, California; about 33 kilometers north and 15 kilometers east of Mojave,

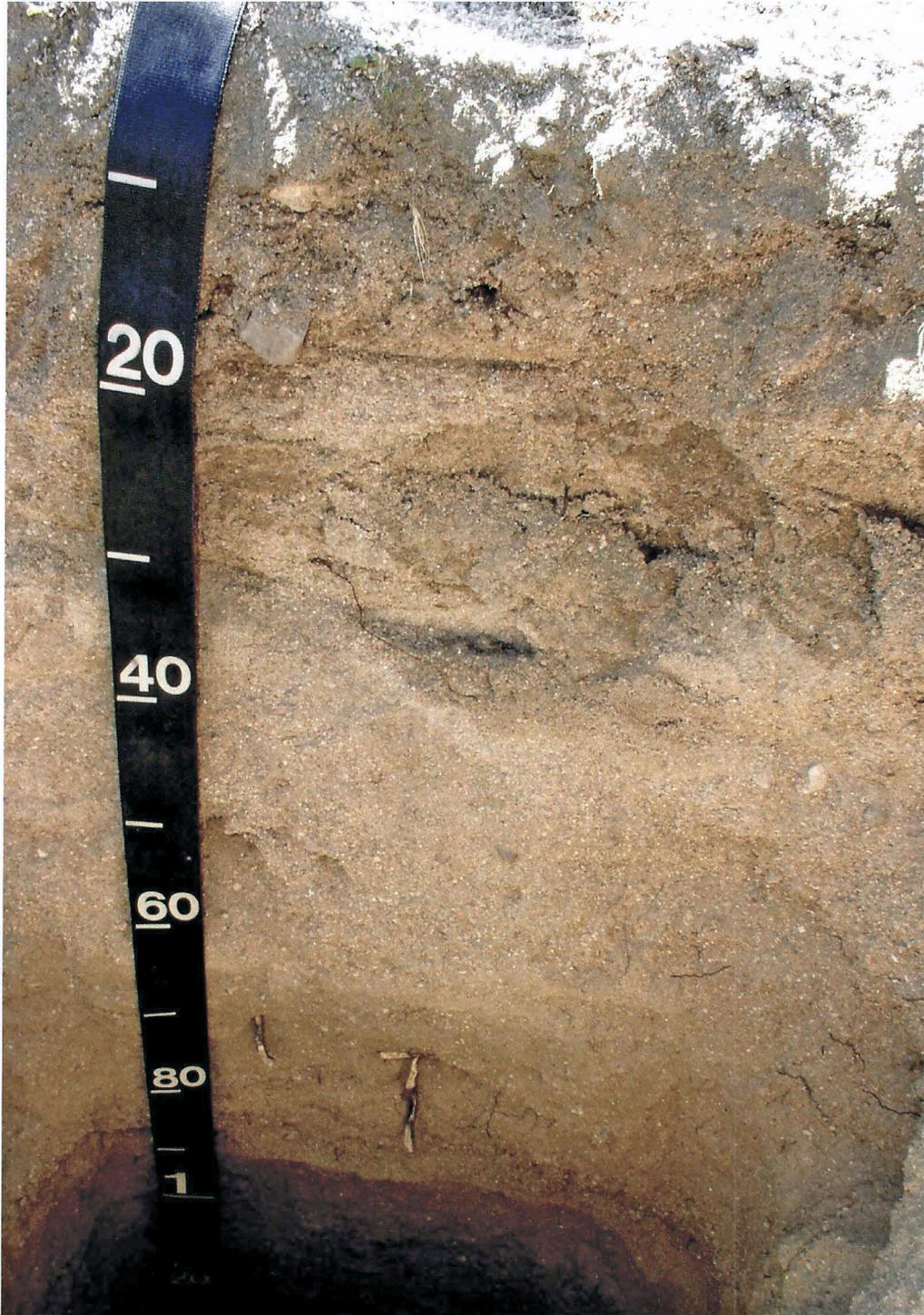


Figure 12.—Typical pedon of Koehn coarse sand, 2 to 8 percent slopes. Depth is marked in centimeters.

Soil Survey of Jawbone-Butterbredt ACEC Area, California

California; about 5 kilometers north and 0.5 kilometer west of Jawbone Canyon OHV Visitors Center, within the BLM Jawbone-Butterbredt ACEC; 617 meters west and 247 meters south of the northeast corner of sec. 9, T. 30 S., R. 37 E., MDBM; 35 degrees, 20 minutes, 41.8 seconds north latitude and 118 degrees, 0 minutes, 27.5 seconds west longitude; USGS Cinco, California, 7.5-minute quadrangle; UTM 11S 0408437e 3911763n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 50 percent by gravel

- A—0 to 3 centimeters (0 to 1 inch); brown (10YR 5/3) coarse sand, dark grayish brown (10YR 4/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine and fine tubular pores; 4 percent fine and 2 percent medium and coarse gravel; neutral (pH 7.0); clear wavy boundary.
- C1—3 to 20 centimeters (1 to 8 inches); pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; weak fine to coarse subangular blocky structure parting to massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 5 percent fine gravel; neutral (pH 7.0); gradual wavy boundary.
- C2—20 to 53 centimeters (8 to 21 inches); light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and coarse roots; common very fine interstitial pores; 2 percent fine gravel; slightly alkaline (pH 7.4); gradual wavy boundary.
- C3—53 to 75 centimeters (21 to 30 inches); light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; weak medium and coarse subangular blocky structure parting to massive; slightly hard, very friable, nonsticky and nonplastic; few coarse roots; few very fine interstitial pores; 5 percent fine and 1 percent medium and coarse gravel; slightly alkaline (pH 7.8); clear wavy boundary.
- Ck—75 to 88 centimeters (30 to 35 inches); light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few medium, coarse, and very coarse roots; common fine interstitial pores; 1 percent distinct white (10YR 8/1) carbonate coatings on rock fragments; 2 percent fine gravel, 3 percent medium and coarse gravel, and 5 percent cobbles; slightly alkaline (pH 7.8); clear wavy boundary.
- C'—88 to 159 centimeters (35 to 63 inches); light yellowish brown (10YR 6/4) loamy sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few coarse roots; common very fine and fine interstitial pores; 3 percent fine and 1 percent medium and coarse gravel; slightly alkaline (pH 7.6).

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittently moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 18 to 22 degrees C

Control section

Content of clay—2 to 10 percent

Content of rock fragments—2 to 10 percent, dominantly fine gravel

Content of organic matter—0 to 0.5 percent

Reaction—neutral or slightly alkaline

Effervescence—none or very slight

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry, 2 or 3 moist
Texture—coarse sand or sand
Content of clay—3 to 8 percent
Structure—weak and moderate thin to very thick platy
Consistence—soft or slightly hard
Content of rock fragments—1 to 10 percent gravel
Reaction—neutral or slightly alkaline

C horizons

Value—4 to 7 dry, 4 or 5 moist
Chroma—2 to 6 dry and moist
Texture—coarse sand, sand, loamy coarse sand, or loamy sand
Content of clay—2 to 10 percent
Structure—single grain, massive, or subangular blocky
Consistence—soft or slightly hard dry
Content of rock fragments—1 to 10 percent gravel and 0 to 5 percent cobbles
Reaction—neutral or slightly alkaline

Pasopeak Series

The Pasopeak series consists of shallow, well drained soils that formed in residuum and colluvium derived from rhyolite. These soils are on the summits and side slopes of mountains. Slopes range from 30 to 75 percent. The mean annual precipitation is about 125 millimeters, and the mean annual air temperature is about 17 degrees C . The frost-free period is 210 to 270 days.

Taxonomic classification: Loamy-skeletal, mixed, superactive, thermic Lithic Haplargids

Typical pedon

Pasopeak sandy loam, in an area of Pasopeak-Rock outcrop association, 30 to 75 percent slopes, at an elevation of 1,255 meters; Kern County, California; 715 meters south and 510 meters west of the northeast corner of sec. 26, T. 30 S., R. 36 E., MDBM; USGS Cinco, California, 7.5-minute topographic quadrangle; 35 degrees, 17 minutes, 51.20 seconds north latitude and 118 degrees, 4 minutes, 49.30 seconds west longitude; UTM 11S 401772e 3906575n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 85 percent by gravel, 4 percent by cobbles, and 1 percent by stones

- A—0 to 6 centimeters (0 to 2 inches); yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 8 percent fine and 2 percent medium and coarse gravel; neutral (pH 7.2); abrupt smooth boundary.
- Bt1—6 to 20 centimeters (2 to 8 inches); yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and few fine interstitial pores; few distinct brown (7.5YR 5/4) clay films on rock fragments, on all faces of peds, and between sand grains; 10 percent fine and 5 percent medium and coarse gravel; slightly alkaline (pH 7.4); clear smooth boundary.
- Bt2—20 to 29 centimeters (8 to 11 inches); brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; moderately hard, very friable, moderately sticky and moderately plastic;

few very fine roots; common very fine and few fine interstitial pores; few distinct brown (7.5YR 5/4) clay films between sand grains and on all faces of peds and few prominent brown (7.5YR 5/4) clay films on rock fragments; 15 percent fine gravel, 10 percent medium and coarse gravel, and 2 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

Bt3—29 to 43 centimeters (8 to 17 inches); brown (7.5YR 4/4) extremely gravelly sandy clay loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; few fine roots; common very fine interstitial pores; many prominent brown (7.5YR 5/4) clay films on all faces of peds and few prominent brown (7.5YR 5/4) clay films on rock fragments; 20 percent fine gravel, 45 percent medium and coarse gravel, and 2 percent cobbles; neutral (pH 7.2); very abrupt smooth boundary.

R—43 centimeters (17 inches); indurated volcanic bedrock.

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 15 to 22 degrees C

Depth to an argillic horizon: 2 to 8 centimeters

Depth to bedrock: 20 to 50 centimeters

Control section

Content of clay—averages 20 to 30 percent

Content of rock fragments—averages 35 percent or more; in individual horizons, 25 to 80 percent gravel, 0 to 20 percent cobbles, and 0 to 20 percent stones

A horizon

Hue—10YR or 7.5YR

Chroma—3 or 4 dry and moist

Content of clay—10 to 18 percent

Bt horizon

Hue—5YR, 7.5YR, or 10YR

Value—5 to 7 dry

Chroma—4 to 6 dry and moist

Content of clay—16 to 35 percent

Texture of the fine-earth fraction—sandy loam or sandy clay loam

Pinyonpeak Series

The Pinyonpeak series consists of very shallow or shallow, well drained soils that formed in residuum and colluvium derived from granite. These soils are on the upper backslopes of hills, mountains, and rock pediments. Slopes range from 8 to 30 percent. The mean annual precipitation is about 200 millimeters, and the mean annual temperature is about 14 degrees C. The frost-free period is 165 to 220 days.

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Typic Haplargids

Typical pedon

Pinyonpeak gravelly sandy loam (fig. 13), in an area of Goldpeak-Pinyonpeak-Wingap complex, 2 to 30 percent slopes, at an elevation of 1,132 meters; Kern



Figure 13.—Typical pedon of Pinyonpeak gravelly sandy loam. Depth is marked in centimeters.

County, California; about 35 kilometers north and 6 kilometers east of the town of Mojave, California, in the extreme southern Sierra Nevada Mountains; about 300 meters east and 700 meters north of the southwest corner of sec. 30, T. 29 S., R. 37 E., MDBM; 35 degrees, 22 minutes, 57.5 seconds north latitude and 118 degrees, 3 minutes, 27.1 seconds west longitude; USGS Dove Springs, California, 7.5-minute topographic quadrangle; UTM 11S 0403947e, 3915992n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Percentage of the surface covered by rock fragments: 80 percent by fine and medium gravel

A—0 to 5 centimeters (0 to 2 inches); yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; moderate very thick platy structure parting to weak medium subangular blocky; soft, very friable, slightly sticky and nonplastic; common very fine to medium roots; common very fine interstitial pores; 30 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

Bt—5 to 15 centimeters (2 to 6 inches); strong brown (7.5YR 4/6) gravelly coarse sandy loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine to medium roots; common very fine interstitial pores; 20 percent prominent clay films bridging sand grains and 10 percent prominent clay films on rock fragments; 30 percent gravel and 25 percent paragravel; neutral (pH 7.0); abrupt irregular boundary.

Ct—15 to 20 centimeters (6 to 8 inches); gravel; few very fine and fine roots; 35 percent prominent clay films on rock fragments; abrupt wavy boundary.

Crt—20 to 40 centimeters (8 to 16 inches); weathered granitic bedrock; fractures 2 to 10 centimeters apart; 35 percent prominent clay films on rock fragments; gradual wavy boundary.

R—40 centimeters (16 inches); hard, fractured granitic bedrock; fractures 10 to 20 centimeters apart.

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 15 to 18 degrees C

Depth to argillic horizon: 3 to 15 centimeters

Depth to paralithic contact: 15 to 36 centimeters

Depth to hard bedrock: 30 to 75 centimeters

Control section

Content of clay—averages 10 to 18 percent

Content of rock fragments—averages 15 to 35 percent, dominantly fine gravel, with 0 to 30 percent paragravel

Reaction—neutral or slightly alkaline

A horizon

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry and moist

Content of clay—5 to 12 percent

Consistence—soft to moderately hard, nonsticky or slightly sticky

Structure—fine or medium or thin to thick

Bt horizon(s)

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 or 6 dry, 3 to 6 moist

Content of clay—10 to 18 percent

Texture of the fine-earth fraction—coarse sandy loam or sandy loam

Structure—weak or moderate, fine to coarse

Consistence—slightly hard to very hard, very friable to firm, nonsticky or slightly sticky, nonplastic or slightly plastic

Scodie Series

The Scodie series consists of shallow or very shallow, somewhat excessively drained soils that formed in material weathered from granitic rocks. These soils are on mountains and hillsides. Slopes range from 30 to 60 percent. The mean annual precipitation is about 280 millimeters, and the mean annual air temperature is about 10 degrees C. The frost-free period is 120 to 165 days.

Taxonomic classification: Mixed, mesic, shallow Torripsammentic Haploxerolls

Typical pedon

Scodie gravelly coarse sand (fig. 14), in an area of Scodie-Grandora association, 15 to 60 percent slopes, at an elevation of 1,756 meters; Kern County, California; about 45 kilometers north and 2 kilometers east of Mojave, California, at the southern end of the Scodie Mountains; about 3 kilometers east of Mayan Peak; 300 meters south and 170 meters west of the northeast corner of sec. 25, T. 28 S., R. 35 E., MDBM; USGS Pinyon Mountain, California, 7.5-minute topographic quadrangle; 35 degrees, 27 minutes, 47.4 seconds north latitude and 118 degrees, 9 minutes, 32.3 seconds west longitude; UTM 11S 394839e 3925027n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 65 percent by fine gravel and 10 percent by medium and coarse gravel

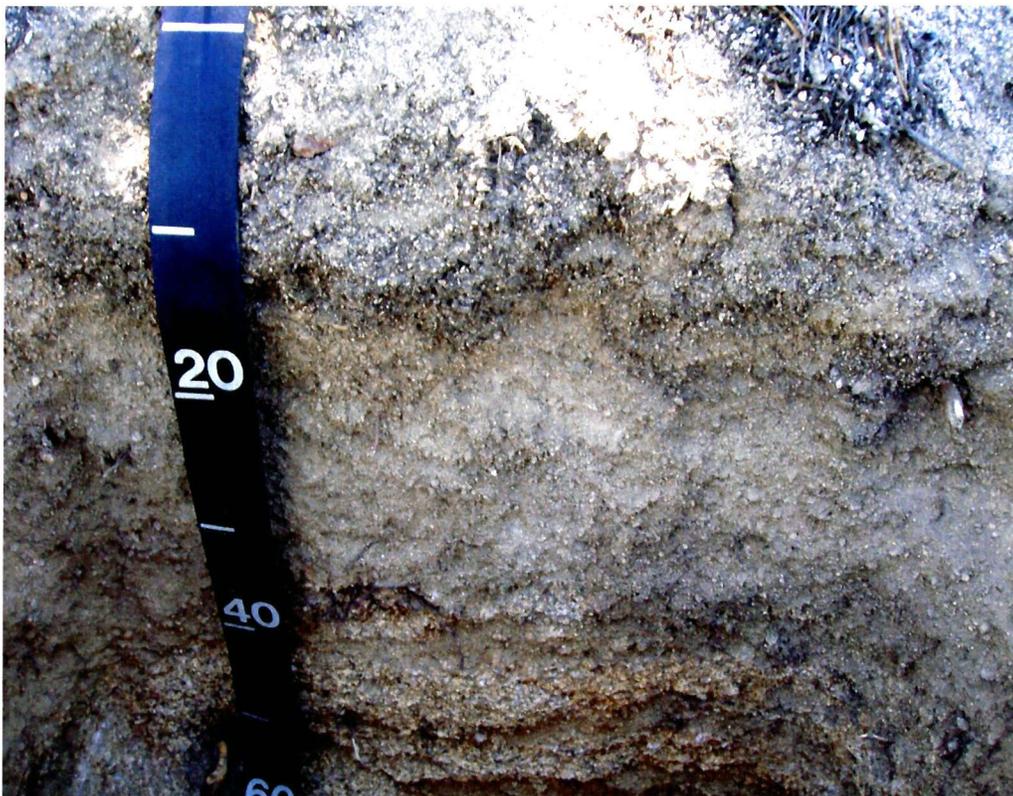


Figure 14.—Typical pedon of Scodie gravelly coarse sand. Depth is marked in centimeters.

- A—0 to 12 centimeters (0 to 5 inches); grayish brown (10YR 5/2) gravelly coarse sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine and common fine interstitial pores; 25 percent gravel; neutral (pH 6.8); abrupt wavy boundary.
- ABt—12 to 38 centimeters (5 to 15 inches); brown (10YR 5/3) gravelly coarse sand, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine to coarse roots; common very fine interstitial and few fine tubular pores; 5 percent faint clay films on rock fragments; 20 percent gravel; neutral (pH 7.2); abrupt wavy boundary.
- Crt—38 to 60 centimeters (15 to 24 inches); salt-and-pepper colored, weathered granitic bedrock; vertical fractures 50 to 75 centimeters apart; common very fine and few fine to coarse roots in fractures; 5 percent faint clay films on rock fragments; clear wavy boundary.
- R—60 centimeters (24 inches); salt-and-pepper colored granitic bedrock; very high excavation difficulty.

Range in characteristics

Soil moisture control section

Usually dry in all parts above the paralithic contact from about May 1 to November 30 and moist in some or all parts the rest of the year; moist in all parts for 45 or more consecutive days between December and April, but the soil temperatures are below 41 degrees F during most of this time; a xeric-aridic soil moisture regime

Mean annual soil temperature: 47 to 58 degrees F

Depth to decomposed granitic bedrock: 20 to 50 centimeters

Thickness of the mollic epipedon: 20 to 38 centimeters

Control section

Texture—loamy coarse sand or gravelly loamy coarse sand with more than 30 percent coarse sand and very coarse sand
Content of clay—3 to 10 percent
Content of rock fragments—10 to 35 percent, dominantly fine gravel, consisting of 10 to 35 percent gravel, 0 to 5 percent boulders and stones, and 0 to 10 percent cobbles
Reaction—slightly acid or neutral

A horizon

Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry and moist
Content of organic matter—1 to 3 percent

Typic Haplargids

The Typic Haplargids in this survey area consist of moderately deep, well drained soils that formed in residuum and colluvium derived from igneous rocks. These soils are on the backslopes of hills. Slopes range from 30 to 60 percent. The mean annual precipitation is about 150 millimeters, and the mean annual air temperature is about 18.5 degrees C. The frost-free period is 210 to 270 days.

Taxonomic classification: Loamy-skeletal, mixed, superactive, thermic Typic Haplargids

Typical pedon

Typic Haplargids, in an area of Jawbone-Typic Haplargids-Rock outcrop association, 30 to 60 percent slopes, at an elevation of 848 meters; Kern County, California; 695 meters north and 720 meters east of the southwest corner of sec. 14, T. 30 S., R. 36 E., MDBM; USGS Cinco, California, 7.5-minute topographic quadrangle; 35 degrees, 19 minutes, 31.5 seconds north latitude and 118 degrees, 5 minutes, 2.5 seconds west longitude; UTM 11S 401472e, 3909670n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 55 percent by gravel, 5 percent by cobbles, 3 percent by stones, and 2 percent by boulders

A—0 to 2 centimeters (0 to 1 inch); dark brown (10YR 3/3) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; few tubular and irregular pores; 4 percent fine gravel, 4 percent medium and coarse gravel, and 1 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—2 to 12 centimeters (1 to 5 inches); brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine irregular pores; few distinct brown (10YR 5/3) clay films on all faces of peds; 4 percent fine gravel, 4 percent medium and coarse gravel, and 1 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

Btk—12 to 45 centimeters (5 to 18 inches); brown (10YR 4/3) very cobbly clay loam, dark brown (10YR 3/3) moist; strong medium and coarse subangular blocky structure; moderately hard, very friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; few very fine irregular pores; few distinct brown (10YR 4/3) clay films on all faces of peds and very few distinct light gray (10YR 7/2) carbonate coatings on rock fragments; 10 percent fine gravel, 10 percent medium and coarse gravel, and 25 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

Btkq—45 to 95 centimeters (18 to 37 inches); yellowish brown (10YR 5/4) extremely cobbly loam, brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; soft, very friable, slightly sticky and moderately plastic; common very fine, fine, and medium roots; few very fine irregular pores; very few faint yellowish brown (10YR 5/4) clay films on all faces of peds, few prominent white (10YR 8/1) calcium carbonate coatings on rock fragments, and few prominent olive yellow (2.5Y 6/6) silica coatings on rock fragments; 10 percent fine gravel, 15 percent medium and coarse gravel, and 40 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

R—95 centimeters (37 inches); indurated, igneous, extrusive bedrock.

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 17 to 20 degrees C

Depth to bedrock: 50 to 100 centimeters

Control section

Content of clay—20 to 35 percent

Content of rock fragments—averages 35 to 60 percent gravel, 10 to 40 percent cobbles, and 0 to 1 percent stones

A horizon

Hue—10YR or 5YR
Value—3 or 4 dry and moist
Chroma—2 to 4 dry and moist

Bt horizon

Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4 dry and moist
Content of rock fragments—5 to 15 percent gravel and 0 to 3 percent cobbles
Reaction—neutral or slightly alkaline

Btk and Btkq horizons

Hue—10YR or 5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—3 to 6 dry and moist
Texture of the fine-earth fraction—sandy clay loam, clay loam, or loam
Content of rock fragments—35 to 70 percent, including 15 to 30 percent gravel, 20 to 40 percent cobbles, and 0 to 3 percent stones

Typic Torriorthents

The Typic Torriorthents in this survey area consist of very shallow, somewhat excessively drained soils that formed in residuum derived from granite. These soils are on the backslopes of hills. Slopes range from 30 to 60 percent. The mean annual precipitation is about 150 millimeters, and the mean annual air temperature is about 18.5 degrees C. The frost-free period is 210 to 270 days.

Taxonomic classification: Loamy-skeletal, mixed, superactive, nonacid, thermic, shallow Typic Torriorthents

Typical pedon

Typic Torriorthents, in an area of Typic Torriorthents-Rock outcrop association, 30 to 60 percent slopes, at an elevation of 1,223 meters; Kern County, California; 590 meters north and 545 meters east of the southwest corner of sec. 7, T. 30 S., R. 37 E., MDBM; USGS Cinco, California, 7.5-minute topographic quadrangle; 35 degrees, 20 minutes, 19.4 seconds north latitude and 118 degrees, 2 minutes, 52.9 seconds west longitude; UTM 11S 404761e, 3911111n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 75 percent by gravel, 5 percent by cobbles, 3 percent by stones, and 2 percent by boulders

A—0 to 3 centimeters (0 to 1 inch); yellowish brown (10YR 5/4) loamy sand, dark brown (10YR 3/3) moist; moderate very coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine pores; 2 percent fine and 3 percent medium and coarse gravel; slightly alkaline (pH 7.2); clear smooth boundary.

Bw—3 to 20 centimeters (1 to 8 inches); yellowish brown (10YR 5/4) very cobbly sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common very fine and few fine interstitial pores; 20 percent fine gravel, 15 percent medium and coarse gravel, and 40 percent cobbles; slightly alkaline (pH 7.2); abrupt wavy boundary.

Crt—20 to 41 centimeters (8 to 16 inches); weakly cemented, highly weathered granitic bedrock.

Range in characteristics

Soil moisture control section

Usually dry; not continuously moist for as long as 60 days; a typic-aridic soil moisture regime

Soil temperature: 17 to 20 degrees C

Depth to bedrock: 7 to 20 centimeters

Control section

Content of clay—7 to 8 percent

Content of rock fragments—40 to 65 percent gravel and 0 to 40 percent cobbles

A horizon

Chroma—3 or 4 dry and moist

Bw horizon

Value—3 or 4 moist

Content of rock fragments—35 to 40 percent gravel and 0 to 40 percent cobbles

Wingap Series

The Wingap series consists of deep, well drained soils that formed in colluvium over residuum derived from granite. These soils are on hills and mountains. Slopes range from 4 to 30 percent. The mean annual precipitation is about 200 millimeters, and the mean annual air temperature is about 15 degrees C. The frost-free period is 165 to 220 days.

Taxonomic classification: Coarse-loamy, mixed, superactive, thermic Typic Haplargids

Typical pedon

Wingap loamy coarse sand, in an area of Wingap-Pinyonpeak association, 8 to 30 percent slopes, at an elevation of 1,481 meters; Kern County, California; about 43 kilometers north and 2 kilometers east of Mojave, California, in the extreme southern Sierra Nevada Mountains; about 3.2 kilometers southwest of Dove Spring on Road SC 176, within the BLM's Jawbone-Butterbredt OHV-ACEC; 670 meters south and 975 meters west of the northeast corner of sec. 4, T. 29 S., R. 36 E., MDBM; 35 degrees, 26 minutes, 23.4 seconds north latitude and 118 degrees, 07 minutes, 14.5 seconds west longitude; USGS Dove Springs, California, 7.5-minute topographic quadrangle; UTM 11S 0398283e, 3922397n; (DTM: NAD 83). (Colors are for dry soil unless otherwise indicated.)

Percentage of the surface covered by rock fragments: 55 percent by fine and medium gravel

A—0 to 8 centimeters (0 to 3 inches); brown (10YR 5/3) loamy coarse sand, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 8 percent fine and 2 percent medium and coarse gravel; neutral (pH 6.8); abrupt smooth boundary.

Bt1—8 to 35 centimeters (3 to 14 inches); pale brown (10YR 6/3) loamy sand, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 3 percent faint clay bridges between sand grains; 6 percent fine and 4 percent medium and coarse gravel; neutral (pH 6.8); clear wavy boundary.

Soil Survey of Jawbone-Butterbredt ACEC Area, California

- Bt2—35 to 60 centimeters (14 to 24 inches); light yellowish brown (10YR 6/4) gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; moderately hard, very friable, slightly sticky and nonplastic; common fine and medium roots; common very fine interstitial pores; 25 percent distinct clay bridges between sand grains; 9 percent fine and 6 percent medium and coarse gravel; neutral (pH 6.6); clear wavy boundary.
- Bt3—60 to 104 centimeters (24 to 41 inches); light yellowish brown (10YR 6/4) gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine interstitial roots; few very fine interstitial pores; 10 percent distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 12 percent fine and 8 percent medium and coarse gravel; neutral (pH 6.6); clear wavy boundary.
- C—104 to 137 centimeters (41 to 54 inches); light yellowish brown (10YR 6/4) gravelly loamy coarse sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common fine roots; common very fine interstitial pores; 16 percent fine and 9 percent medium and coarse gravel; neutral (pH 6.6); abrupt irregular boundary.
- Cr—137 to 152 centimeters (54 to 60 inches); soft, weathered granite; moderate excavation difficulty.

Range in characteristics

Soil moisture control section

Usually dry; moist in some part during winter and spring and intermittingly moist near the soil surface following occasional summer convection storms; a typical aridic soil moisture regime

Soil temperature: 15 to 18 degrees C

Depth to the upper boundary of the argillic horizon: 8 to 40 centimeters

Depth to paralithic contact: 100 to 150 centimeters

Control section

Content of clay—8 to 18 percent

Content of rock fragments—averages 10 to 20 percent gravel, dominantly fine and medium gravel

A horizon

Value—5 or 6 dry, 3 or 4 moist

Texture of the fine-earth fraction—loamy coarse sand or loamy sand

Content of clay—4 to 10 percent

Content of rock fragments—5 to 15 percent gravel, dominantly fine gravel

Consistence—soft or slightly hard

Structure—weak or moderate, thin to thick

Content of organic matter—0.25 to 0.6 percent

Bt1 or Bw horizon (where present)

Chroma—3 or 4 dry and moist

Texture of the fine-earth fraction—loamy sand or loamy coarse sand

Content of clay—4 to 10 percent

Consistence—slightly hard or moderately hard

Structure—weak or moderate medium or coarse subangular blocky

Content of rock fragments—10 to 20 percent gravel

Bt2 and Bt3 horizons

Hue—7.5YR or 10YR

Value—5 or 6 dry, 4 or 5 moist

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Chroma—4 or 6 dry, 3, 4, or 6 moist
Texture of the fine-earth fraction—sandy loam or coarse sandy loam
Content of clay—10 to 18 percent
Content of rock fragments—15 to 35 percent gravel
Structure—weak or moderate, medium or coarse
Consistence—slightly hard to hard, nonplastic or slightly plastic
Reaction—neutral or slightly alkaline

C horizon

Value—4 or 5 moist
Texture of the fine-earth fraction—loamy sand or loamy coarse sand
Content of clay—4 to 10 percent
Content of rock fragments—15 to 35 percent gravel
Reaction—neutral or slightly alkaline

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Glossary

- AASHTO classification.** A system for classifying soils specifically for geotechnical engineering purposes that is related to highway and airfield construction. It is based on particle-size distribution and Atterberg limits.
- Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
- Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
- Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
- Alluvial fan.** A low, outspread mass of loose material and/or rock material washed down the sides of mountains and hills. It commonly has gentle slopes and is shaped like an open fan or a segment of a cone. It is deposited by a stream at the place where the stream issues from a narrow mountain valley or where a tributary stream is near or at its junction with the main stream. An alluvial fan is steepest near its apex, which points upstream, and it slopes gently and convexly outward with a gradual decrease in gradient.
- Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.
- Alpha,alpha-dipyridyl.** A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.
- Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.
- Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.
- Aridic moisture regime.** The moisture regime of soils that are dry for at least one-half of the year. The soils commonly occur in areas that have an aridic climate. A few are in areas that have a semiarid climate, but they either have physical properties that keep them dry, such as a crusty surface that virtually precludes the infiltration of water, or have steep slopes with a high rate of runoff. Little, if any, leaching occurs in the soils in this moisture regime, and soluble salts accumulate in the soils if there is a source of salts.
- 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 moisture capacity.** See Available water capacity.
- Available water capacity (AWC).** The volume of water that should be available to plants if the soil, inclusive of fragments, were at field capacity. It is commonly estimated as the difference between the amount of water at field capacity and the amount at wilting point with adjustments for salinity, fragments, and rooting depth.

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 2.5
Low	2.5 to 5.0
Moderate	5.0 to 7.5
High	7.5 to 10.0
Very high	more than 10.0

AWC. See Available water capacity.

Backslope. The hillslope profile position that forms the steepest and generally linear, middle portion of the slope. In profile, backslopes commonly are bounded by a convex shoulder above and a concave footslope below. They may or may not include cliff segments, or free faces. Backslopes are commonly erosional forms produced by mass movement, colluvial action, and running water.

Badland. A landscape that is intricately dissected and is characterized by a very fine drainage network with high drainage density and short, steep slopes with narrow interfluves. Badland develops on surfaces that have little, if any, vegetative cover, are underlain by unconsolidated or poorly cemented material (clay, silt, or sand), and in some areas have soluble minerals, such as gypsum and halite.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedrock. A general term for 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.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Bulk density. A measurement of the oven-dry weight of the soil material that is less than 2 millimeters in diameter per unit volume. Common measurements are taken at $\frac{1}{3}$ -, $\frac{1}{10}$ -, or 15-bar moisture tension. Bulk density influences plant growth and engineering applications. It is used to convert measurements from a weight basis to a volume basis. Within a family particle-size class, bulk density is an indicator of how well plant roots are able to extend into the soil. Bulk density is used to calculate porosity.

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 mineral soil horizon of secondary carbonate enrichment that is more than 15 centimeters thick and that has a calcium carbonate equivalent of more than 15 percent. The calcium carbonate equivalent is at least 5 percent higher than that of the underlying horizon.

Calcium carbonate equivalent. The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved

carbon dioxide (CO₂) is measured, and the amount of carbonate is then calculated as calcium carbonate (CaCO₃).

Cambic horizon. A mineral soil horizon that has the texture of loamy very fine sand or finer, has soil structure rather than rock structure, and contains some weatherable minerals. It is characterized by the alteration or removal of mineral material as indicated by mottling or gray color, stronger chroma or redder hue than the underlying horizons, or the removal of carbonates. The cambic horizon lacks cementation or induration and shows too little evidence of illuviation to meet the requirements for an argillic horizon.

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity (CEC). 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.

CEC. See Cation-exchange capacity.

Cement rock. Shaly limestone used in the manufacture of cement.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay 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.

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.

Clayey. Sandy clay, silty clay, and clay.

Claypan. A dense, compact, slowly permeable layer in the subsoil that has a much higher content of clay than the overlying material. A claypan commonly is hard when dry and plastic or sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. See Rock fragments.

Coarse textured soil. Sand or loamy sand.

Coatings for pipelines. Coatings used as a barrier to the flow of electricity and moisture, thereby preventing the formation of corrosion cells.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility percent.

Colluvium. Unconsolidated, unsorted earth material transported or deposited on side slopes and/or at the base of slopes by mass movement, or direct gravitational action, and by local unconcentrated runoff.

- Compaction.** The process by which void space is decreased as soil grains are brought into closer contact with one another, thereby increasing bulk density.
- 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.
- Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.
- 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."
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- 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.** See Depth, soil.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- Depth to bedrock** (in tables). Bedrock is too near the surface for the specified use.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- 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.** A general term for a course or channel along which water moves in draining an area.
- EC.** See Electrical conductivity.
- Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

- Electrical conductivity (EC).** The electrolytic conductivity of an extract from saturated soil paste.
- 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 material.** Material transported and deposited by wind, including earth material, such as dune sand, sand sheets, loess, and clay.
- 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.
- Epipedon.** A soil horizon that forms at or near the soil surface and in which most of the rock structure has been destroyed. It is darkened by organic matter or shows evidence of eluviation, or both.
- 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 concentration of gravel or coarser fragments that remains on the soil surface after finer particles have been removed by running water or wind.
- Extrusive.** Pertaining to igneous rock and sediment derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface, including lava flows and tephra deposits.
- Family, soil.** The most specific hierarchical category in soil taxonomy.
- Fan apron.** A sheetlike mantle of relatively young alluvium and soils covering part of an older fan piedmont (and in some areas an alluvial fan) surface, commonly thicker and farther downslope than a fan collar. An older buried soil (or relict soil) can be traced to the edge of the fan apron, where it emerges as the land surface. It does occur within the fan-apron mantle itself.
- Fan piedmont.** The most extensive landform on piedmont slopes that is formed either by the lateral downslope coalescence of mountain-front alluvial fans into one generally smooth slope with or without the transverse undulations of the semiconical alluvial fans or by the accretion of fan aprons.
- Fan remnant.** A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, fan aprons, inset fans, and fan skirts, that either have been dissected (erosional fan remnants) or partially buried (nonburied fan remnants). An erosional fan remnant has a relatively flat summit that is a relict fan surface. A nonburied fan remnant is a relict surface in its entirety.
- 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, till, and other growth factors are favorable.
- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fine textured soil.** Sandy clay, silty clay, or clay.

Flood plain. The nearly level plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is commonly a constructional landform consisting of sediment deposited during overflow and lateral migration of a stream.

Fluvial. Of or pertaining to rivers; produced by river action.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Fragments. Unattached cemented pieces of bedrock, bedrocklike material, durinodes, concretions, and nodules 2 millimeters in diameter or larger in mineral soils; woody material 20 millimeters in diameter or larger in organic soils.

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.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Granite. A felsic igneous intrusive rock containing quartz and orthoclase with smaller amounts of sodic plagioclase and commonly muscovite.

Granitic. A textural term commonly pertaining to an igneous intrusive rock of felsic to intermediate composition. Referring to granitelike rock, but not necessarily true granite. Commonly applied to granite, quartz monzonite, granodiorite, and diorite.

Granodiorite. An igneous intrusive rock that is intermediate between felsic and mafic in composition and contains quartz and somewhat more plagioclase than orthoclase.

Gravel. Rounded or angular fragments of rock as much as 3 inches (7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Halophytic. Pertaining to vegetation that is adapted to salty soils.

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.

Head out. To form a flower head.

Hill. A generic term for an area of the land surface that rises as much as 1,000 feet (300 meters) above surrounding lowlands, commonly has restricted summit area relative to surrounding surfaces, and has a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and commonly is dependent on local usage.

Holocene. The epoch of the Quaternary period of geologic time that extends from the end of the Pleistocene (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. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state.

Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration 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, generally 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.** Specific name for the flood plain of an ephemeral stream that is confined between fan remnants, ballenas, basin floor remnants, or closely opposed fan toeslopes of a basin.
- Intrusive.** Pertaining to igneous rock derived from molten matter (magma) that invaded pre-existing rock and cooled below the surface of the earth.
- 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.
- K factor.** A measurement of potential soil erodibility caused by detachment of soil particles by water.
- Lacustrine deposit.** Clastic sediment and chemical precipitates deposited in lakes.
- Lakebed.** (a) [relict] The flat to gently undulating ground underlain by or composed of fine grained sediments deposited in a former lake. (b) The bottom of a lake; a lake basin.
- Landform.** Any physical, recognizable form or feature on the earth's surface having a characteristic shape and produced by natural causes.
- Landscape.** A collection of related, natural landforms; generally the land surface that the eye can perceive in a single view.
- 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.
- Leaching.** The removal of soluble material from soil or other material by percolating water.
- LEP.** See Linear extensibility percent.
- Linear extensibility percent (LEP).** The linear expression of the volume difference between the water content of the natural soil fabric at $1/3$ - or $1/10$ -bar and oven dryness. The volume change is reported as a percent for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.
- Liquid limit (LL).** The moisture content at which the soil passes from a plastic to a liquid state.
- LL.** See Liquid limit.
- 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.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam.
- Loess.** Material that is transported and deposited by wind and that consists dominantly of silt-sized clastics.
- Low strength.** The soil is not strong enough to support loads.
- Magma.** Molten rock material that originates deep in the earth and solidifies to form igneous rock.
- 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.
- Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.
- Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement in the earth's crust. Nearly all such rocks are crystalline. Examples are schist, gneiss, quartzite, slate, and marble.

- Mineral soil.** Soil that is mainly mineral material and low in content of organic material. Its bulk density is more than that of organic soil.
- 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.** See Depth, soil.
- 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.
- Mountain.** A natural elevation of the land surface that rises more than 1,000 feet (300 meters) above surrounding lowlands, commonly has limited summit area relative to surrounding surfaces, and generally has steep sides (slopes of more than 25 percent) with or without considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic and/or volcanic activity and by differential erosion.
- Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.
- Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)
- Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.
- 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.
- OM.** See Organic matter.
- Organic matter (OM).** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:
- | | |
|----------------------|-----------------------|
| Very low | less than 0.5 percent |
| Low | 0.5 to 1.0 percent |
| Moderately low | 1.0 to 2.0 percent |
| Moderate | 2.0 to 4.0 percent |
| High | 4.0 to 8.0 percent |
| Very high | more than 8.0 percent |
- 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 and chemically weathered mineral and organic material in which the solum of a soil is formed as a result of pedogenic processes.
- Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.
- Pediment.** A gently sloping erosional surface at the foot of a receding hill or mountain slope. The surface may be essentially bare, exposing earth material that extends beneath adjacent uplands, or it may have a thin mantle of alluvium and colluvium, ultimately in transit from the upland front to the basin or valley lowland. On hill

footslope terrain, the mantle is designated “pedisediment.” The term pediment is used in several geomorphic contexts: (1) landscape positions, for example, intermontane basin piedmont or valley border footslope surfaces, or respectively, apron and terrace pediments; (2) type of material eroded, either bedrock or regolith; or (3) a combination of these.

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.

Perched water table. The upper surface of unconfined ground water separated from an underlying main body of ground water by an unsaturated zone.

Percolation. The downward movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

PI. See Plasticity index.

Piedmont (adjective). Lying or formed at the base of a mountain or mountain range; for example, a piedmont terrace or a piedmont pediment.

Piedmont (noun). An area, plain, slope, glacier, or other feature at the base of a mountain; for example, a foothill or bajada. In the United States, the Piedmont is a low plateau that extends from New Jersey to Alabama and lies east of the Appalachian Mountains.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index (PI). The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Pleistocene. The epoch of the Quaternary period of geologic time following the Pliocene and preceding the Holocene (approximately 2 million to 10 thousand years ago). Also refers to the corresponding (time-stratigraphic) “series” of earth material.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

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 differs from the potential.

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, proportion, and total production.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features

indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

- Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.
- Relief.** The elevations or inequalities of a land surface, considered collectively.
- Remnant.** The remaining part of a larger landform or land surface that has been dissected or partially buried.
- Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.
- Riverwash.** Barren alluvial areas of unstabilized sand, silt, clay, or gravel reworked frequently by stream activity.
- 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 bedrock, excluding lava and rock-lined pits.
- Root zone.** The part of the soil that can be penetrated by plant roots.
- Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- 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 is expressed as the electrical conductivity of a saturation extract at 25 degrees C. Salinity classes, expressed in millimhos per centimeter, are 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

- Saline-sodic soil.** A soil that contains sufficient exchangeable sodium to interfere with the growth of most crops and appreciable quantities of soluble salts. The exchangeable sodium ratio is greater than 0.15; the conductivity of the soil solution, when saturated, is greater than 4 decisiemens per meter (at 25 degrees C); and the pH is commonly 8.5 or less when the soil is saturated.
- 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.
- Sandy.** Sand and loamy sand.
- SAR.** See Sodium adsorption ratio.
- Saturated hydraulic conductivity (Ksat).** See Permeability.
- 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.
- 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.
- Shallow soil.** See Depth, soil.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

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.

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.

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, classes for simple slopes are as follows:

Level	0 to 1 percent
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 percent and higher

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Nonsodic	0-5:1
Very slightly sodic	5-13:1
Slightly sodic	13-30:1
Moderately sodic	30-45:1
Strongly sodic	45-90:1
Very strongly sodic	more than 90:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil erodibility factors. The Kw and Kf factors quantify the susceptibility of soil to detachment by water. These erodibility factors predict the long-term average soil loss that results from sheet and rill erosion when various cropping systems and conservation techniques are used. The whole soil is considered in the Kw factor, but only the fine-earth fraction, which is the material less than 2 millimeters in diameter, is considered in the Kf factor.

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.

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.

Stratified. Referring to geologic deposits that were formed, arranged, or laid down in layers. Layers in soils that are a result of the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stream terrace. One of a series of platforms in a stream valley that flanks and is more or less parallel to the stream channel, originally formed near the level of the stream, and represents the dissected remnants of an abandoned flood plain, streambed, or valley floor produced during an earlier period of erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

T factor. The soil loss tolerance, which is defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained. Maintaining the quality of the soil includes maintaining the surface soil as a seedbed for plants, maintaining the atmosphere-soil interface to allow the entry of air and water into the soil and still protect the underlying soil from wind and water erosion, and maintaining the total soil volume as a reservoir for water and plant nutrients, which is preserved by minimizing soil loss.

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.

Temperature regime, soil. A system that categorizes for taxonomic purposes general, long-term soil temperature conditions at the standard depth of 20 inches or at the surface of the bedrock, whichever is shallower. The various regimes are defined according to the freezing point of water or to the high and low extremes for significant biological activity. The regimes, which are defined in "Keys to Soil Taxonomy," are as follows:

Pergellic.—The temperature regime in soils that have a mean annual temperature of less than 32 degrees F and have permafrost.

Cryic.—The temperature regime in soils that have a mean annual temperature of 32 to 47 degrees F and remain cold in summer.

Frigid.—The temperature regime in soils that have a mean annual temperature similar to that of the cryic regime but have a mean summer temperature at least 9 degrees warmer.

Mesic.—The temperature regime in soils that have a mean annual temperature of 47 to 59 degrees F and in which the difference between the mean summer and mean winter temperature is more than 9 degrees.

Thermic.—The temperature regime in soils that have a mean annual temperature of 59 to 72 degrees F and in which the difference between the mean summer and mean winter temperature is more than 9 degrees.

Hyperthermic.—The temperature regime in soils that have a mean annual temperature of more than 72 degrees F and in which the difference between the mean summer and mean winter temperature is more than 9 degrees.

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."

Thermic temperature regime. See Temperature regime, soil.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

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.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range of moisture conditions.

Unified soil classification. A system for classifying mineral and organic soils for engineering purposes based on particle-size characteristics, liquid limit, and plasticity index.

Valley fill. The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) that fills or partly fills a valley.

Variation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Vegetative cover. The crown cover of all live plants in relation to the ground surface.

Very deep soil. See Depth, soil.

Very shallow soil. See Depth, soil.

Water table. The upper surface of ground water or the level below which the soil is saturated by water. Also, the top of an aquifer.

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.

WEG. See Wind erodibility group.

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.

Wind erodibility group (WEG). A grouping of soils that have similar properties affecting their resistance to wind erosion in cultivated areas.

Windthrow. The uprooting and tipping over of trees by the wind.

Xeric moisture regime. The typical moisture regime in areas of Mediterranean climates, where winters are moist and cool and summers are warm and dry. When potential evapotranspiration is at a minimum, the moisture, which falls in winter, is particularly effective in leaching. The mean annual soil temperature is less than 22 degrees C, and the difference between the mean summer and mean winter soil temperature is 6 degrees.

Xerophytic. Pertaining to vegetation that is adapted to dry areas.

Tables

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 1.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
3010	Jawbone-Typic Haplargids-Rock outcrop association, 30 to 60 percent slopes-----	2,357	1.6
3250	Jawbone association, 30 to 60 percent slopes-----	3,095	2.1
3251	Jawbone association, 8 to 50 percent slopes-----	2,888	2.0
3280	Typic Torriorthents-Rock outcrop association, 30 to 60 percent slopes----	2,614	1.8
3301	Cutterbank association, 15 to 60 percent slopes-----	8,779	6.0
3430	Pasopeak-Rock outcrop association, 30 to 75 percent slopes-----	2,892	2.0
3630	Koehn coarse sand, 2 to 8 percent slopes, very rarely flooded-----	1,132	0.8
3670	Inyo loamy coarse sand, 0 to 9 percent slopes, occasionally flooded-----	52	*
3671	Inyo loamy coarse sand, 0 to 5 percent slopes-----	68	*
3672	Inyo loamy coarse sand, 5 to 15 percent slopes-----	1,636	1.1
4160	Dovecanyon-Cutterbank association, 4 to 50 percent slopes-----	7,350	5.0
4161	Dovecanyon loamy sand, 2 to 8 percent slopes-----	4,192	2.9
4170	Dovecanyon association, 2 to 8 percent slopes-----	3,386	2.3
4171	Dovecanyon-Koehn association, 2 to 8 percent slopes-----	29,928	20.5
4430	Koehn coarse sand, 2 to 8 percent slopes-----	342	0.2
4431	Koehn sand, 2 to 4 percent slopes, frequently flooded-----	661	0.5
4432	Koehn association, 2 to 4 percent slopes-----	1,070	0.7
4435	Kernfork fine sandy loam, 0 to 2 percent slopes, frequently flooded-----	99	*
4436	Inyo-Riverwash complex, 0 to 5 percent slopes, frequently flooded-----	81	*
5201	Wingap-Pinyonpeak association, 8 to 30 percent slopes-----	11,506	7.9
5205	Scodie-Grandora association, 15 to 60 percent slopes-----	3,718	2.5
5210	Grandora-Pinyonpeak association, 8 to 60 percent slopes-----	32,573	22.3
5500	Birdcanyon coarse sand, 4 to 15 percent slopes-----	5,818	4.0
6001	Goldpeak-Pinyonpeak-Wingap complex, 2 to 30 percent slopes-----	13,038	8.9
6002	Goldpeak gravelly loamy sand, 2 to 8 percent slopes-----	3,749	2.6
6003	Goldpeak-Pinyonpeak association, 2 to 30 percent slopes-----	1,173	0.8
6601	Pinyonpeak-Wingap-Rock outcrop association, 8 to 30 percent slopes-----	1,677	1.1
	Total-----	145,874	100.0

* Less than 0.1 percent.

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 2.--Land Capability Classification

(The letter "N" indicates nonirrigated)

Map symbol and soil name	Land cap- abil- ity
	N
3010:	
Jawbone-----	8
Typic Haplargids-----	8
Rock outcrop-----	8
3250:	
Jawbone-----	8
Jawbone, moderately deep-----	8
3251:	
Jawbone, warm-----	8
Jawbone-----	8
3280:	
Typic Torriorthents-----	8
Rock outcrop-----	8
3301:	
Cutterbank-----	8
Cutterbank, warm-----	8
Cutterbank, steep-----	8
3430:	
Fasopeak-----	7e
Rock outcrop-----	8
3630:	
Koehn, very rarely flooded-----	7e
3670:	
Inyo-----	7e
3671:	
Inyo-----	7e
3672:	
Inyo-----	7e
4160:	
Dovecanyon-----	7e
Cutterbank-----	8
4161:	
Dovecanyon-----	7e

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land cap- abil- ity
	N
4170: Dovecanyon, warm-----	7e
Dovecanyon-----	7e
4171: Dovecanyon, warm-----	7e
Koehn, dry-----	7e
4430: Koehn-----	7e
4431: Koehn, frequently flooded-----	7e
4432: Koehn, occasionally flooded-----	7e
Koehn, frequently flooded-----	7e
4435: Kernfork-----	7w
4436: Inyo-----	6w
Riverwash-----	8
5201: Wingap-----	6e
Pinyonpeak-----	8
5205: Scodie-----	8
Grandora-----	6e
5210: Grandora-----	8
Grandora, warm-----	7e
Pinyonpeak-----	8
5500: Birdcanyon-----	7e
6001: Goldpeak-----	6e
Pinyonpeak-----	8
Wingap-----	6e
6002: Goldpeak-----	6e

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land cap- abil- ity
	N
6003:	
Goldpeak-----	6e
Goldpeak, steep-----	6e
Pinyonpeak-----	8
6601:	
Pinyonpeak-----	8
Wingap-----	6e
Rock outcrop-----	8

Table 3.—Rangeland and Forest Productivity With Existing Plant Communities

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
3010: Jawbone-----	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	Creosote bush		35
		Normal	150	White bursage		20
		Unfavorable	50	Desert needlegrass		4
Typic Haplargids	Volcanic Slope 5-7" p.z. (R030XA050CA)	Favorable	250	Cattle saltbush		35
		Normal	200	Sandberg bluegrass		15
		Unfavorable	150	Mexican bladdersage		7
				Burrobrush		7
				Winterfat		7
Rock outcrop.						
Jawbone, eroded	Steep Granitic Slope 5-7" p.z. (R030XA046CA)	Favorable	200	White bursage		35
		Normal	150	Eastern Mojave buckwheat		10
		Unfavorable	75	Mojave indigobush		10
Koehn, rarely flooded-----	Dry Wash (R030XA018CA)	Favorable	400	Cattle saltbush		25
		Normal	300	Burrobrush		10
		Unfavorable	100	Creosote bush		10
				Indian ricegrass		5
				Desert needlegrass		5
Garlock-----	Volcanic Slope 5-7" p.z. (R030XA050CA)	Favorable	250	Cattle saltbush		35
		Normal	200	Sandberg bluegrass		15
		Unfavorable	150	Mexican bladdersage		7
				Burrobrush		7
				Winterfat		7
Typic Torripsamments	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	Creosote bush		50
		Normal	150	White bursage		30
		Unfavorable	50	Indian ricegrass		6
3250: Jawbone-----	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	Creosote bush		35
		Normal	150	White bursage		20
		Unfavorable	50	Indian ricegrass		6
Jawbone, moderately deep	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	Creosote bush		35
		Normal	150	White bursage		20
		Unfavorable	50	Indian ricegrass		6

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 3.—Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight Lb/acre		Forest	Range
					Pct	Pct
3250: Jawbone, cool---	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		40
		Normal	500	Creosote bush		33
		Unfavorable	300	Sandberg bluegrass		6
Koehn, frequently flooded-----	Sandy Wash (R030XA042CA)	Favorable	200	California broomsage		80
		Normal	100	California buckwheat		6
		Unfavorable	50			
Rock outcrop.						
Jawbone, high elevation-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	California buckwheat		33
		Normal	600	Narrowleaf goldenbush		23
		Unfavorable	400	Sandberg bluegrass		13
3251: Jawbone, warm---	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Eastern Mojave buckwheat		25
		Normal	500	Green rabbitbrush		25
		Unfavorable	300	Creosote bush		15
Jawbone-----	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		60
		Normal	500	Creosote bush		10
		Unfavorable	300	Joshua tree		2
Jawbone, high elevation-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		90
		Normal	600	Nevada jointfir		2
		Unfavorable	400	Joshua tree		1
				Creosote bush		1
Dovecanyon, cool	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Creosote bush		40
		Unfavorable	300	Sandberg bluegrass White bursage		5 3
Jawbone, dry---	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	350	Creosote bush		35
		Normal	250	White bursage		20
		Unfavorable	100	Indian ricegrass		6
Rock outcrop.						

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
3251: Typic Torriorthents, rarely flooded	Alluvial Plain (R030XY047NV)	Favorable	500	Cattle saltbush		68
		Normal	400	Indian ricegrass		10
		Unfavorable	250			
3280: Typic Torriorthents--	Steep Granitic Hills 5-7" p.z. (R030XA051CA)	Favorable	200	Eastern Mojave buckwheat		20
		Normal	150	Mexican bladdersage		20
		Unfavorable	100	Fourwing saltbush		20
				Sandberg bluegrass		10
Rock outcrop. Lithic Torripsamments	Steep Granitic Hills 5-7" p.z. (R030XA051CA)	Favorable	200	Eastern Mojave buckwheat		20
		Normal	150	Mexican bladdersage		20
		Unfavorable	100	Fourwing saltbush		20
				Sandberg bluegrass		10
Typic Haplocambids---	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		40
		Normal	500	Creosote bush		32
		Unfavorable	300	Cooper's goldenbush		6
3301: Cutterbank-----	Shallow Granitic Slope 5-7" p.z. (R030XA047CA)	Favorable	350	Blackbrush		70
		Normal	300	Creosote bush		11
		Unfavorable	200	White bursage		4
				Fremont's dalea		3
				Indian ricegrass		2
Cutterbank, warm	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	Creosote bush		35
		Normal	150	White bursage		20
		Unfavorable	50	Miscellaneous shrubs		25
				Indian ricegrass		6
Cutterbank, steep-----	Steep Granitic Slope 5-7" p.z. (R030XA046CA)	Favorable	200	White bursage		37
		Normal	150	Eastern Mojave buckwheat		11
		Unfavorable	75	Fremont's dalea		11
				Shadscale		9
				Creosote bush		6
				Indian ricegrass		3

Table 3.--Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
3301: Dovecanyon, cool	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		40
		Normal	500	Creosote bush		33
		Unfavorable	300	Cooper's goldenbush		6
				Eastern Mojave buckwheat		3
				Sandberg bluegrass		6
Koehn, frequently flooded-----	Sandy Wash (R030XA042CA)	Favorable	200	California broomsage		80
		Normal	100	Eastern Mojave buckwheat		7
		Unfavorable	50	Rubber rabbitbrush		3
				Burrobrush		2
Badlands.						
Koehn, rarely flooded-----	Dry Wash (R030XA018CA)	Favorable	400	Cattle saltbush		27
		Normal	300	Creosote bush		10
		Unfavorable	100	Burrobrush		10
				Miscellaneous shrubs		10
				Indian ricegrass		6
				Desert needlegrass		4
3430: Pasopeak-----	Shallow Granitic Slope 7-9" p.z. (R029XY183CA)	Favorable	400	Blackbrush		70
		Normal	300	Spiny hopsage		10
		Unfavorable	150	Sandberg bluegrass		5
				Mormon tea		5
Rock outcrop.						
Lithic Haplargids-----	Steep Granitic Hills 5-7" p.z. (R030XA051CA)	Favorable	200	Mexican bladdersage		35
		Normal	150	Acton's brittlebush		30
		Unfavorable	100	Eastern Mojave buckwheat		15
Typic Haplargids	Shallow Granitic Slope 7-9" p.z. (R029XY183CA)	Favorable	400	Blackbrush		60
		Normal	300	Sandberg bluegrass		20
		Unfavorable	150	Eastern Mojave buckwheat		5
Typic Torripsamments	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	Creosote bush		30
		Normal	150	White bursage		20
		Unfavorable	50	Indian ricegrass		5

Table 3.--Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
3630: Koehn, very rarely flooded--	Gravelly Outwash (R030XY159CA)	Favorable	500	Desertsenna		40
		Normal	300	Creosote bush		28
		Unfavorable	100	Miscellaneous shrubs		12
				White bursage		5
				Miscellaneous perennial forbs		3
				Miscellaneous perennial grasses		3
Typic Torriorthents, occasionally flooded-----	Sandy Wash (R030XA042CA)	Favorable	200	California broomsage		80
		Normal	100	Eastern Mojave buckwheat		6
		Unfavorable	50	Rubber rabbitbrush		4
				Desertsenna		2
				White bursage		1
Koehn, rarely flooded-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	Cattle saltbush		30
		Normal	350	Creosote bush		15
		Unfavorable	200	Miscellaneous shrubs		15
				Burrobrush		10
				Indian ricegrass		5
Typic Torriorthents--	Dry Wash (R030XA018CA)	Favorable	400	Cattle saltbush		30
		Normal	300	Burrobrush		10
		Unfavorable	100	Creosote bush		10
3670: Inyo-----	Dry Wash 8-10" p.z. (R029XF054CA)	Favorable	1,000	Nevada jointfir		20
		Normal	700	Rabbitbrush		20
		Unfavorable	500	horsebrush		15
				California buckwheat		5
				Joshua tree		5
				Blackbrush		5
Kelval.						
Kernfork, wet.						
Urban land.						
Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)					

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight Lb/acre		Forest	Range
3670: Riverwash.						
3671: Inyo-----	Dry Wash 8-10" p.z. (R029XF054CA)	Favorable	1,000	Rabbitbrush		35
		Normal	700	Burrobrush		20
		Unfavorable	500	California buckwheat		15
				Nevada jointfir		15
				Squirreltail		10
				Joshua tree		5
Chollawell.						
Riverwash.						
Kelval.						
Kernfork.						
Urban land.						
3672: Inyo-----	South Sandy Slope 9-11" p.z. (R029XY189CA)	Favorable	600	Eastern Mojave buckwheat		40
		Normal	450	Desert needlegrass		30
		Unfavorable	300	Burrobrush		10
				Nevada jointfir		5
				Acton's brittlebush		4
				Joshua tree		1
Chollawell.						
Kelval.						
Riverwash.						
Unnamed soil.						
Urban land.						
4160: Dovecanyon-----	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Creosote bush		40
		Unfavorable	300	Sandberg bluegrass		5
				White bursage		3

Table 3.--Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
4160: Cutterbank-----	Shallow Granitic Slope 5-7" p.z. (R030XA047CA)	Favorable	350	Blackbrush		70
		Normal	300	Creosote bush		5
		Unfavorable	200	White bursage		5
				Sandberg bluegrass		5
				Desert needlegrass		3
				Fremont's dalea		3
				Nevada jointfir		2
Dovecanyon, warm	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
Typic Haplargids	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Sandberg bluegrass		15
		Unfavorable	300	White bursage		10
				Creosote bush		5
Typic Torriorthents, dry-----	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	White bursage		35
		Normal	150	Creosote bush		25
		Unfavorable	50	Miscellaneous shrubs		20
				Desert needlegrass		10
				Indian ricegrass		5
Koehn, rarely flooded-----	Dry Wash (R030XA018CA)	Favorable	400	Cattle saltbush		30
		Normal	300	Creosote bush		15
		Unfavorable	100	Miscellaneous shrubs		15
				Burrobrush		10
				Indian ricegrass		5
4161: Dovecanyon-----	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Creosote bush		40
		Unfavorable	300	Sandberg bluegrass		5
				White bursage		3
Typic Haplargids	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Creosote bush		40
		Unfavorable	300	Sandberg bluegrass		5
				White bursage		3

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
4161: Dovecanyon, warm	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Sandberg bluegrass		10
		Normal	600	Blackbrush		80
		Unfavorable	400	Narrowleaf goldenbush		4
				Joshua tree		2
				Spiny hopsage		2
Typic Torriorthents--	Shallow Granitic Slope 5-7" p.z. (R030XA047CA)	Favorable	350	Blackbrush		70
		Normal	300	Creosote bush		10
		Unfavorable	200	White bursage		5
				Indian ricegrass		2
Koehn-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
4170: Dovecanyon, warm	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
Dovecanyon-----	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Creosote bush		40
		Unfavorable	300	Sandberg bluegrass		5
				White bursage		3
Koehn-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5

Table 3.—Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
4170: Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Sandberg bluegrass		10
		Normal	600	Blackbrush		80
		Unfavorable	400	Narrowleaf goldenbush		4
				Joshua tree		2
				Spiny hopsage		2
Typic Torriorthents--	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Creosote bush		40
		Unfavorable	300	Sandberg bluegrass		5
				White bursage		3
4171: Dovecanyon, warm	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
Koehn, dry-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
Dovecanyon, sloping-----	Droughty Sand 5-7" p.z. (R030XA044CA)	Favorable	400	White bursage		40
		Normal	300	Sandberg bluegrass		30
		Unfavorable	200	Spiny hopsage		10
				Miscellaneous shrubs		10
				Winterfat		5
Dovecanyon, cool	Shallow Granitic Loam 5-7" p.z. (R030XA048CA)	Favorable	600	Blackbrush		45
		Normal	500	Sandberg bluegrass		15
		Unfavorable	300	White bursage		10
				Creosote bush		5
Garlock-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			<i>Lb/acre</i>		<i>Pct</i>	<i>Pct</i>
4171: Koehn, occasionally flooded-----	Dry Wash (R030XA018CA)	Favorable	400	Cattle saltbush		30
		Normal	300	Creosote bush		15
		Unfavorable	100	Miscellaneous shrubs		15
				Burrobrush		10
				Indian ricegrass		5
Koehn, rarely flooded-----	Dry Wash (R030XA065NV)	Favorable	350	Creosote bush		40
		Normal	150	Burrobrush		30
		Unfavorable	75	Cattle saltbush		10
				White bursage		10
				Desert needlegrass		3
Typic Haplocalcids---	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass		10
				Winterfat		10
				Miscellaneous shrubs		10
				Spiny hopsage		5
4430: Koehn-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Miscellaneous shrubs		10
				Winterfat		10
				Desert needlegrass		10
				Spiny hopsage		5
Koehn, steep----	Limy Hill 5-7" p.z. (R030XA054NV)	Favorable	250	White bursage		35
		Normal	150	Creosote bush		25
		Unfavorable	50	Miscellaneous shrubs		20
				Desert needlegrass		10
				Indian ricegrass		5
Koehn, occasionally flooded-----	Dry Wash (R030XA065NV)	Favorable	350	Creosote bush		40
		Normal	150	Burrobrush		30
		Unfavorable	75	Cattle saltbush		10
				White bursage		10
				Desert needlegrass		3

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
4431: Koehn, frequently flooded-----	Sandy Wash (R030XA042CA)	Favorable	200	California broomsage		80
		Normal	100	Eastern Mojave buckwheat		6
		Unfavorable	50	Rubber rabbitbrush Desertsenna White bursage		4 2 1
Koehn, very rarely flooded	Dry Wash (R030XA065NV)	Favorable	350	Creosote bush		40
		Normal	150	Burrobrush		30
		Unfavorable	75	Cattle saltbush White bursage Desert needlegrass		10 10 3
Koehn-----	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		30
		Normal	350	Creosote bush		25
		Unfavorable	200	Desert needlegrass Winterfat Miscellaneous shrubs Spiny hopsage		10 10 10 5
4432: Koehn, occasionally flooded-----	Alluvial Plain (R030XY047NV)	Favorable	500	Cattle saltbush		68
		Normal	400	Indian ricegrass		10
		Unfavorable	250			
Koehn, frequently flooded-----	Sandy Wash (R030XA042CA)	Favorable	200	California broomsage		80
		Normal	100	California buckwheat		6
		Unfavorable	50			
Koehn, very rarely flooded	Dry Wash (R030XA018CA)	Favorable	400	Cattle saltbush		28
		Normal	300	Burrobrush		10
		Unfavorable	100	Creosote bush Indian ricegrass		10 6
Typic Torripsamments	Limy 5-7" p.z. (R030XA020CA)	Favorable	500	White bursage		28
		Normal	350	Creosote bush		23
		Unfavorable	200	Desert needlegrass		10

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight Lb/acre		Forest	Range
					Pct	Pct
4432: Riverwash.						
4435: Kernfork-----	---	Favorable	2,000	Saltgrass		35
		Normal	1,600	Arroyo willow		35
		Unfavorable	1,000	Cottonwood		25
				Rubber rabbitbrush		5
Kelval.						
Inyo, gently sloping.						
Aquolls, wet, flooded.						
Riverwash.						
Southlake.						
4436: Inyo-----	Sandy Wash (R030XA042CA)	Favorable	200	California broomsage		80
		Normal	100	Eastern Mojave buckwheat		5
		Unfavorable	50	Rubber rabbitbrush		5
				Desertsenna		3
				White bursage		2
Riverwash.						
Kernfork, flooded.						
Goodale, stony and bouldery.						
5201: Wingap-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10

Table 3.--Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
5201: Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)	Favorable	500	Blackbrush		70
		Normal	400	California buckwheat		5
		Unfavorable	300	Cooper's goldenbush		5
				Nevada jointfir		3
				Green rabbitbrush		3
				Sandberg bluegrass		10
Grandora, warm--	South Sandy Slope 9-11" p.z. (R029XY189CA)	Favorable	600	Eastern Mojave buckwheat		30
		Normal	450	Narrowleaf goldenbush		10
		Unfavorable	300	Mormon tea		5
				Sandberg bluegrass		25
				Desert needlegrass		25
Dovecanyon-----	Shallow Granitic Slope 5-7" p.z. (R030XA047CA)	Favorable	350	Blackbrush		70
		Normal	300	Creosote bush		10
		Unfavorable	200	White bursage		5
				Indian ricegrass		2
Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Rock outcrop.						
5205: Scodie-----	Pinus monophylla/Artemisia tridentata-Eriogonum wrightii (F029XY001CA)	Favorable	600	Mountain big sagebrush	50	
		Normal	400	Bastardsage	15	
		Unfavorable	250	Mormon tea	5	
				Singleleaf pinyon	5	
				Sulfur-flower buckwheat	5	
				Sandberg bluegrass	3	
Grandora-----	Sandy Slope 10-12" p.z. (R029XY186CA)	Favorable	1,300	Mountain big sagebrush		40
		Normal	1,100	Bastardsage		10
		Unfavorable	900	Mormon tea		5
				Desert needlegrass		25
Grandora, warm--	South Sandy Slope 9-11" p.z. (R029XY189CA)	Favorable	600	Eastern Mojave buckwheat		30
		Normal	450	Narrowleaf goldenbush		10
		Unfavorable	300	Mormon tea		5
				Sandberg bluegrass		25
				Desert needlegrass		25

Table 3.--Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
5205: Rock outcrop.						
Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)	Favorable	500	Blackbrush		70
		Normal	400	California buckwheat		5
		Unfavorable	300	Cooper's goldenbush		5
				Nevada jointfir		3
				Green rabbitbrush		3
				Sandberg bluegrass		10
5210: Grandora-----	Sandy Slope 10-12" p.z. (R029XY186CA)	Favorable	1,300	Mountain big sagebrush		40
		Normal	1,100	Bastardsage		10
		Unfavorable	900	Mormon tea		5
				Desert needlegrass		25
Grandora, warm--	South Sandy Slope 9-11" p.z. (R029XY189CA)	Favorable	600	Eastern Mojave buckwheat		30
		Normal	450	Narrowleaf goldenbush		10
		Unfavorable	300	Mormon tea		5
				Sandberg bluegrass		25
				Desert needlegrass		25
Pinyonpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	California buckwheat		60
		Normal	600	Cooper's goldenbush		5
		Unfavorable	400	Joshua tree		2
				Nevada jointfir		1
				Sandberg bluegrass		10
				Desert needlegrass		10
Inyo-----	Dry Wash 8-10" p.z. (R029XF054CA)	Favorable	1,000	Rubber rabbitbrush		55
		Normal	700	Peach thorn		10
		Unfavorable	500	Burrobrush		5
				Mormon tea		5
				Mountain big sagebrush		5
Rock outcrop.						
Scodie-----	Pinus monophylla/Artemisia tridentata-Eriogonum wrightii (F029XY001CA)	Favorable	600	Mountain big sagebrush	50	
		Normal	400	Bastardsage	15	
		Unfavorable	250	Mormon tea	5	
				Singleleaf pinyon	5	
				Sulfur-flower buckwheat	5	
				Sandberg bluegrass	3	

Table 3.--Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
5500: Birdcanyon-----	Droughty Sand 7-9" p.z. (R029XY190CA)	Favorable	800	Burrobrush		25
		Normal	600	Longspine horsebrush		15
		Unfavorable	400	Joshua tree		10
				Cooper's goldenbush		5
				Nevada jointfir		5
				Rayless goldenhead		5
				Desert needlegrass		15
				Sandberg bluegrass		10
Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Typic Haplargids	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)	Favorable	500	Blackbrush		70
		Normal	400	California buckwheat		5
		Unfavorable	300	Cooper's goldenbush		5
				Nevada jointfir		3
				Green rabbitbrush		3
				Sandberg bluegrass		10
Rock outcrop.						
6001: Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)	Favorable	500	Blackbrush		70
		Normal	400	Cooper's goldenbush		5
		Unfavorable	300	Eastern Mojave buckwheat		5
				Nevada jointfir		3
				Green rabbitbrush		3
				Sandberg bluegrass		10

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			<i>Lb/acre</i>		<i>Pct</i>	<i>Pct</i>
6001: Wingap-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Typic Torriorthents--	Shallow Granitic Slope 7-9" p.z. (R029XY183CA)	Favorable	400	Blackbrush		60
		Normal	300	Eastern Mojave buckwheat		5
		Unfavorable	150	Nevada jointfir		3
				Burrobrush		3
				Spiny hopsage		3
				Sandberg bluegrass		20
Goldpeak, moist	Shallow Granitic Foothlope 7-9" p.z. (R029XY184CA)	Favorable	900	Blackbrush		50
		Normal	800	Joshua tree		20
		Unfavorable	600	Narrowleaf goldenbush		10
				Sandberg bluegrass		10
Inyo, occasionally flooded-----	Dry Wash 8-10" p.z. (R029XF054CA)	Favorable	1,000	Rubber rabbitbrush		55
		Normal	700	Peach thorn		10
		Unfavorable	500	Burrobrush		5
				Mountain big sagebrush		5
				Mormon tea		4
Rock outcrop.						
6002: Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Typic Haplargids, fine-loamy----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
6002: Typic Haplargids, coarse-loamy---	Shallow Granitic Slope 7-9" p.z. (R029XY183CA)	Favorable	400	Blackbrush		60
		Normal	300	Eastern Mojave buckwheat		5
		Unfavorable	150	Nevada jointfir		3
				Burrobrush		3
				Spiny hopsage		3
				Sandberg bluegrass		20
Inyo, occasionally flooded-----	Dry Wash 8-10" p.z. (R029XF054CA)	Favorable	1,000	Mountain big sagebrush		25
		Normal	700	Rubber rabbitbrush		25
		Unfavorable	500	Burrobrush		5
				Peach thorn		5
				Mormon tea		4
				Sandberg bluegrass		5
Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)	Favorable	500	Blackbrush		70
		Normal	400	California buckwheat		5
		Unfavorable	300	Cooper's goldenbush		5
				Nevada jointfir		3
				Green rabbitbrush		3
				Sandberg bluegrass		10
6003: Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Goldpeak, steep	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Pinyonpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		30
		Normal	600	California buckwheat		20
		Unfavorable	400	California juniper		15
				Cooper's goldenbush		15

Table 3.-Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry		Forest	Range
			weight			
		Lb/acre		Pct		
6003:						
Birdcanyon-----	Droughty Sand 7-9" p.z. (R029XY190CA)	Favorable	800	Burrobrush		40
		Normal	600	Cooper's goldenbush		15
		Unfavorable	400	California buckwheat		10
				Longspine horsebrush		10
				Joshua tree		5
				Nevada jointfir		5
				Buckhorn cholla		1
				Sandberg bluegrass		1
Goldpeak, moist	Shallow Granitic Slope 7-9" p.z. (R029XY183CA)	Favorable	400	Blackbrush		70
		Normal	300	California buckwheat		10
		Unfavorable	150	Sandberg bluegrass		5
Rock outcrop.						
Typic Haplargids	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		30
		Normal	600	California buckwheat		20
		Unfavorable	400	California juniper		15
				Cooper's goldenbush		15
Birdcanyon, frequently flooded-----	Dry Wash (R030XA065NV)	Favorable	350	Burrobrush		20
		Normal	150	Creosote bush		20
		Unfavorable	75	Cattle saltbush		15
				Desert needlegrass		5
				Sandberg bluegrass		1
6601:						
Pinyonpeak-----	Shallow Granitic Hills 7-9" p.z. (R029XY185CA)	Favorable	500	Blackbrush		70
		Normal	400	California buckwheat		5
		Unfavorable	300	Cooper's goldenbush		5
				Nevada jointfir		3
				Green rabbitbrush		3
				Sandberg bluegrass		10
Wingap-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Rock outcrop.						

Table 3.—Rangeland and Forest Productivity With Existing Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Existing vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
6601: Goldpeak-----	Shallow Granitic Loam 7-9" p.z. (R029XY182CA)	Favorable	800	Blackbrush		80
		Normal	600	Narrowleaf goldenbush		4
		Unfavorable	400	Joshua tree		2
				Spiny hopsage		2
				Sandberg bluegrass		10
Goldpeak, moist	Shallow Granitic Footslope 7-9" p.z. (R029XY184CA)	Favorable	900	Blackbrush		50
		Normal	800	Joshua tree		20
		Unfavorable	600	Narrowleaf goldenbush		10
				Sandberg bluegrass		10
Typic Torriotrthents--	Shallow Granitic Slope 7-9" p.z. (R029XY183CA)	Favorable	400	Blackbrush		60
		Normal	300	Eastern Mojave buckwheat		5
		Unfavorable	150	Nevada jointfir		3
				Burrobrush		3
				Spiny hopsage		3
				Sandberg bluegrass		20

Soil Survey of Jawbone-Butterbrecht ACEC Area, California

Table 4.--Burrowing Habitat for the Desert Tortoise

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value column range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Suitability class and limiting features	Value
3010:			
Jawbone-----	35	Poorly suited Depth to bedrock <10" COSL, LS, LFS, or LVFS in 0-30"	1.00 0.50
Typic Haplargids-----	30	Poorly suited Fragments (>3") >25% SICL, CL, or SCL in 0-30"	1.00 0.50
Rock outcrop-----	20	Not rated	
3250:			
Jawbone-----	50	Poorly suited Depth to bedrock <10" COSL, LS, LFS, or LVFS in 0-30"	1.00 0.50
Jawbone, moderately deep-----	40	Poorly suited COS, S, FS, VFS, or LCOS in 0-30"	1.00
3251:			
Jawbone, warm-----	60	Poorly suited Depth to bedrock <10" COSL, LS, LFS, or LVFS in 0-30"	1.00 0.50
Jawbone-----	20	Poorly suited Depth to bedrock <10" COSL, LS, LFS, or LVFS in 0-30"	1.00 0.50
3280:			
Typic Torriorthents-----	65	Poorly suited Depth to bedrock <10" Fragments (>3") >25% Fragments (0.2-3") 50-75% in 0-30"	1.00 1.00 0.95
Rock outcrop-----	20	Not rated	
3301:			
Cutterbank-----	50	Poorly suited Bulk density >1.8g/cc <10" depth	1.00
Cutterbank, warm-----	25	Poorly suited Bulk density >1.8g/cc <10" depth	1.00
Cutterbank, steep-----	15	Poorly suited Bulk density >1.8g/cc <10" depth	1.00
3430:			
Pasopeak-----	60	Poorly suited SIC, C, or SC in 0-30" Fragments (0.2-3") >75% in 0-30" Depth to bedrock 10-20"	1.00 1.00 0.28
Rock outcrop-----	25	Not rated	

Soil Survey of Jawbone-Butterbret ACEC Area, California

Table 4.--Burrowing Habitat for the Desert Tortoise--Continued

Map symbol and soil name	Pct. of map unit	Suitability class and limiting features	Value
3630: Koehn, very rarely flooded-----	85	Poorly suited COS, S, FS, VFS, or LCOS in 0-30"	1.00
3670: Inyo-----	85	Poorly suited Flooding >= occasional COSL, LS, LFS, or LVFS in 0-30"	1.00 0.50
3671: Inyo-----	75	Suited COSL, LS, LFS, or LVFS in 0-30" Rare flooding	0.50 0.50
3672: Inyo-----	80	Suited COSL, LS, LFS, or LVFS in 0-30" Rare flooding	0.50 0.50
4160: Dovecanyon-----	70	Suited COSL, LS, LFS, or LVFS in 0-30"	0.50
Cutterbank-----	15	Poorly suited Bulk density >1.8g/cc <10" depth	1.00
4161: Dovecanyon-----	85	Suited COSL, LS, LFS, or LVFS in 0-30"	0.50
4170: Dovecanyon, warm-----	50	Suited COSL, LS, LFS, or LVFS in 0-30"	0.50
Dovecanyon-----	35	Suited COSL, LS, LFS, or LVFS in 0-30"	0.50
4171: Dovecanyon, warm-----	70	Suited COSL, LS, LFS, or LVFS in 0-30"	0.50
Koehn, dry-----	20	Poorly suited COS, S, FS, VFS, or LCOS in 0-30"	1.00
4430: Koehn-----	80	Poorly suited COS, S, FS, VFS, or LCOS in 0-30" Rare flooding	1.00 0.50
4431: Koehn, frequently flooded-----	90	Poorly suited COS, S, FS, VFS, or LCOS in 0-30" Flooding >= occasional	1.00 1.00
4432: Koehn, occasionally flooded-----	70	Poorly suited COS, S, FS, VFS, or LCOS in 0-30" Flooding >= occasional	1.00 1.00
Koehn, frequently flooded-----	15	Poorly suited COS, S, FS, VFS, or LCOS in 0-30" Flooding >= occasional	1.00 1.00

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 4.--Burrowing Habitat for the Desert Tortoise--Continued

Map symbol and soil name	Pct. of map unit	Suitability class and limiting features	Value
4435: Kernfork-----	80	Poorly suited Ponding (any duration) Flooding >= occasional	1.00 1.00
4436: Inyo-----	60	Poorly suited Flooding >= occasional COSL, LS, LFS, or LVFS in 0-30"	1.00 0.50
Riverwash-----	25	Not rated	
5201: Wingap-----	55	Well suited	
Pinyonpeak-----	30	Poorly suited Depth to bedrock <10"	1.00
5205: Scodie-----	65	Poorly suited COS, S, FS, VFS, or LCOS in 0-30" Depth to bedrock 10-20"	1.00 0.48
Grandora-----	20	Poorly suited COS, S, FS, VFS, or LCOS in 0-30"	1.00
5210: Grandora-----	30	Poorly suited COS, S, FS, VFS, or LCOS in 0-30"	1.00
Grandora, warm-----	30	Suited COSL, LS, LFS, or LVFS in 0-30"	0.50
Pinyonpeak-----	30	Poorly suited Depth to bedrock <10"	1.00
5500: Birdcanyon-----	85	Poorly suited COS, S, FS, VFS, or LCOS in 0-30" Rare flooding	1.00 0.50
6001: Goldpeak-----	55	Well suited	
Pinyonpeak-----	15	Poorly suited Depth to bedrock <10"	1.00
Wingap-----	15	Well suited	
6002: Goldpeak-----	85	Well suited	
6003: Goldpeak-----	35	Well suited	
Goldpeak, steep-----	30	Well suited	
Pinyonpeak-----	20	Poorly suited Depth to bedrock <10"	1.00

Soil Survey of Jawbone-Butterbret ACEC Area, California

Table 4.--Burrowing Habitat for the Desert Tortoise--Continued

Map symbol and soil name	Pct. of map unit	Suitability class and limiting features	Value
6601: Pinyonpeak-----	45	Poorly suited Depth to bedrock <10"	1.00
Wingap-----	25	Well suited	
Rock outcrop-----	15	Not rated	

This interpretation evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, texture, content of organic matter, coarse fragments 0.2 inch to 3 inches and more than 3 inches in size, depth to bedrock, depth to a cemented pan, bulk density, and content of gypsum.

Textures are abbreviated as C, clay; CL, clay loam; COS, coarse sand; COSL, coarse sandy loam; FS, fine sand; LCOS, loamy coarse sand; LFS, loamy fine sand; LS, loamy sand; LVFS, loamy very fine sand; S, sand; SC, sandy clay; SCL, sandy clay loam; SIC, silty clay; SICL, silty clay loam; and VFS, very fine sand.

Table 5.--Recreation (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
3010: Jawbone-----	35	Limitations Slopes >15% Bedrock depth <20" Fragments >10" >3%	1.00 1.00 1.00	Limitations Slopes >15% Bedrock depth <20" Fragments >10" >3%	1.00 1.00 1.00	Limitations Slopes >6% Bedrock depth <20" Fragments >10" >3%	1.00 1.00 1.00
Typic Haplargids-----	30	Limitations Slopes >15% Fragments >10" >3% Permeability of .06-.6"/hr	1.00 1.00 0.60	Limitations Slopes >15% Fragments >10" >3% Permeability of .06-.6"/hr	1.00 1.00 0.60	Limitations Slopes >6% Fragments >10" >3% Permeability of .06-.6"/hr	1.00 1.00 0.60
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3250: Jawbone-----	50	Limitations Slopes >15% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88	Limitations Slopes >15% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88	Limitations Slopes >6% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88
Jawbone, moderately deep	40	Limitations Slopes >15% Surface sand fractions 70-90% by wt.	1.00 0.88	Limitations Slopes >15% Surface sand fractions 70-90% by wt.	1.00 0.88	Limitations Slopes >6% Surface sand fractions 70-90% by wt. Bedrock 20-40" and slope >2%	1.00 0.88 0.50
3251: Jawbone, warm-----	60	Limitations Bedrock depth <20" Surface sand fractions 70-90% by wt. Slopes 8 to 15%	1.00 0.88 0.84	Limitations Bedrock depth <20" Surface sand fractions 70-90% by wt. Slopes 8 to 15%	1.00 0.88 0.84	Limitations Slopes >6% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
3251: Jawbone-----	20	Limitations Slopes >15% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88	Limitations Slopes >15% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88	Limitations Slopes >6% Bedrock depth <20" Surface sand fractions 70-90% by wt.	1.00 1.00 0.88
3280: Typic Torriorthents----	65	Limitations Slopes >15% Bedrock depth <20" Fragments >10" >3%	1.00 1.00 1.00	Limitations Slopes >15% Bedrock depth <20" Fragments >10" >3%	1.00 1.00 1.00	Limitations Slopes >6% Bedrock depth <20" Fragments >10" >3%	1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3301: Cutterbank-----	50	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >6% Surface fragments (<3") 10-25% Fragments >10" .1 to 3%	1.00 0.32 0.19
Cutterbank, warm-----	25	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >6% Surface fragments (<3") 10-25% Fragments >10" .1 to 3%	1.00 0.32 0.19
Cutterbank, steep-----	15	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >6% Surface fragments (<3") 10-25% Fragments >10" .1 to 3%	1.00 0.32 0.19
3430: Pasopeak-----	60	Limitations Slopes >15% Bedrock depth <20" Fragments >10" .1 to 3%	1.00 1.00 0.19	Limitations Slopes >15% Bedrock depth <20" Fragments >10" .1 to 3%	1.00 1.00 0.19	Limitations Slopes >6% Bedrock depth <20" Surface fragments (<3") 10-25%	1.00 1.00 0.32
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
3630: Koehn, very rarely flooded-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.92	Limitations Surface sand fractions 70- 90% by wt.	0.92	Limitations Surface sand fractions 70- 90% by wt. Slopes 2 to 6%	0.92 0.50
3670: Inyo-----	85	Limitations Flooding >= rare Surface sand fractions 70- 90% by wt.	1.00 0.82	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations Surface sand fractions 70- 90% by wt. Slopes 2 to 6% Occasional flooding	0.82 0.74 0.50
3671: Inyo-----	75	Limitations Flooding >= rare Surface sand fractions 70- 90% by wt.	1.00	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations Surface sand fractions 70- 90% by wt. Slopes 2 to 6 percent Surface fragments (<3") 10- 25%	0.82 0.26 0.22
3672: Inyo-----	80	Limitations Flooding >= rare Surface sand fractions 70- 90% by wt. Slopes 8 to 15%	1.00 0.82 0.16	Limitations Surface sand fractions 70- 90% by wt. Slopes 8 to 15%	0.82 0.16	Limitations Slopes >6% Surface sand fractions 70- 90% by wt. Surface fragments (<3") 10- 25%	1.00 0.82 0.22
4160: Dovecanyon-----	70	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Slopes 2 to 6% Surface sand fractions 70- 90% by wt. Surface fragments (<3") 10- 25%	0.98 0.88 0.56
Cutterbank-----	15	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.94	Limitations Slopes >15% Fragments >10" .1 to 3%	1.00 0.94	Limitations Slopes >6% Fragments >10" .1 to 3% Surface fragments (<3") 10- 25%	1.00 0.94 0.32

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
4161: Dovecanyon-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt. Surface fragments (<3") 10- 25% Slopes 2 to 6%	0.88 0.56 0.50
4170: Dovecanyon, warm-----	50	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt. Surface fragments (<3") 10- 25% Slopes 2 to 6%	0.88 0.56 0.26
Dovecanyon-----	35	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt. Slopes 2 to 6% Surface fragments (<3") 10- 25%	0.88 0.74 0.56
4171: Dovecanyon, warm-----	70	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt. Surface fragments (<3") 10- 25% Slopes 2 to 6%	0.88 0.56 0.26
Koehn, dry-----	20	Limitations Surface sand fractions 90% by wt.	1.00	Limitations Surface sand fractions >90% by wt.	1.00	Limitations Surface sand fractions 90% by wt. Slopes 2 to 6%	1.00 0.02
4430: Koehn-----	80	Limitations Flooding >= rare Surface sand fractions 90% by wt.	1.00 1.00	Limitations Surface sand fractions >90% by wt.	1.00	Limitations Surface sand fractions 90% by wt. Slopes 2 to 6%	1.00 0.02

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
4431: Koehn, frequently flooded-----	90	Limitations Flooding >= rare Surface sand fractions >90% by wt.	1.00 1.00	Limitations Surface sand fractions >90% by wt. Frequent flooding	1.00 0.50	Limitations Flooding > Occasional Surface sand fractions >90% by wt. Slopes 2 to 6%	1.00 1.00 0.26
4432: Koehn, occasionally flooded-----	70	Limitations Flooding >= rare Surface sand fractions >90% by wt.	1.00 1.00	Limitations Surface sand fractions >90% by wt.	1.00	Limitations Surface sand fractions >90% by wt. Occasional flooding Slopes 2 to 6%	1.00 0.50 0.26
Koehn, frequently flooded-----	15	Limitations Flooding >= rare Surface sand fractions >90% by wt.	1.00 1.00	Limitations Surface sand fractions >90% by wt. Frequent flooding	1.00 0.50	Limitations Flooding > Occasional Surface sand fractions >90% by wt. Slopes 2 to 6%	1.00 1.00 0.26
4435: Kernfork-----	80	Limitations Flooding >= rare Ponding (any duration) Surface sand fractions 70- 90% by wt.	1.00 1.00 0.01	Limitations Ponding (any duration) Frequent flooding Surface sand fractions 70- 90% by wt.	1.00 0.50 0.01	Limitations Flooding > Occasional Ponding (any duration) Surface fragments (<3" 10- 25%	1.00 1.00 0.08
4436: Inyo-----	60	Limitations Flooding >= rare Surface sand fractions 70- 90% by wt.	1.00 0.82	Limitations Surface sand fractions 70- 90% by wt. Frequent flooding	0.82 0.50 0.50	Limitations Flooding > Occasional Surface sand fractions 70- 90% by wt. Slopes 2 to 6%	1.00 0.82 0.26
Riverwash-----	25	Not rated		Not rated		Not rated	
5201: Wingap-----	55	Limitations Slopes >15% Surface sand fractions 70- 90% by wt.	1.00 0.68	Limitations Slopes >15% Surface sand fractions 70- 90% by wt.	1.00 0.68	Limitations Slopes >6% Surface sand fractions 70- 90% by wt. Surface fragments (<3" 10- 25%	1.00 0.68 0.22

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
5201: Pinyonpeak-----	30	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Slopes >6% Surface fragments (<3") >25% Bedrock depth <20"	1.00 1.00 1.00
5205: Scodie-----	65	Limitations Slopes >15% Surface sand fractions >90% by wt. Bedrock depth <20"	1.00 1.00 1.00	Limitations Slopes >15% Surface sand fractions >90% by wt. Bedrock depth <20"	1.00 1.00 1.00	Limitations Slopes >6% Surface sand fractions >90% by wt. Surface fragments (<3") >25%	1.00 1.00 1.00
Grandora-----	20	Limitations Slopes >15% Surface sand fractions >90% by wt.	1.00 1.00	Limitations Slopes >15% Surface sand fractions >90% by wt.	1.00 1.00	Limitations Slopes >6% Surface sand fractions >90% by wt. Surface fragments (<3") 10- 25%	1.00 1.00 0.32
5210: Grandora-----	30	Limitations Slopes >15% Surface sand fractions 90% by wt.	1.00 1.00	Limitations Slopes >15% Surface sand fractions 90% by wt.	1.00 1.00	Limitations Slopes >6% Surface sand fractions 90% by wt. Surface fragments (<3") 10- 25%	1.00 1.00 0.32
Grandora, warm-----	30	Limitations Slopes >15% Surface sand fractions >90% by wt.	1.00 1.00	Limitations Slopes >15% Surface sand fractions >90% by wt.	1.00 1.00	Limitations Slopes >6% Surface sand fractions >90% by wt. Surface fragments (<3") 10- 25%	1.00 1.00 0.32
Pinyonpeak-----	30	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Slopes >6% Surface fragments (<3") >25% Bedrock depth <20"	1.00 1.00 1.00

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
5500: Birdcanyon-----	85	Limitations Flooding >= rare Surface sand fractions >90% by wt.	1.00 1.00 1.00	Limitations Surface sand fractions >90% by wt.	1.00	Limitations Surface sand fractions >90% by wt. Slopes 2 to 6%	1.00 0.98
6001: Goldpeak-----	55	Limitations Surface sand fractions 70- 90% by wt	0.76	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface fragments (<3") >25% Surface sand fractions 70- 90% by wt. Slopes 2 to 6%	0.99 0.76 0.50
Pinyonpeak-----	15	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Slopes >6% Surface fragments (<3") >25% Bedrock depth <20"	1.00 1.00 1.00
Wingap-----	15	Limitations Surface sand fractions 70- 90% by wt. Slopes 8 to 15%	0.68 0.16	Limitations Surface sand fractions 70- 90% by wt. Slopes 8 to 15%	0.68 0.16	Limitations Slopes >6% Surface sand fractions 70- 90% by wt. Surface fragments (<3") 10- 25%	1.00 0.68 0.22
6002: Goldpeak-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface fragments (<3") >25% Surface sand fractions 70- 90% by wt. Slopes 2 to 6%	0.99 0.76 0.50
6003: Goldpeak-----	35	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface fragments (<3") >25% Surface sand fractions 70- 90% by wt. Slopes 2 to 6%	0.99 0.76 0.50

Table 5.--Recreation (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
6003: Goldpeak, steep-----	30	Limitations Slopes >15% Surface sand fractions 70-90% by wt.	1.00 0.76	Limitations Slopes >15% Surface sand fractions 70-90% by wt.	1.00 0.76	Limitations Slopes >6% Surface fragments (<3") >25% Surface sand fractions 70-90% by wt.	1.00 0.99 0.76
Pinyonpeak-----	20	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Slopes >6% Surface fragments (<3") >25% Bedrock depth <20"	1.00 1.00 1.00
6601: Pinyonpeak-----	45	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Bedrock depth <20" Slopes >15% Fragments (<3") 25-50%	1.00 1.00 0.84	Limitations Slopes >6% Surface fragments (<3") >25% Bedrock depth <20"	1.00 1.00 1.00
Wingap-----	25	Limitations Slopes >15% Surface sand fractions 70-90% by wt.	1.00 0.68	Limitations Slopes >15% Surface sand fractions 70-90% by wt.	1.00 0.68	Limitations Slopes >6% Surface sand fractions 70-90% by wt. Surface fragments (<3") 10-25%	1.00 0.68 0.22
Rock outcrop-----	15	Not rated		Not rated		Not rated	

The interpretation for *camp areas* evaluates the following soil properties at various depths in the soil: flooding; ponding; wetness; slope; depth to bedrock; depth to a cemented pan; coarse fragments less than, equal to, or more than 3 inches in size; content of sodium (SAR); salinity (EC); a clayey surface layer; Unified classes for a high content of organic matter (PT, OL, and OH); soil dustiness; and permeability (Ksat) that is too high, allowing seepage in some climates.

The interpretation for *picnic areas* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, salinity (EC), pH, soil dustiness, coarse fragments more than 3 inches in size, coarse fragments more than 10 inches in size on the surface, content of sand or clay in the surface layer, Unified classes for a high content of organic matter (PT, OL, and OH), and permeability (Ksat) that is too high, allowing seepage in some climates.

The interpretation for *playgrounds* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, coarse fragments more than 10 inches in size on the surface, coarse fragments equal to or less than 3 inches in size, Unified classes for a high content of organic matter (PT, OL, and OH), soil dustiness, content of sand or clay in the surface layer, pH, salinity (EC), and permeability (Ksat) that is too high, allowing seepage in some climates.

Table 6.--Recreation (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
3010: Jawbone-----	35	Limitations Slopes >25% Fragments >10" >3% Surface sand fractions 70-90% by wt.	1.00 1.00 0.88	Limitations Slopes >40% Surface fragments (>10") >3% coverage Surface sand fractions 70-90% by wt.	1.00 1.00 0.88	Limitations Bedrock depth <20" Slopes >15% AWC <2" to 40"	1.00 1.00 1.00
Typic Haplargids-----	30	Limitations Slopes >25% Fragments >10" >3%	1.00 1.00	Limitations Surface fragments (>10") >3% coverage Slopes >40%	1.00 1.00	Limitations Slopes >15% Bedrock depth 20 to 40" AWC 2-4" to 40"	1.00 0.02 0.01
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3250: Jawbone-----	50	Limitations Slopes >25% Surface sand fractions 70-90% by wt	1.00 0.88	Limitations Surface sand fractions 70-90% by wt. Slopes 25 to 40%	0.88 0.22	Limitations Bedrock depth <20" Slopes >15% AWC <2" to 40"	1.00 1.00 1.00
Jawbone, moderately deep	40	Limitations Slopes >25% Surface sand fractions 70-90% by wt.	1.00 0.88	Limitations Slopes 25 to 40% Surface sand fractions 70-90% by wt.	0.96 0.88	Limitations Slopes >15% AWC <2" to 40" Bedrock depth 20 to 40"	1.00 1.00 0.16
3251: Jawbone, warm-----	60	Limitations Surface sand fractions 70-90% by wt.	0.88	Limitations Surface sand fractions 70-90% by wt.	0.88	Limitations Bedrock depth <20" AWC <2" to 40" Slopes 8 to 15%	1.00 1.00 0.84
Jawbone-----	20	Limitations Slopes >25% Surface sand fractions 70-90% by wt.	1.00 0.88	Limitations Slopes >40% Surface sand fractions 70-90% by wt.	1.00 0.88	Limitations Bedrock depth <20" Slopes >15% AWC <2" to 40"	1.00 1.00 1.00

Table 6.--Recreation (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
3280: Typic Torriorthents-----	65	Limitations Slopes >25% Fragments >10" >3% Surface sand fractions 70- 90% by wt	1.00 1.00 0.30	Limitations Slopes >40% Surface fragments (>10") >3% coverage Surface sand fractions 70- 90% by wt.	1.00 1.00 0.30	Limitations Bedrock depth <20" Slopes >15% AWC <2" to 40"	1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3301: Cutterbank-----	50	Limitations Slopes >25% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes 25 to 40% Surface fragments (>10") .1-3% coverage	0.96 0.19	Limitations Slopes >15% AWC <2" to 40"	1.00 1.00
Cutterbank, warm-----	25	Limitations Slopes >25% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >40% Surface fragments (>10") .1-3% coverage	1.00 0.19	Limitations Slopes >15% AWC <2" to 40"	1.00 1.00
Cutterbank, steep-----	15	Limitations Slopes >25% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >40% Surface fragments (>10") .1-3% coverage	1.00 0.19	Limitations Slopes >15% AWC <2" to 40"	1.00 1.00
3430: Pasopeak-----	60	Limitations Slopes >25% Fragments >10" .1 to 3%	1.00 0.19	Limitations Slopes >40% Surface fragments (>10") .1-3% coverage	1.00 0.19	Limitations Bedrock depth <20" Slopes >15% AWC <2" to 40"	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.92	Limitations Surface sand fractions 70- 90% by wt.	0.92	Limitations Coarse sand or sand surface AWC 2-4" to 40"	1.00 0.92
3670: Inyo-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations AWC 2-4" to 40" Occasional flooding Loamy coarse sand surface	0.92 0.80 0.50

Table 6.--Recreation (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
3671: Inyo-----	75	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations AWC 2-4" to 40" Loamy coarse sand surface	0.92 0.50
3672: Inyo-----	80	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations Surface sand fractions 70- 90% by wt.	0.82	Limitations AWC 2-4" to 40" Loamy coarse sand surface Slopes 8 to 15%	0.92 0.50 0.16
4160: Dovecanyon-----	70	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations AWC 2-4" to 40"	0.16
Cutterbank-----	15	Limitations Slopes >25% Fragments >10" .1 to 3%	1.00 0.94	Limitations Surface fragments (>10") .1-3% coverage Slopes 25 to 40%	0.94 0.78	Limitations Slopes >15% AWC <2" to 40"	1.00 1.00
4161: Dovecanyon-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations AWC 2-4" to 40"	0.16
4170: Dovecanyon, warm-----	50	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations AWC 2-4" to 40"	0.16
Dovecanyon-----	35	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations AWC 2-4" to 40"	0.16
4171: Dovecanyon, warm-----	70	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations Surface sand fractions 70- 90% by wt.	0.88	Limitations AWC 2-4" to 40"	0.16
Koehn, dry-----	20	Limitations Surface sand fractions 90% by wt.	1.00	Limitations Surface sand fractions 90% by wt.	1.00	Limitations AWC 2-4" to 40" Loamy coarse sand surface	0.85 0.50

Table 6.--Recreation (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
4430: Koehn-----	80	Limitations Surface sand fractions 90% by wt.	1.00	Limitations Surface sand fractions 90% by wt.	1.00	Limitations Coarse sand or sand surface AWC 2-4" to 40"	1.00 0.93
4431: Koehn, frequently flooded-----	90	Limitations Surface sand fractions 90% by wt. Frequent flooding	1.00 0.50	Limitations Surface sand fractions 90% by wt. Frequent flooding	1.00 0.50	Limitations AWC 2-4" to 40" Frequent flooding Loamy coarse sand surface	0.92 0.90 0.50
4432: Koehn, occasionally flooded-----	70	Limitations Surface sand fractions 90% by wt.	1.00	Limitations Surface sand fractions >90% by wt.	1.00	Limitations AWC 2-4" to 40" Occasional flooding Loamy coarse sand surface	0.92 0.80 0.50
Koehn, frequently flooded-----	15	Limitations Surface sand fractions >90% by wt. Frequent flooding	1.00 0.50	Limitations Surface sand fractions >90% by wt. Frequent flooding	1.00 0.50	Limitations AWC 2-4" to 40" Frequent flooding Loamy coarse sand surface	0.92 0.90 0.50
4435: Kernfork-----	80	Limitations Ponding (any duration) Frequent flooding Surface sand fractions 70- 90% by wt.	1.00 0.50 0.01	Limitations Ponding (any duration) Frequent flooding Surface sand fractions 70- 90% by wt.	1.00 0.50 0.01	Limitations Ponding (any duration) Frequent flooding	1.00 0.90
4436: Inyo-----	60	Limitations Surface sand fractions 70- 90% by wt. Frequent flooding	0.82 0.50	Limitations Surface sand fractions 70- 90% by wt. Frequent flooding	0.82 0.50	Limitations AWC 2-4" to 40" Frequent flooding Loamy coarse sand surface	0.92 0.90 0.50
Riverwash-----	25	Not rated		Not rated		Not rated	
5201: Wingap-----	55	Limitations Surface sand fractions 70- 90% by wt. Slopes 15 to 25%	0.68 0.50	Limitations Surface sand fractions 70- 90% by wt.	0.68	Limitations Slopes >15% Loamy coarse sand surface AWC 2-4" to 40"	1.00 0.50 0.27

Table 6.--Recreation (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
5201: Pinyonpeak-----	30	No limitations		No limitations		Limitations Bedrock depth <20" AWC <2" to 40" Slopes >15%	1.00 1.00 1.00
5205: Scodie-----	65	Limitations Slopes >25% Surface sand fractions >90% by wt.	1.00 1.00	Limitations Surface sand fractions >90% by wt. Slopes >40%	1.00 1.00	Limitations Bedrock depth <20" Slopes >15% Coarse sand or sand surface	1.00 1.00 1.00
Grandora-----	20	Limitations Surface sand fractions >90% by wt. Slopes >25%	1.00 1.00	Limitations Surface sand fractions >90% by wt. Slopes 25 to 40%	1.00 0.22	Limitations Slopes >15% Coarse sand or sand surface AWC <2" to 40"	1.00 1.00 0.99
5210: Grandora-----	30	Limitations Slopes >25% Surface sand fractions >90% by wt.	1.00 1.00	Limitations Surface sand fractions >90% by wt. Slopes >40%	1.00 1.00	Limitations Slopes >15% Coarse sand or sand surface AWC <2" to 40"	1.00 1.00 0.99
Grandora, warm-----	30	Limitations Surface sand fractions >90% by wt. Slopes >25%	1.00 1.00	Limitations Surface sand fractions >90% by wt. Slopes 25 to 40%	1.00 0.22	Limitations Slopes >15% Coarse sand or sand surface AWC <2" to 40"	1.00 1.00 0.99
Pinyonpeak-----	30	Limitations Slopes 15 to 25%	0.50	No limitations		Limitations Bedrock depth <20" AWC <2" to 40" Slopes >15%	1.00 1.00 1.00
5500: Birdcanyon-----	85	Limitations Surface sand fractions >90% by wt.	1.00	Limitations Surface sand fractions >90% by wt.	1.00	Limitations Coarse sand or sand surface AWC 2-4" to 40"	1.00 0.92
6001: Goldpeak-----	55	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface sand fractions 70- 90% by wt.	0.76	No Limitations	

Table 6.--Recreation (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
6001: Pinyonpeak-----	15	Limitations Slopes >25%	1.00	Limitations Slopes 25 to 40%	0.04	Limitations Bedrock depth <20" AWC <2" to 40" Slopes >15%	1.00 1.00 1.00
Wingap-----	15	Limitations Surface sand fractions 70- 90% by wt.	0.68	Limitations Surface sand fractions 70- 90% by wt.	0.68	Limitations Loamy coarse sand surface AWC 2-4" to 40" Slopes 8 to 15%	0.50 0.27 0.16
6002: Goldpeak-----	85	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface sand fractions 70- 90% by wt.	0.76	No Limitations	
6003: Goldpeak-----	35	Limitations Surface sand fractions 70- 90% by wt.	0.76	Limitations Surface sand fractions 70- 90% by wt.	0.76	No Limitations	
Goldpeak, steep-----	30	Limitations Slopes >25% Surface sand fractions 70- 90% by wt	1.00 0.76	Limitations Surface sand fractions 70- 90% by wt. Slopes 25 to 40%	0.76 0.14	Limitations Slopes >15%	1.00
Pinyonpeak-----	20	No limitations		No limitations		Limitations Bedrock depth <20" AWC <2" to 40" Slopes >15%	1.00 1.00 1.00
6601: Pinyonpeak-----	45	No limitations		No limitations		Limitations Bedrock depth <20" AWC <2" to 40" Slopes >15%	1.00 1.00 1.00

Table 6.--Recreation (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
6601: Wingap-----	25	Limitations Surface sand fractions 70- 90% by wt. Slopes 15 to 25%	0.68 0.50	Limitations Surface sand fractions 70- 90% by wt.	0.68	Limitations Slopes >15% Loamy coarse sand surface AWC 2-4" to 40"	1.00 0.50 0.27
Rock outcrop-----	15	Not rated		Not rated		Not rated	

The interpretation for *paths and trails* evaluates the following soil properties at various depths in the soil: flooding; ponding; wetness; slope; coarse fragments less than, equal to, or more than 3 inches in size; content of clay and sand in the surface layer; coarse fragments more than or equal to 10 inches in size on the surface; Unified classes for a high content of organic matter (PT, OL, and OH); soil dustiness; and the hazard of water erosion.

The interpretation for *off-road motorcycle trails* evaluates the following soil properties at various depths in the soil: flooding; ponding; wetness; slope; soil dustiness; coarse fragments less than, equal to, or more than 3 inches in size; content of sand or clay in the surface layer; and Unified classes for a high content of organic matter (PT, OL, and OH).

The interpretation for *golf fairways* evaluates the following soil properties at various depths in the soil: flooding; ponding; wetness; slope; depth to bedrock; depth to a cemented pan; coarse fragments more than, equal to, or less than 3 inches in size; Unified classes for a high content of organic matter (PT, OL, and OH); soil dustiness; content of sand or clay in the surface layer; coarse fragments more than or equal to 10 inches in size on the surface; pH; salinity (EC); content of sodium (SAR); calcium carbonates; and content of sulfur.

Table 7.--Building Site Development (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
3010:							
Jawbone-----	35	Limitations Bedrock (soft) <20" depth Slopes >15%	1.00 1.00	Limitations Slopes >15% Bedrock (soft) <20" depth	1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8%	1.00 1.00
Typic Haplargids-----	30	Limitations Slopes >15% Fragments (>3") 25 to 50% Shrink-swell (LEP 3-6)	1.00 0.64 0.50	Limitations Slopes >15% Bedrock (hard) <40" depth Fragments (>3") 25 to 50%	1.00 1.00 0.64	Limitations Slopes >8% Fragments (>3") 25 to 50% Shrink-swell (LEP 3-6)	1.00 0.64 0.50
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3250:							
Jawbone-----	50	Limitations Bedrock (soft) <20" depth Slopes >15%	1.00 1.00	Limitations Slopes >15% Bedrock (soft) <20" depth	1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8%	1.00 1.00
Jawbone, moderately deep	40	Limitations Slopes >15% Bedrock (hard) from 20 to 40"	1.00 0.15	Limitations Slopes >15% Bedrock (hard) <40" depth	1.00 1.00	Limitations Slopes >8% Bedrock (hard) from 20 to 40"	1.00 0.15
3251:							
Jawbone, warm-----	60	Limitations Bedrock (soft) <20" depth Slopes 8 to 15%	1.00 0.84	Limitations Bedrock (soft) <20" depth Slopes 8 to 15%	1.00 0.84	Limitations Bedrock (soft) <20" depth Slopes >8%	1.00 1.00
Jawbone-----	20	Limitations Bedrock (soft) <20" depth Slopes >15%	1.00 1.00	Limitations Slopes >15% Bedrock (soft) <20" depth	1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8%	1.00 1.00
3280:							
Typic Torriorthents----	65	Limitations Bedrock (soft) <20" depth Slopes >15% Fragments (>3") 25 to 50%	1.00 1.00 0.96	Limitations Slopes >15% Bedrock (soft) <20" depth Fragments (>3") 25 to 50%	1.00 1.00 0.96	Limitations Bedrock (soft) <20" depth Slopes >8% Fragments (>3") 25 to 50%	1.00 1.00 0.96
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 7.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
3301: Cutterbank-----	50	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Cutterbank, warm-----	25	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Cutterbank, steep-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
3430: Pasopeak-----	60	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	No limitations		No limitations		Limitations Slopes 4 to 8%	0.02
3670: Inyo-----	85	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare Slopes 4 to 8%	1.00 0.26
3671: Inyo-----	75	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00
3672: Inyo-----	80	Limitations Flooding >= rare Slopes 8 to 15%	1.00 0.16	Limitations Flooding >= rare Slopes 8 to 15%	1.00 0.16	Limitations Slopes >8% Flooding >= rare	1.00 1.00
4160: Dovecanyon-----	70	No limitations		No limitations		Limitations Slopes 4 to 8%	0.50
Cutterbank-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00

Table 7.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
4161: Dovecanyon-----	85	No limitations		No limitations		Limitations Slopes 4 to 8%	0.02
4170: Dovecanyon, warm-----	50	No limitations		No limitations		No limitations	
Dovecanyon-----	35	No limitations		No limitations		Limitations Slopes 4 to 8%	0.26
4171: Dovecanyon, warm-----	70	No limitations		No limitations		No limitations	
Koehn, dry-----	20	No limitations		No limitations		No limitations	
4430: Koehn-----	80	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00
4431: Koehn, frequently flooded-----	90	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00
4432: Koehn, occasionally flooded-----	70	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00
Koehn, frequently flooded-----	15	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00
4435: Kernfork-----	80	Limitations Ponding (any duration) Flooding >= rare	1.00 1.00	Limitations Ponding (any duration) Flooding >= rare Saturation from 2.5' to 6' depth	1.00 1.00 0.35	Limitations Ponding (any duration) Flooding >= rare	1.00 1.00
4436: Inyo-----	60	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00
Riverwash-----	25	Not rated		Not rated		Not rated	

Table 7.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
5201: Wingap-----	55	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Pinyonpeak-----	30	Limitations Bedrock (soft) <20" depth Bedrock (hard) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8% Bedrock (hard) <20" depth	1.00 1.00 1.00
5205: Scodie-----	65	Limitations Bedrock (soft) <20" depth Slopes >15% Bedrock (hard) from 20 to 40"	1.00 1.00 0.92	Limitations Slopes >15% Bedrock (hard) <40" depth Bedrock (soft) <20" depth	1.00 1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8% Bedrock (hard) from 20 to 40"	1.00 1.00 0.92
Grandora-----	20	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
5210: Grandora-----	30	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Grandora, warm-----	30	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Pinyonpeak-----	30	Limitations Bedrock (soft) <20" depth Bedrock (hard) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8% Bedrock (hard) <20" depth	1.00 1.00 1.00
5500: Birdcanyon-----	85	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare	1.00	Limitations Flooding >= rare Slopes 4 to 8%	1.00 0.50
6001: Goldpeak-----	55	No limitations		No limitations		Limitations Slopes 4 to 8%	0.02
Pinyonpeak-----	15	Limitations Bedrock (soft) <20" depth Bedrock (hard) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8% Bedrock (hard) <20" depth	1.00 1.00 1.00

Table 7.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
6001: Wingap-----	15	Limitations Slopes 8 to 15%	0.16	Limitations Slopes 8 to 15%	0.16	Limitations Slopes >8%	1.00
6002: Goldpeak-----	85	No limitations		No limitations		Limitations Slopes 4 to 8%	0.02
6003: Goldpeak-----	35	No limitations		No limitations		Limitations Slopes 4 to 8%	0.02
Goldpeak, steep-----	30	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Pinyonpeak-----	20	Limitations Bedrock (soft) <20" depth Bedrock (hard) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8% Bedrock (hard) <20" depth	1.00 1.00 1.00
6601: Pinyonpeak-----	45	Limitations Bedrock (soft) <20" depth Bedrock (hard) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >8% Bedrock (hard) <20" depth	1.00 1.00 1.00
Wingap-----	25	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	

The interpretation for *dwellings without basements* evaluates the following soil properties, some at various depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell expressed as linear extensibility percent (LEP), organic Unified classes for low soil strength (PT, OL, and OH), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and coarse fragments more than 3 inches in size.

The interpretation for *dwellings with basements* evaluates the following soil properties, some at various depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), organic Unified classes for low soil strength (PT, OL, and OH), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and coarse fragments more than 3 inches in size.

The interpretation for *small commercial buildings* evaluates the following soil properties, some at various depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and coarse fragments more than 3 inches in size.

Table 8.--Building Site Development (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
3010: Jawbone-----	35	Limitations Slopes >15% Bedrock (soft) <20" depth	1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >15% Low caving potential	1.00 1.00 0.10
Typic Haplargids-----	30	Limitations Slopes >15% Fragments (>3") 25 to 50% Shrink-swell (LEP 3-6)	1.00 0.64 0.50	Limitations Bedrock (hard) <40" depth Slopes >15% Fragments (>3") 25 to 50%	1.00 1.00 0.64
Rock outcrop-----	20	Not rated		Not rated	
3250: Jawbone-----	50	Limitations Slopes >15% Bedrock (soft) <20" depth	1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >15% Low caving potential	1.00 1.00 0.10
Jawbone, moderately deep-----	40	Limitations Slopes >15% Bedrock (hard) from 20 to 40"	1.00 0.15	Limitations Bedrock (hard) <40" depth Slopes >15% Caving potential	1.00 1.00 1.00
3251: Jawbone, warm-----	60	Limitations Bedrock (soft) <20" depth Slopes 8 to 15%	1.00 0.84	Limitations Bedrock (soft) <20" depth Slopes 8 to 15% Low caving potential	1.00 0.84 0.10
Jawbone-----	20	Limitations Slopes >15% Bedrock (soft) <20" depth	1.00 1.00	Limitations Bedrock (soft) <20" depth Slopes >15% Low caving potential	1.00 1.00 0.10

Table 8.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
3280: Typic Torriorthents-----	65	Limitations Slopes >15% Bedrock (soft) <20" depth Fragments (>3") 25 to 50%	1.00 1.00 0.96	Limitations Bedrock (soft) <20" depth Slopes >15% Fragments (>3") 25 to 50%	1.00 1.00 0.96
Rock outcrop-----	20	Not rated		Not rated	
3301: Cutterbank-----	50	Limitations Slopes >15%	1.00	Limitations Slopes >15% Bulk density >1.8 g/cc Low caving potential	1.00 0.50 0.10
Cutterbank, warm-----	25	Limitations Slopes >15%	1.00	Limitations Slopes >15% Bulk density >1.8 g/cc Low caving potential	1.00 0.50 0.10
Cutterbank, steep-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >15% Bulk density >1.8 g/cc Low caving potential	1.00 0.50 0.10
3430: Pasopeak-----	60	Limitations Bedrock (hard) <20" depth Slopes >15% Shrink-swell (LEP 3-6)	1.00 1.00 0.50	Limitations Bedrock (hard) <40" depth Slopes >15% Low caving potential	1.00 1.00 0.10
Rock outcrop-----	25	Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	No limitations		Limitations Caving potential	1.00
3670: Inyo-----	85	Limitations Flooding >= occasional	1.00	Limitations Caving potential Frequent or occasional flooding	1.00 0.50
3671: Inyo-----	75	Limitations Rare flooding	0.50	Limitations Caving potential	1.00

Table 8.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
3672: Inyo-----	80	Limitations Rare flooding Slopes 8 to 15%	0.50 0.16	Limitations Caving potential Slopes 8 to 15%	1.00 0.16
4160: Dovecanyon-----	70	No limitations		Limitations Caving potential	1.00
Cutterbank-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >15% Bulk density >1.8 g/cc Low caving potential	1.00 0.50 0.10
4161: Dovecanyon-----	85	No limitations		Limitations Caving potential	1.00
4170: Dovecanyon, warm-----	50	No limitations		Limitations Caving potential	1.00
Dovecanyon-----	35	No limitations		Limitations Caving potential	1.00
4171: Dovecanyon, warm-----	70	No limitations		Limitations Caving potential	1.00
Koehn, dry-----	20	No limitations		Limitations Caving potential	1.00
4430: Koehn-----	80	Limitations Rare flooding	0.50	Limitations Caving potential	1.00
4431: Koehn, frequently flooded-----	90	Limitations Flooding >= occasional	1.00	Limitations Caving potential Frequent or occasional flooding	1.00 0.50
4432: Koehn, occasionally flooded-----	70	Limitations Flooding >= occasional	1.00	Limitations Caving potential Frequent or occasional flooding	1.00 0.50

Table 8.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
4432: Koehn, frequently flooded-----	15	Limitations Flooding >= occasional	1.00	Limitations Caving potential Frequent or occasional flooding	1.00 0.50
4435: Kernfork-----	80	Limitations Ponding (any duration) Flooding >= occasional	1.00 1.00	Limitations Ponding (any duration) Caving potential Frequent or occasional flooding	1.00 1.00 0.50
4436: Inyo-----	60	Limitations Flooding >= occasional	1.00	Limitations Caving potential Frequent or occasional flooding	1.00 0.50
Riverwash-----	25	Not rated		Not rated	
5201: Wingap-----	55	Limitations Slopes >15% Possible frost action	1.00 0.50	Limitations Caving potential Slopes >15%	1.00 1.00
Pinyonpeak-----	30	Limitations Bedrock (hard) <20" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00
5205: Scodie-----	65	Limitations Slopes >15% Bedrock (soft) <20" depth Bedrock (hard) from 20 to 40"	1.00 1.00 0.92	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00
Grandora-----	20	Limitations Slopes >15%	1.00	Limitations Slopes >15% Caving potential	1.00 1.00
5210: Grandora-----	30	Limitations Slopes >15%	1.00	Limitations Slopes >15% Caving potential	1.00 1.00

Table 8.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
5210: Grandora, warm-----	30	Limitations Slopes >15%	1.00	Limitations Slopes >15% Caving potential	1.00 1.00
Pinyonpeak-----	30	Limitations Bedrock (hard) <20" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00
5500: Birdcanyon-----	85	Limitations Rare flooding	0.50	Limitations Caving potential	1.00
6001: Goldpeak-----	55	Limitations Possible frost action	0.50	Limitations Caving potential	1.00
Pinyonpeak-----	15	Limitations Bedrock (hard) <20" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00
Wingap-----	15	Limitations Possible frost action Slopes 8 to 15%	0.50 0.16	Limitations Caving potential Slopes 8 to 15%	1.00 0.16
6002: Goldpeak-----	85	Limitations Possible frost action	0.50	Limitations Caving potential	1.00
6003: Goldpeak-----	35	Limitations Possible frost action	0.50	Limitations Caving potential	1.00
Goldpeak, steep-----	30	Limitations Slopes >15% Possible frost action	1.00 0.50	Limitations Caving potential Slopes >15%	1.00 1.00
Pinyonpeak-----	20	Limitations Bedrock (hard) <20" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00

Table 8.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
6601: Pinyonpeak-----	45	Limitations Bedrock (hard) <20" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <20" depth Slopes >15%	1.00 1.00 1.00
Wingap-----	25	Limitations Slopes >15% Possible frost action	1.00 0.50	Limitations Caving potential Slopes >15%	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	

The interpretation for *local roads and streets* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, organic Unified classes for low soil strength (PT, OL, and OH), content of clay, depth to hard or soft bedrock, depth to a thick or thin cemented pan, coarse fragments more than 3 inches in size, bulk density, and the caving potential of the soil.

The interpretation for *shallow excavations* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), potential for frost action, depth to hard or soft bedrock, depth to a thick or thin cemented pan, coarse fragments more than 3 inches in size, and soil strength expressed as the AASHTO group index number (AASHTO GI).

Table 9.--Sanitary Facilities (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
3010: Jawbone-----	35	Limitations Depth to bedrock <40" Slopes >15% Restricted permeability because of bedrock or hardpan	1.00 1.00 1.00	Limitations Bedrock (soft) <40" depth Slopes >8%	1.00 1.00
Typic Haplargids-----	30	Limitations Slopes >15% Depth to bedrock <40" Permeability <.6"/hr in 24-60" (restricted permeability)	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Slopes >8% Fragments (>3") > 35%	1.00 1.00 0.99
Rock outcrop-----	20	Not rated		Not rated	
3250: Jawbone-----	50	Limitations Depth to bedrock <40" Slopes >15% Restricted permeability because of bedrock or hardpan	1.00 1.00 1.00	Limitations Bedrock (soft) <40" depth Slopes >8%	1.00 1.00
Jawbone, moderately deep-----	40	Limitations Slopes >15% Seepage in bottom layer Depth to bedrock <40"	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Slopes >8% Permeability >2"/hr (seepage)	1.00 1.00 1.00
3251: Jawbone, warm-----	60	Limitations Depth to bedrock <40" Restricted permeability because of bedrock or hardpan Seepage in bottom layer	1.00 1.00 1.00	Limitations Bedrock (soft) <40" depth Slopes >8%	1.00 1.00
Jawbone-----	20	Limitations Depth to bedrock <40" Slopes >15% Restricted permeability because of bedrock or hardpan	1.00 1.00 1.00	Limitations Bedrock (soft) <40" depth Slopes >8%	1.00 1.00

Table 9.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
3280: Typic Torriorthents-----	65	Limitations Depth to bedrock <40" Slopes >15% Restricted permeability because of bedrock or hardpan	1.00 1.00 1.00	Limitations Bedrock (soft) <40" depth Slopes >8%	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
3301: Cutterbank-----	50	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Cutterbank, warm-----	25	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
Cutterbank, steep-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
3430: Pasopeak-----	60	Limitations Depth to bedrock <40" Slopes >15% Restricted permeability because of bedrock or hardpan	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Slopes >8% Permeability .6-2"/hr (some seepage)	1.00 1.00 0.02
Rock outcrop-----	25	Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	Limitations Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter) Very rare flooding	1.00 1.00 0.20	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 0.33
3670: Inyo-----	85	Limitations Flooding Permeability >6"/hr in 24-60" (seepage and poor filter) Seepage in bottom layer	1.00 1.00 1.00	Limitations Flooding >= occasional Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 1.00 0.50

Table 9.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
3671: Inyo-----	75	Limitations Permeability >6"/hr in 24-60" (seepage and poor filter) Seepage in bottom layer Rare flooding	1.00 1.00 0.40	Limitations Permeability >2"/hr (seepage) Rare flooding Slopes 2 to 8%	1.00 0.50 0.17
3672: Inyo-----	80	Limitations Permeability >6"/hr in 24-60" (seepage and poor filter) Seepage in bottom layer Rare flooding	1.00 1.00 0.40	Limitations Permeability >2"/hr (seepage) Slopes >8% Rare flooding	1.00 1.00 0.50
4160: Dovecanyon-----	70	Limitations Seepage in bottom layer	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 0.67
Cutterbank-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >8%	1.00
4161: Dovecanyon-----	85	Limitations Seepage in bottom layer	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 0.33
4170: Dovecanyon, warm-----	50	Limitations Seepage in bottom layer	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 0.17
Dovecanyon-----	35	Limitations Seepage in bottom layer	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 0.50
4171: Dovecanyon, warm-----	70	Limitations Seepage in bottom layer	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 0.17
Koehn, dry-----	20	Limitations Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00	Limitations Permeability >2"/hr (seepage)	1.00

Table 9.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
4430: Koehn-----	80	Limitations Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter) Rare flooding	1.00 1.00 0.40	Limitations Permeability >2"/hr (seepage) Rare flooding	1.00 0.50
4431: Koehn, frequently flooded-----	90	Limitations Flooding Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00 1.00	Limitations Flooding >= occasional Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 1.00 0.17
4432: Koehn, occasionally flooded-----	70	Limitations Flooding Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00 1.00	Limitations Flooding >= occasional Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 1.00 0.17
Koehn, frequently flooded-----	15	Limitations Flooding Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00 1.00	Limitations Flooding >= occasional Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 1.00 0.17
4435: Kernfork-----	80	Limitations Flooding Ponding (any duration) Seepage in bottom layer	1.00 1.00 1.00	Limitations Ponding (any duration) Flooding >= occasional Permeability >2"/hr (seepage)	1.00 1.00 1.00
4436: Inyo-----	60	Limitations Flooding Permeability >6"/hr in 24-60" (seepage and poor filter) Seepage in bottom layer	1.00 1.00 1.00	Limitations Flooding >= occasional Permeability >2"/hr (seepage) Slopes 2 to 8%	1.00 1.00 0.17
Riverwash-----	25	Not rated		Not rated	

Table 9.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
5201: Wingap-----	55	Limitations Seepage in bottom layer Slopes >15% Depth to bedrock 40 - 72"	1.00 1.00 0.59	Limitations Slopes >8% Permeability >2"/hr (seepage) Bedrock (soft) from 40 to 60"	1.00 1.00 0.13
Pinyonpeak-----	30	Limitations Depth to bedrock <40" Restricted permeability because of bedrock or hardpan Seepage in bottom layer	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <40" depth Slopes >8%	1.00 1.00 1.00
5205: Scodie-----	65	Limitations Depth to bedrock <40" Slopes >15% Restricted permeability because of bedrock or hardpan	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <40" depth Slopes >8%	1.00 1.00 1.00
Grandora-----	20	Limitations Slopes >15% Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00 1.00	Limitations Slopes >8% Permeability >2"/hr (seepage)	1.00 1.00
5210: Grandora-----	30	Limitations Slopes >15% Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00 1.00	Limitations Slopes >8% Permeability >2"/hr (seepage)	1.00 1.00
Grandora, warm-----	30	Limitations Slopes >15% Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter)	1.00 1.00 1.00	Limitations Slopes >8% Permeability >2"/hr (seepage)	1.00 1.00
Pinyonpeak-----	30	Limitations Depth to bedrock <40" Restricted permeability because of bedrock or hardpan Seepage in bottom layer	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <40" depth Slopes >8%	1.00 1.00 1.00

Table 9.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
5500: Birdcanyon-----	85	Limitations Seepage in bottom layer Permeability >6"/hr in 24-60" (seepage and poor filter) Rare flooding	 1.00 1.00 0.40	Limitations Permeability >2"/hr (seepage) Slopes 2 to 8% Rare flooding	 1.00 0.67 0.50
6001: Goldpeak-----	55	Limitations Permeability .6-2"/hr (restricted permeability)	 0.32	Limitations Permeability .6-2"/hr (some seepage) Slopes 2 to 8%	 0.68 0.33
Pinyonpeak-----	15	Limitations Depth to bedrock <40" Restricted permeability because of bedrock or hardpan Seepage in bottom layer	 1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <40" depth Slopes >8%	 1.00 1.00 1.00
Wingap-----	15	Limitations Seepage in bottom layer Depth to bedrock 40 - 72" Slopes 8 to 15%	 1.00 0.59 0.16	Limitations Permeability >2"/hr (seepage) Slopes >8% Bedrock (soft) from 40 to 60"	 1.00 1.00 0.13
6002: Goldpeak-----	85	Limitations Permeability .6-2"/hr (restricted permeability)	 0.32	Limitations Permeability .6-2"/hr (some seepage) Slopes 2 to 8%	 0.68 0.33
6003: Goldpeak-----	35	Limitations Permeability .6-2"/hr (restricted permeability)	 0.32	Limitations Permeability .6-2"/hr (some seepage) Slopes 2 to 8%	 0.68 0.33
Goldpeak, steep-----	30	Limitations Slopes >15% Permeability .6-2"/hr (restricted permeability)	 1.00 0.32	Limitations Slopes >8% Permeability .6-2"/hr (some seepage)	 1.00 0.68

Table 9.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
6003: Pinyonpeak-----	20	Limitations Depth to bedrock <40" Restricted permeability because of bedrock or hardpan Seepage in bottom layer	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <40" depth Slopes >8%	1.00 1.00 1.00
6601: Pinyonpeak-----	45	Limitations Depth to bedrock <40" Restricted permeability because of bedrock or hardpan Seepage in bottom layer	1.00 1.00 1.00	Limitations Bedrock (hard) <40" depth Bedrock (soft) <40" depth Slopes >8%	1.00 1.00 1.00
Wingap-----	25	Limitations Seepage in bottom layer Slopes >15% Depth to bedrock 40 - 72"	1.00 1.00 0.59	Limitations Slopes >8% Permeability >2"/hr (seepage) Bedrock (soft) from 40 to 60"	1.00 1.00 0.13
Rock outcrop-----	15	Not rated		Not rated	

The interpretation for *septic tanks adsorption fields* evaluates the following soil properties at various depths in the soil: flooding; ponding; wetness; slope; subsidence of organic soils; depth to hard or soft bedrock; depth to a cemented pan; permeability that is too rapid, allowing seepage; and permeability that is too slow or an impermeable layer at a shallow depth.

The interpretation for *sewage lagoons* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, organic Unified classes for low strength (PT, OL, and OH), depth to hard or soft bedrock, depth to a cemented pan, coarse fragments more than 3 inches in size, and permeability that is too rapid, allowing seepage.

Table 10.--Sanitary Facilities (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
3010: Jawbone-----	35	Limitations Slopes >15% Lithic or paralithic bedrock <72" Sandy textures (COSL, LS, LFS, or LVFS)	1.00 1.00 0.50	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Permeability >2.0 in/hr	1.00 1.00 1.00
Typic Haplargids-----	30	Limitations Slopes >15% Lithic or paralithic bedrock <72" Fragments (3-10") > 35%	1.00 1.00 1.00	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Fragments (>3") 25-50%	1.00 1.00 0.64
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3250: Jawbone-----	50	Limitations Slopes >15% Lithic or paralithic bedrock <72" Sandy textures (COSL, LS, LFS, or LVFS)	1.00 1.00 0.50	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Permeability >2.0 in/hr	1.00 1.00 1.00
Jawbone, moderately deep	40	Limitations Slopes >15% Lithic or paralithic bedrock <72" Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00 1.00	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Texture = S, FS, COS, or SG	1.00 1.00 1.00
3251: Jawbone, warm-----	60	Limitations Lithic or paralithic bedrock <72" Slopes 8 to 15% Sandy textures (COSL, LS, LFS, or LVFS)	1.00 0.84 0.50	Limitations Slopes 8 to 15%	0.84	Limitations Depth to bedrock <40" Permeability >2.0 in/hr Slopes 8 to 15%	1.00 1.00 0.84

Table 10.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
3251: Jawbone-----	20	Limitations Slopes >15% Lithic or paralithic bedrock <72" Sandy textures (COSL, LS, LFS, or LVFS)	1.00 1.00 0.50	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Permeability >2.0 in/hr	1.00 1.00 1.00
3280: Typic Torriorthents----	65	Limitations Slopes >15% Lithic or paralithic bedrock <72" Fragments (3-10") > 35%	1.00 1.00 1.00	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Permeability >2.0 in/hr	1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3301: Cutterbank-----	50	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Permeability >2.0 in/hr	1.00 0.01
Cutterbank, warm-----	25	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Permeability >2.0 in/hr	1.00 0.01
Cutterbank, steep-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Permeability >2.0 in/hr	1.00 0.01
3430: Pasopeak-----	60	Limitations Slopes >15% Lithic or paralithic bedrock <72"	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Depth to bedrock <40" Slopes >15% Fragments (<75 mm) 25-50%	1.00 1.00 0.78
Rock outcrop-----	25	Not rated		Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	Limitations Sandy textures (COS, S, FS, LCOS, or VFS)	1.00	Limitations Very rare flooding	0.20	Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00

Table 10.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
3670: Inyo-----	85	Limitations Flooding >= occasional Sandy textures (COSL, LS, LFS, or LVFS)	1.00 0.50	Limitations Occasional flooding	0.60	Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
3671: Inyo-----	75	Limitations Rare flooding Sandy textures (COSL, LS, LFS, or LVFS)	0.50 0.50	Limitations Rare flooding	0.40	Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
3672: Inyo-----	80	Limitations Rare flooding Sandy textures (COSL, LS, LFS, or LVFS) Slopes 8 to 15%	0.50 0.50 0.16	Limitations Rare flooding Slopes 8 to 15%	0.40 0.16	Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Slopes 8 to 15%	1.00 0.50 0.16
4160: Dovecanyon-----	70	Limitations Sandy textures (COSL, LS, LFS, or LVFS)	0.50	No limitations		Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
Cutterbank-----	15	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Permeability >2.0 in/hr	1.00 0.01
4161: Dovecanyon-----	85	Limitations Sandy textures (COSL, LS, LFS, or LVFS)	0.50	No limitations		Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
4170: Dovecanyon, warm-----	50	Limitations Sandy textures (COSL, LS, LFS, or LVFS)	0.50	No limitations		Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01

Table 10.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
4170: Dovecanyon-----	35	Limitations Sandy textures (COSL, LS, LFS, or LVFS)	0.50	No limitations		Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
4171: Dovecanyon, warm-----	70	Limitations Sandy textures (COSL, LS, LFS, or LVFS)	0.50	No limitations		Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
Koehn, dry-----	20	Limitations Sandy textures (COS, S, FS, LCOS, or VFS)	1.00	No limitations		Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00
4430: Koehn-----	80	Limitations Sandy textures (COS, S, FS, LCOS, or VFS) Rare flooding	1.00 0.50	Limitations Rare flooding	0.40	Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00
4431: Koehn, frequently flooded-----	90	Limitations Flooding >= occasional Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00	Limitations Frequent flooding	0.80	Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00
4432: Koehn, occasionally flooded-----	70	Limitations Flooding >= occasional Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00	Limitations Occasional flooding	0.60	Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00
Koehn, frequently flooded-----	15	Limitations Flooding >= occasional Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00	Limitations Frequent flooding	0.80	Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00

Table 10.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
4435: Kernfork-----	80	Limitations Flooding >= occasional Saturation < 6' depth Ponding (any duration)	1.00 1.00 1.00	Limitations Ponding (any duration) Saturation < 5' depth Seepage in 20-40" depth	1.00 1.00 1.00	Limitations Ponding (any duration) Permeability >2.0 in/hr	1.00 0.52
4436: Inyo-----	60	Limitations Flooding >= occasional Sandy textures (COSL, LS, LFS, or LVFS)	1.00 0.50	Limitations Frequent flooding	0.80	Limitations Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS Fragments (<75 mm) 25-50%	1.00 0.50 0.01
Riverwash-----	25	Not rated		Not rated		Not rated	
5201: Wingap-----	55	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Depth to bedrock from 40 to 60" Permeability >2.0 in/hr	1.00 0.14 0.01
Pinyonpeak-----	30	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Fragments (<75 mm) >50% Depth to bedrock <40" Slopes >15%	1.00 1.00 1.00
5205: Scodie-----	65	Limitations Slopes >15% Lithic or paralithic bedrock <72" Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00 1.00	Limitations Slopes >15% Bedrock depth < 40"	1.00 1.00	Limitations Depth to bedrock <40" Slopes >15% Texture = S, FS, COS, or SG	1.00 1.00 1.00
Grandora-----	20	Limitations Slopes >15% Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00 1.00

Table 10.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
5210: Grandora-----	30	Limitations Slopes >15% Sandy textures (COS, S, FS, LCOS, or VFS)	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00 1.00
Grandora, warm-----	30	Limitations Slopes >15% Sandy textures (COSL, LS, LFS, or LVFS)	1.00 0.50	Limitations Slopes >15%	1.00	Limitations Slopes >15% Permeability >2.0 in/hr Texture of LCOS, LS, LFS, or VFS	1.00 1.00 0.50
Pinyonpeak-----	30	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Fragments (<75 mm) >50% Depth to bedrock <40" Slopes >15%	1.00 1.00 1.00
5500: Birdcanyon-----	85	Limitations Sandy textures (COS, S, FS, LCOS, or VFS) Rare flooding	1.00 0.50	Limitations Rare flooding	0.40	Limitations Texture = S, FS, COS, or SG Permeability >2.0 in/hr	1.00 1.00
6001: Goldpeak-----	55	No limitations		No limitations		No Limitations	
Pinyonpeak-----	15	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Fragments (<75 mm) >50% Depth to bedrock <40" Slopes >15%	1.00 1.00 1.00
Wingap-----	15	Limitations Lithic or paralithic bedrock <72" Slopes 8 to 15%	1.00 0.16	Limitations Slopes 8 to 15%	0.16	Limitations Slopes 8 to 15% Depth to bedrock from 40 to 60" Permeability >2.0 in/hr	0.16 0.14 0.01
6002: Goldpeak-----	85	No limitations		No limitations		No Limitations	
6003: Goldpeak-----	35	No limitations		No limitations		No Limitations	
Goldpeak, steep-----	30	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15%	1.00

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Table 10.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
6003: Pinyonpeak-----	20	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Fragments (<75 mm) >50% Depth to bedrock <40" Slopes >15%	1.00 1.00 1.00
6601: Pinyonpeak-----	45	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Fragments (<75 mm) >50% Depth to bedrock <40" Slopes >15%	1.00 1.00 1.00
Wingap-----	25	Limitations Lithic or paralithic bedrock <72" Slopes >15%	1.00 1.00	Limitations Slopes >15%	1.00	Limitations Slopes >15% Depth to bedrock from 40 to 60" Permeability >2.0 in/hr	1.00 0.14 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	

The interpretation for *trench sanitary landfill* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, depth to hard or soft bedrock, depth to a thick or thin cemented pan, coarse fragments 3 to 10 inches in size, content of sodium (SAR), pH, clayey or sandy textures, and permeability that is too rapid, allowing seepage in some climates.

The interpretation for *area sanitary landfill* evaluates the following soil properties at various depths in the soil: flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, and permeability that is too rapid, allowing seepage in some climates.

The interpretation for *daily cover for landfill* evaluates the following soil properties at various depths in the soil: ponding; wetness; slope; depth to bedrock; depth to a cemented pan; coarse fragments more than, equal to, or less than 3 inches in size; Unified class for peat (PT); Unified classes for packing (OL, OH, CH, and MH); sandy or clayey textures; pH, carbonates; content of sodium (SAR); salinity (EC); soil climate; kaolinitic mineralogy; and permeability that is too rapid, allowing seepage.

Textures are abbreviated as COS, coarse sand; COSL, coarse sandy loam; FS, fine sand; LCOS, loamy coarse sand; LFS, loamy fine sand; LS, loamy sand; LVFS, loamy very fine sand; S, sand; SG, sand and gravel; and VFS, very fine sand.

Table 11.--Construction Materials (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The closer the value is to 0.00, the greater the limitation. Values of 0.00 indicate absolute limitations based on the soil property criteria used to develop the interpretation. Values closer to 1.00 indicate less severe limitations. Features with values of 1.00 have absolutely no limitations and are not shown in the table. Rating classes are determined by the most limiting value. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
3010: Jawbone-----	35	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.10	Poor source Slope >15% Depth to bedrock <20" Sand fractions 75-85% Content of rock fragments	0.00 0.00 0.08 0.82
Typic Maplargids-----	30	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Slope >15% Content of rock fragments Depth to bedrock 20 to 40"	0.00 0.00 0.90
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3250: Jawbone-----	50	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.10	Poor source Slope >15% Depth to bedrock <20" Sand fractions 75-85% Content of rock fragments	0.00 0.00 0.08 0.82
Jawbone, moderately deep	40	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.39 0.39	Poor source Slope >15% Sand fractions >85% Content of rock fragments Depth to bedrock 20 to 40"	0.00 0.00 0.18 0.72
3251: Jawbone, warm-----	60	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.10	Poor source Depth to bedrock <20" Sand fractions 75-85% Slope 12 to 15% Content of rock fragments	0.00 0.08 0.16 0.82

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
3251: Jawbone-----	20	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.10	Poor source Slope >15% Depth to bedrock <20" Sand fractions 75-85% Content of rock fragments	0.00 0.00 0.08 0.82
3280: Typic Torriorthents-----	65	Poor source Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor source Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor source Slope >15% Content of rock fragments Depth to bedrock <20"	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
3301: Cutterbank-----	50	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.09	Poor source Slope >15% Content of rock fragments Sand fractions 75-85%	0.00 0.24 0.86
Cutterbank, warm-----	25	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.09	Poor source Slope >15% Content of rock fragments Sand fractions 75-85%	0.00 0.24 0.86
Cutterbank, steep-----	15	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.09	Poor source Slope >15% Content of rock fragments Sand fractions 75-85%	0.00 0.24 0.86
3430: Pasopeak-----	60	Fair source Thickest layer not a source due to fines or thin layer Bottom layer a possible source	0.00 0.62	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Slope >15% Depth to bedrock <20" Content of rock fragments Clay content 27 to 40%	0.00 0.00 0.24 0.32
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
3630: Koehn, very rarely flooded-----	85	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer a possible source Bottom layer a possible source	0.18 0.38	Poor source Sand fractions >85%	0.00
3670: Inyo-----	85	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.14 0.14	Fair source Content of rock fragments Sand fractions 75-85% Hard to reclaim	0.01 0.01 0.95
3671: Inyo-----	75	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.14 0.14	Fair source Content of rock fragments Sand fractions 75-85% Hard to reclaim	0.01 0.01 0.95
3672: Inyo-----	80	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.14 0.14	Fair source Content of rock fragments Sand fractions 75-85% Slope 8 to 12% Hard to reclaim	0.01 0.01 0.84 0.95
4160: Dovecanyon-----	70	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.09 0.10	Poor source Content of rock fragments Sand fractions 75-85%	0.00 0.44
Cutterbank-----	15	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.09	Poor source Slope >15% Content of rock fragments Sand fractions 75-85%	0.00 0.24 0.86

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
4161: Dovecanyon-----	85	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.09 0.10	Poor source Content of rock fragments Sand fractions 75-85%	0.00 0.44
4170: Dovecanyon, warm-----	50	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.09 0.10	Poor source Content of rock fragments Sand fractions 75-85%	0.00 0.44
Dovecanyon-----	35	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.09 0.10	Poor source Content of rock fragments Sand fractions 75-85%	0.00 0.44
4171: Dovecanyon, warm-----	70	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.09 0.10	Poor source Content of rock fragments Sand fractions 75-85%	0.00 0.44
Koehn, dry-----	20	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.68	Poor source Sand fractions >85%	0.00
4430: Koehn-----	80	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.47	Poor source Sand fractions >85%	0.00

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
4431: Koehn, frequently flooded-----	90	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.38	Poor source Sand fractions >85%	0.00
4432: Koehn, occasionally flooded-----	70	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.38	Poor source Sand fractions >85%	0.00
Koehn, frequently flooded-----	15	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.38	Poor source Sand fractions >85%	0.00
4435: Kernfork-----	80	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer a possible source Bottom layer a possible source	0.04 0.04	Fair source Content of rock fragments SAR 4 to 13	0.95 0.98
4436: Inyo-----	60	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.14 0.14	Fair source Content of rock fragments Sand fractions 75-85% Hard to reclaim	0.01 0.01 0.95
Riverwash-----	25	Not rated		Not rated		Not rated	
5201: Wingap-----	55	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer a possible source Bottom layer a possible source	0.10 0.11	Poor source Slope >15% Content of rock fragments Sand fractions 75-85% Hard to reclaim	0.00 0.04 0.56 0.74

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
5201: Pinyonpeak-----	30	Fair source Thickest layer not a source due to fines or thin layer Bottom layer a possible source	0.00 0.62	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Depth to bedrock <20" Content of rock fragments Slope >15% Sand fractions 75-85%	0.00 0.00 0.00 0.78
5205: Scodie-----	65	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	0.00 0.52	Poor source Slope >15% Sand fractions >85% Content of rock fragments Depth to bedrock <20"	0.00 0.00 0.00 0.00
Grandora-----	20	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.47	Poor source Slope >15% Sand fractions >85% Content of rock fragments	0.00 0.00 0.88
5210: Grandora-----	30	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.38 0.47	Poor source Slope >15% Sand fractions >85% Content of rock fragments	0.00 0.00 0.88
Grandora, warm-----	30	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.08 0.47	Poor source Slope >15% Sand fractions 75-85% Content of rock fragments	0.00 0.22 0.88
Pinyonpeak-----	30	Fair source Thickest layer not a source due to fines or thin layer Bottom layer a possible source	0.00 0.62	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Depth to bedrock <20" Content of rock fragments Slope >15% Sand fractions 75-85%	0.00 0.00 0.00 0.78
5500: Birdcanyon-----	85	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.51 0.78	Poor source Sand fractions >85% Content of rock fragments	0.00 0.82

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
6001: Goldpeak-----	55	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.06 0.09	Fair source Content of rock fragments	0.18
Pinyonpeak-----	15	Fair source Thickest layer not a source due to fines or thin layer Bottom layer a possible source	0.00 0.62	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Depth to bedrock <20" Content of rock fragments Slope >15% Sand fractions 75-85%	0.00 0.00 0.00 0.78
Wingap-----	15	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer a possible source Bottom layer a possible source	0.10 0.11	Fair source Content of rock fragments Sand fractions 75-85% Hard to reclaim Slope 8 to 12%	0.04 0.56 0.74 0.84
6002: Goldpeak-----	85	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.06 0.09	Fair source Content of rock fragments	0.18
6003: Goldpeak-----	35	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.06 0.09	Fair source Content of rock fragments	0.18
Goldpeak, steep-----	30	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Bottom layer a possible source Thickest layer a possible source	0.06 0.09	Poor source Slope >15% Content of rock fragments	0.00 0.18
Pinyonpeak-----	20	Fair source Thickest layer not a source due to fines or thin layer Bottom layer a possible source	0.00 0.62	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Depth to bedrock <20" Content of rock fragments Slope >15% Sand fractions 75-85%	0.00 0.00 0.00 0.78

Table 11.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class	Value	Rating class	Value	Rating class and limiting features	Value
6601: Pinyonpeak-----	45	Fair source Thickest layer not a source due to fines or thin layer Bottom layer a possible source	0.00 0.62	Poor source Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor source Depth to bedrock <20" Content of rock fragments Slope >15% Sand fractions 75-85%	0.00 0.00 0.00 0.78
Wingap-----	25	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer a possible source Bottom layer a possible source	0.10 0.11	Poor source Slope >15% Content of rock fragments Sand fractions 75-85% Hard to reclaim	0.00 0.04 0.56 0.74
Rock outcrop-----	15	Not rated		Not rated		Not rated	

The interpretation for *source of gravel* evaluates coarse fragments more than .2 inch in size in the bottom or thickest layer of the soil.

The interpretation for *source of sand* evaluates the content of sand and fine gravel in the thickest layer or the bottom layer of the soil. Organic soil layers with a Unified engineering class for peat (PT) also are evaluated.

The interpretation for *source of topsoil* evaluates the following soil properties at various depths: calcium carbonates, content of clay, bulk density, content of sand, wetness, coarse fragments .2 inch to 3 inches in size, coarse fragments more than 3 inches in size, content of organic matter (OM), content of sodium expressed as the sodium adsorption ratio (SAR), salinity expressed as dS/m of electrical conductivity (EC), depth to bedrock, slope, and pH.

Table 12.--Construction Materials (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The closer the value is to 0.00, the greater the limitation. Values of 0.00 indicate absolute limitations based on the soil property criteria used to develop the interpretation. Values closer to 1.00 indicate lesser limitations. Features with values of 1.00 have absolutely no limitations and are not shown in the table. Rating classes are determined by the most limiting value. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3010: Jawbone-----	35	Poor source WEG = 1 or 2 AWC <3" to 60" depth OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.00 0.18	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
Typic Haplargids-----	30	Poor source OM <.5% AWC 3-6" to 60" depth Fragments 3-10" = 25 to 50%	0.00 0.19 0.36	Poor source Depth to bedrock <40" Slopes >25% Fragments >3" = 25 to 50% LEP 3 to 9	0.00 0.00 0.50 0.75
Rock outcrop-----	20	Not rated		Not rated	
3250: Jawbone-----	50	Poor source WEG = 1 or 2 AWC <3" to 60" depth OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.00 0.18	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
Jawbone, moderately deep-----	40	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC <3" to 60" depth	0.00 0.00 0.00 0.00	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
3251: Jawbone, warm-----	60	Poor source WEG = 1 or 2 AWC <3" to 60" depth OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.00 0.18	Poor source Depth to bedrock <40"	0.00

Table 12.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3251: Jawbone-----	20	Poor source WEG = 1 or 2 AWC <3" to 60" depth OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.00 0.18	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
3280: Typic Torriorthents-----	65	Poor source WEG = 1 or 2 AWC <3" to 60" depth OM <.5% Fragments 3-10" = 25 to 50%	0.00 0.00 0.00 0.04	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
Rock outcrop-----	20	Not rated		Not rated	
3301: Cutterbank-----	50	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Slopes >25%	0.00
Cutterbank, warm-----	25	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Slopes >25%	0.00
Cutterbank, steep-----	15	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Slopes >25%	0.00
3430: Pasopeak-----	60	Poor source AWC <3" to 60" depth OM <.5% Clay 27 to 40%	0.00 0.00 0.32	Poor source Depth to bedrock <40" Slopes >25% LEP 3 to 9	0.00 0.00 0.75
Rock outcrop-----	25	Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.15	Good source	

Table 12.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3670: Inyo-----	85	Poor source OM <.5% Sand fractions 75 to 85% AWC 3-6" to 60" depth	0.00 0.02 0.09	Good source	
3671: Inyo-----	75	Poor source OM <.5% Sand fractions 75 to 85% AWC 3-6" to 60" depth	0.00 0.02 0.09	Good source	
3672: Inyo-----	80	Poor source OM <.5% Sand fractions 75 to 85% AWC 3-6" to 60" depth	0.00 0.02 0.09	Good source	
4160: Dovecanyon-----	70	Poor source WEG = 1 or 2 OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.82	Good source	
Cutterbank-----	15	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Slopes >25%	0.00
4161: Dovecanyon-----	85	Poor source WEG = 1 or 2 OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.82	Good source	
4170: Dovecanyon, warm-----	50	Poor source WEG = 1 or 2 OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.82	Good source	
Dovecanyon-----	35	Poor source WEG = 1 or 2 OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.82	Good source	

Table 12.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
4171: Dovecanyon, warm-----	70	Poor source WEG = 1 or 2 OM <.5% Sand fractions 75 to 85%	0.00 0.00 0.82	Good source	
Koehn, dry-----	20	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.21	Good source	
4430: Koehn-----	80	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.14	Good source	
4431: Koehn, frequently flooded-----	90	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.15	Good source	
4432: Koehn, occasionally flooded-----	70	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.15	Good source	
Koehn, frequently flooded-----	15	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.15	Good source	
4435: Kernfork-----	80	Fair source SAR from 4 to 13	0.97	Good source	

Table 12.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
4436: Inyo-----	60	Poor source OM <.5% Sand fractions 75 to 85% AWC 3-6" to 60" depth	0.00 0.02 0.09	Good source	
Riverwash-----	25	Not rated		Not rated	
5201: Wingap-----	55	Poor source OM <.5% AWC 3-6" to 60" depth Sand fractions 75 to 85%	0.00 0.26 0.92	Fair source Slopes 15 to 25% Depth to bedrock 40 to 60"	0.50 0.87
Pinyonpeak-----	30	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Depth to bedrock <40"	0.00
5205: Scodie-----	65	Poor source Sand fractions >85% WEG = 1 or 2 AWC <3" to 60" depth	0.00 0.00 0.00	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
Grandora-----	20	Poor source Sand fractions >85% OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00	Poor source Slopes >25%	0.00
5210: Grandora-----	30	Poor source Sand fractions >85% OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00	Poor source Slopes >25%	0.00
Grandora, warm-----	30	Poor source OM <.5% AWC 3-6" to 60" depth Sand fractions 75 to 85%	0.00 0.00 0.50	Poor source Slopes >25%	0.00
Pinyonpeak-----	30	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Depth to bedrock <40" Slopes 15 to 25%	0.00 0.50

Table 12.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5500: Birdcanyon-----	85	Poor source Sand fractions >85% WEG = 1 or 2 OM <.5% AWC 3-6" to 60" depth	0.00 0.00 0.00 0.11	Good source	
6001: Goldpeak-----	55	Poor source OM <.5%	0.00	Good source	
Pinyonpeak-----	15	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Depth to bedrock <40" Slopes >25%	0.00 0.00
Wingap-----	15	Poor source OM <.5% AWC 3-6" to 60" depth Sand fractions 75 to 85%	0.00 0.26 0.92	Fair source Depth to bedrock 40 to 60"	0.87
6002: Goldpeak-----	85	Poor source OM <.5%	0.00	Good source	
6003: Goldpeak-----	35	Poor source OM <.5%	0.00	Good source	
Goldpeak, steep-----	30	Poor source OM <.5%	0.00	Poor source Slopes >25%	0.00
Pinyonpeak-----	20	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Depth to bedrock <40"	0.00
6601: Pinyonpeak-----	45	Poor source AWC <3" to 60" depth OM <.5%	0.00 0.00	Poor source Depth to bedrock <40"	0.00

Table 12.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
6601: Wingap-----	25	Poor source OM <.5% AWC 3-6" to 60" depth Sand fractions 75 to 85%	0.00 0.26 0.92	Fair source Slopes 15 to 25% Depth to bedrock 40 to 60"	0.50 0.87
Rock outcrop-----	15	Not rated		Not rated	

The interpretation for *source of reclamation material* evaluates the following soil properties at various depths in the soil: content of sand, content of clay, content of coarse fragments, content of organic matter (OM), wind erodibility group (WEG), available water capacity (AWC), pH, salinity (EC), content of sodium (SAR), carbonates, and the susceptibility to water erosion (K factor).

The interpretation for *source of roadfill* evaluates the following soil properties at various depths in the soil: shrink-swell potential expressed as linear extensibility percent (LEP), depth to bedrock or a cemented pan, wetness, slope, soil strength expressed as the AASHTO group index number (AASHTO GIN), and content of coarse fragments.

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
3010:					
Jawbone-----	35	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Slopes >7% Depth to bedrock <20"	1.00 1.00
Typic Haplargids-----	30	Limitations Fragments (>3") >35% Thin layer Shrink-swell (LEP 3-6)	1.00 0.59 0.50	Limitations Slopes >7% Depth to bedrock from 20 to 60"	1.00 0.59
Rock outcrop-----	20	Not rated		Not rated	
3250:					
Jawbone-----	50	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Slopes >7% Depth to bedrock <20"	1.00 1.00
Jawbone, moderately deep-----	40	Limitations Seepage problem Thin layer	1.00 0.74	Limitations Slopes >7% Permeability >2"/hr (seepage) Depth to bedrock from 20 to 60"	1.00 1.00 0.74
3251:					
Jawbone, warm-----	60	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Depth to bedrock <20" Slopes >7%	1.00 1.00
Jawbone-----	20	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Slopes >7% Depth to bedrock <20"	1.00 1.00
3280:					
Typic Torriorthents-----	65	Limitations Thin layer Fragments (>3") >35% Seepage problem	1.00 1.00 1.00	Limitations Slopes >7% Depth to bedrock <20"	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
3301: Cutterbank-----	50	Limitations Thin layer	1.00	Limitations Slopes >7%	1.00
Cutterbank, warm-----	25	Limitations Thin layer	1.00	Limitations Slopes >7%	1.00
Cutterbank, steep-----	15	Limitations Thin layer	1.00	Limitations Slopes >7%	1.00
3430: Pasopeak-----	60	Limitations Thin layer Shrink-swell (LEP 3-6)	1.00 0.50	Limitations Slopes >7% Depth to bedrock <20" Permeability .6-2"/hr (some seepage)	1.00 1.00 0.02
Rock outcrop-----	25	Not rated		Not rated	
3630: Koehn, very rarely flooded-----	85	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.08
3670: Inyo-----	85	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.31
3671: Inyo-----	75	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
3672: Inyo-----	80	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes >7%	1.00 1.00
4160: Dovecanyon-----	70	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.66
Cutterbank-----	15	Limitations Thin layer	1.00	Limitations Slopes >7%	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
4161: Dovecanyon-----	85	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.08
4170: Dovecanyon, warm-----	50	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
Dovecanyon-----	35	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.31
4171: Dovecanyon, warm-----	70	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
Koehn, dry-----	20	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage)	1.00
4430: Koehn-----	80	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage)	1.00
4431: Koehn, frequently flooded-----	90	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
4432: Koehn, occasionally flooded-----	70	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
Koehn, frequently flooded-----	15	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
4435: Kernfork-----	80	Limitations Ponding (any duration) High piping potential	1.00 0.30	Limitations Permeability >2"/hr (seepage)	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
4436: Inyo-----	60	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.01
Riverwash-----	25	Not rated		Not rated	
5201: Wingap-----	55	No limitations Thin layer	0.03	Limitations Permeability >2"/hr (seepage) Slopes >7% Depth to bedrock from 20 to 60"	1.00 1.00 0.03
Pinyonpeak-----	30	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Depth to bedrock <20" Slopes >7%	1.00 1.00
5205: Scodie-----	65	Limitations Thin layer Seepage problem	1.00 1.00	Limitations Slopes >7% Permeability >2"/hr (seepage) Depth to bedrock <20"	1.00 1.00 1.00
Grandora-----	20	Limitations Seepage problem	1.00	Limitations Slopes >7% Permeability >2"/hr (seepage)	1.00 1.00
5210: Grandora-----	30	Limitations Seepage problem	1.00	Limitations Slopes >7% Permeability >2"/hr (seepage)	1.00 1.00
Grandora, warm-----	30	Limitations Seepage problem	1.00	Limitations Slopes >7% Permeability >2"/hr (seepage)	1.00 1.00
Pinyonpeak-----	30	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Depth to bedrock <20" Slopes >7%	1.00 1.00
5500: Birdcanyon-----	85	Limitations Seepage problem	1.00	Limitations Permeability >2"/hr (seepage) Slopes 2 to 7%	1.00 0.66

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
6001: Goldpeak-----	55	No limitations		Limitations Permeability .6-2"/hr (some seepage) Slopes 2 to 7%	0.68 0.08
Pinyonpeak-----	15	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Depth to bedrock <20" Slopes >7%	1.00 1.00
Wingap-----	15	Limitations Thin layer	0.03	Limitations Permeability >2"/hr (seepage) Slopes >7% Depth to bedrock from 20 to 60"	1.00 1.00 0.03
6002: Goldpeak-----	85	No limitations		Limitations Permeability .6-2"/hr (some seepage) Slopes 2 to 7%	0.68 0.08
6003: Goldpeak-----	35	No limitations		Limitations Permeability .6-2"/hr (some seepage) Slopes 2 to 7%	0.68 0.08
Goldpeak, steep-----	30	No limitations		Limitations Slopes >7% Permeability .6-2"/hr (some seepage)	1.00 0.68
Pinyonpeak-----	20	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Depth to bedrock <20" Slopes >7%	1.00 1.00
6601: Pinyonpeak-----	45	Limitations Thin layer Possible seepage problem	1.00 0.50	Limitations Depth to bedrock <20" Slopes >7%	1.00 1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
6601: Wingap-----	25	Limitations Thin layer	0.03	Limitations Permeability >2"/hr (seepage) Slopes >7% Depth to bedrock from 20 to 60"	1.00 1.00 0.03
Rock outcrop-----	15	Not rated		Not rated	

The interpretation for *embankments, dikes, and levees* evaluates the following soil properties at various depths in the soil: ponding; wetness; depth to a restrictive layer; coarse fragments more than 3 inches in size; salinity (EC); Unified classes for a high content of organic matter (PT, OL, and OH); Unified classes for material that is hard to pack (MH and CH); permeability that is too rapid, allowing seepage; potential for piping as determined by Atterberg limits of liquid limit (LL) and plasticity index (PI); content of sodium (SAR); and content of gypsum.

The interpretation for *pond reservoir areas* evaluates the following soil properties at various depths in the soil: slope, depth to hard or soft bedrock, depth to a cemented pan, marly textures, content of gypsum, and permeability that is too rapid, allowing seepage.

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3010:												
Jawbone-----	0-2	Loamy sand	SM	A-2-4	0	0	94-100	73-100	55-78	16-24	0-19	NP-3
	2-6	Loamy sand	SC-SM, SM	A-2-4	0	0	98-100	84-100	65-80	17-25	0-21	NP-4
	6-59	Bedrock	---	---	---	---	---	---	---	---	---	---
Typic Haplargids-----												
	0-1	Sandy loam	SC	A-2-4	0	0-7	80-87	79-87	60-67	30-34	20-27	6-10
	1-5	Sandy clay loam	CL	A-6	0	0-4	80-92	79-91	70-89	49-66	31-41	13-21
	5-37	Very cobbly clay loam, extremely cobbly loam, very cobbly sandy clay loam, extremely cobbly clay loam	GC	A-6	0-5	30-55	38-71	36-70	29-67	20-50	31-46	13-25
	37-47	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
3250:												
Jawbone-----	0-2	Loamy sand	SM	A-2-4	0	0	94-100	73-100	55-78	16-24	0-19	NP-3
	2-6	Loamy sand	SC-SM, SM	A-2-4	0	0	98-100	84-100	65-80	17-25	0-21	NP-4
	6-59	Bedrock	---	---	---	---	---	---	---	---	---	---
Jawbone, moderately deep-----												
	0-1	Loamy sand	SM	A-2-4	0	0	94-100	73-100	55-78	16-24	0-19	NP-3
	1-7	Loamy sand	SC-SM, SM	A-2-4	0	0	98-100	82-100	62-80	17-25	0-21	NP-4
	7-34	Gravelly coarse sand, sand	SP-SM	A-1-b	0	0	97-100	76-100	38-51	10-15	0-17	NP-2
	34-44	Bedrock	---	---	---	---	---	---	---	---	---	---
3251:												
Jawbone, warm-----												
	0-2	Loamy sand	SM	A-2-4	0	0	94-100	73-100	55-78	16-24	0-19	NP-3
	2-6	Loamy sand	SC-SM, SM	A-2-4	0	0	98-100	84-100	65-80	17-25	0-21	NP-4
	6-59	Bedrock	---	---	---	---	---	---	---	---	---	---
Jawbone-----												
	0-2	Loamy sand	SM	A-2-4	0	0	94-100	73-100	55-78	16-24	0-19	NP-3
	2-6	Loamy sand	SC-SM, SM	A-2-4	0	0	98-100	84-100	65-80	17-25	0-21	NP-4
	6-59	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--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	
3280: Typic Torriorthents-----	0-1	Loamy sand	SM, SC	A-2-4	0	0-3	86-95	77-92	61-82	23-37	16-27	2-10
	1-8	Extremely cobble sandy loam, very gravelly sandy loam	SP-SC, GP, SC	A-1-a	0	0-54	46-78	10-63	8-56	4-32	16-31	2-13
	8-59	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
3301: Cutterbank-----	0-1	Fine sandy loam	SC	A-2-6, A-2-4	0	0	79-96	55-89	50-83	15-37	18-31	3-13
	1-9	Gravelly sandy loam, gravelly fine sandy loam, coarse sandy loam, sandy loam	SC	A-2-4	0	0	73-98	60-95	40-71	14-31	20-27	6-10
	9-59	Sandy loam, gravelly sandy loam, stratified loamy coarse sand to sandy loam	SC-SM	A-2-4	0	0	82-100	72-98	49-74	17-29	16-24	2-7
Cutterbank, warm-----	0-1	Fine sandy loam	SC	A-2-4, A-2-6	0	0	79-96	55-89	50-83	15-37	18-31	3-13
	1-9	Gravelly sandy loam, gravelly fine sandy loam, coarse sandy loam, sandy loam	SC	A-2-4	0	0	73-98	60-95	40-71	14-31	20-27	6-10
	9-59	Stratified loamy coarse sand to sandy loam, sandy loam, gravelly sandy loam	SC-SM	A-2-4	0	0	82-100	72-98	49-74	17-29	16-24	2-7

Table 14.--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	
3301: Cutterbank, steep-----	0-1	Fine sandy loam	SC	A-2-4, A-2-6	0	0	79-96	55-89	50-83	15-37	18-31	3-13
	1-9	Gravelly sandy loam, gravelly fine sandy loam, coarse sandy loam, sandy loam	SC	A-2-4	0	0	73-98	60-95	40-71	14-31	20-27	6-10
	9-59	Stratified loamy coarse sand to sandy loam, sandy loam, gravelly sandy loam	SC-SM	A-2-4	0	0	82-100	72-98	49-74	17-29	16-24	2-7
3430: Pasopeak-----	0-2	Sandy loam	SC-SM	A-2-4	0	0-9	37-85	35-84	27-72	14-40	20-30	6-12
	2-8	Gravelly sandy clay loam, very gravelly sandy clay loam, extremely gravelly sandy clay loam, gravelly sandy loam	SC	A-2-6	0-29	0-31	11-78	7-77	5-70	3-42	28-41	11-21
	8-11	Extremely gravelly sandy clay loam, very gravelly sandy clay loam, gravelly sandy clay loam	GC	A-2-6	0-30	0-31	10-65	7-63	5-56	3-34	31-41	13-21
	11-17	Extremely gravelly sandy clay loam, very gravelly sandy clay loam, gravelly sandy clay loam, extremely gravelly sandy clay	GP-GC	A-2-7	0-32	0-33	10-63	6-62	4-53	2-33	31-47	13-26
	17-27	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--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						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
3430: Rock outcrop.												
3630: Koehn, very rarely flooded-----	0-1	Coarse sand	SM	A-1-b	0	0	97-100	85-96	48-53	17-20	0-20	NP-5
	1-63	Coarse sand, loamy sand, loamy coarse sand, sand	SM, SC-SM	A-2-4	0	0-5	94-100	82-98	63-83	10-19	0-22	NP-6
3670: Inyo-----	0-12	Loamy coarse sand	SC-SM, SM	A-1-b	0	0	90-100	79-100	41-57	14-23	0-21	NP-4
	12-60	Gravelly loamy coarse sand, loamy coarse sand	SC-SM, SM	A-1-b	0	0	80-92	59-85	30-49	10-20	0-21	NP-4
3671: Inyo-----	0-8	Loamy coarse sand	SC-SM, SM	A-1-b	0	0	90-100	79-100	41-57	14-23	0-21	NP-4
	8-60	Gravelly loamy coarse sand, loamy coarse sand	SC-SM, SM	A-1-b	0	0	80-92	59-85	30-49	10-20	0-21	NP-4
3672: Inyo-----	0-6	Loamy coarse sand	SC-SM, SM	A-1-b	0	0	90-100	79-100	41-57	14-23	0-21	NP-4
	6-60	Gravelly loamy coarse sand, loamy coarse sand	SC-SM, SM	A-1-b	0	0	80-92	59-85	30-49	10-20	0-21	NP-4

Table 14.--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	
4160: Dovecanyon-----	0-2	Loamy sand	SM, SC-SM	A-2-4	0	0	92-100	77-92	59-76	14-23	0-23	NP-6
	2-5	Coarse sandy loam, gravelly sandy loam, loamy sand	SC-SM, SM	A-2-4, A-1-b	0	0	93-98	71-92	36-54	15-26	0-23	NP-6
	5-36	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, coarse sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0	86-97	64-89	32-52	13-25	20-30	6-12
	36-63	Gravelly loamy coarse sand, coarse sand, loamy coarse sand, gravelly coarse sand	SM, SC-SM	A-1-b	0	0	86-100	66-92	32-52	9-19	0-22	NP-6
	63-79	Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam, sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	86-100	64-92	37-63	19-35	20-32	6-13
Cutterbank-----	0-1	Fine sandy loam	SC	A-2-4, A-2-6	0	0	79-96	55-89	50-83	15-37	18-31	3-13
	1-9	Gravelly sandy loam, gravelly fine sandy loam, coarse sandy loam, sandy loam	SC	A-2-4	0	0	73-98	60-95	40-71	14-31	20-27	6-10
	9-59	Stratified loamy coarse sand to sandy loam, sandy loam, gravelly sandy loam	SC-SM	A-2-4	0	0	82-100	72-98	49-74	17-29	16-24	2-7

Table 14.--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	
4161: Dovecanyon-----	0-2	Loamy sand	SM, SC-SM	A-2-4	0	0	92-100	77-92	59-76	14-23	0-23	NP-6
	2-5	Coarse sandy loam, gravelly sandy loam, loamy sand	SC-SM, SM	A-2-4, A-1-b	0	0	93-98	71-92	36-54	15-26	0-23	NP-6
	5-36	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, coarse sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0	86-97	64-89	32-52	13-25	20-30	6-12
	36-63	Gravelly loamy coarse sand, coarse sand, loamy coarse sand, gravelly coarse sand	SM, SC-SM	A-1-b	0	0	86-100	66-92	32-52	9-19	0-22	NP-6
	63-79	Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam, sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	86-100	64-92	37-63	19-35	20-32	6-13

Table 14.--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 inches	3-10 inches	4	10	40	200		
4170: Dovecanyon, warm-----	In											
	0-2	Loamy sand	SM, SC-SM	A-2-4	0	0	92-100	77-92	59-76	14-23	0-23	NP-6
	2-5	Coarse sandy loam, gravelly sandy loam, loamy sand	SC-SM, SM	A-2-4, A-1-b	0	0	93-98	71-92	36-54	15-26	0-23	NP-6
	5-36	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, coarse sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0	86-97	64-89	32-52	13-25	20-30	6-12
	36-63	Gravelly loamy coarse sand, coarse sand, loamy coarse sand, gravelly coarse sand	SM, SC-SM	A-1-b	0	0	86-100	66-92	32-52	9-19	0-22	NP-6
	63-79	Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam, sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	86-100	64-92	37-63	19-35	20-32	6-13

Table 14.--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 inches	3-10 inches	4	10	40	200		
4170: Dovecanyon-----	In				Pct	Pct					Pct	
	0-2	Loamy sand	SM, SC-SM	A-2-4	0	0	92-100	77-92	59-76	14-23	0-23	NP-6
	2-5	Coarse sandy loam, gravelly sandy loam, loamy sand	SC-SM, SM	A-2-4, A-1-b	0	0	93-98	71-92	36-54	15-26	0-23	NP-6
	5-36	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, coarse sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0	86-97	64-89	32-52	13-25	20-30	6-12
	36-63	Gravelly loamy coarse sand, coarse sand, loamy coarse sand, gravelly coarse sand	SM, SC-SM	A-1-b	0	0	86-100	66-92	32-52	9-19	0-22	NP-6
	63-79	Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam, sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	86-100	64-92	37-63	19-35	20-32	6-13

Table 14.--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 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
4171: Dovecanyon, warm-----	0-2	Loamy sand	SM, SC-SM	A-2-4	0	0	92-100	77-92	59-76	14-23	0-23	NP-6
	2-5	Coarse sandy loam, gravelly sandy loam, loamy sand	SC-SM, SM	A-2-4, A-1-b	0	0	93-98	71-92	36-54	15-26	0-23	NP-6
	5-36	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, coarse sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0	86-97	64-89	32-52	13-25	20-30	6-12
	36-63	Gravelly loamy coarse sand, coarse sand, loamy coarse sand, gravelly coarse sand	SM, SC-SM	A-1-b	0	0	86-100	66-92	32-52	9-19	0-22	NP-6
	63-79	Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam, sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	86-100	64-92	37-63	19-35	20-32	6-13
Koehn, dry-----	0-3	Sand	SP-SM	A-2-4	0	0	97-100	85-96	70-77	9-12	0-19	NP-2
	1-63	Coarse sand, loamy sand, loamy coarse sand, sand	SM, SC-SM	A-2-4	0	0-5	94-100	82-98	63-83	10-19	0-22	NP-6
4430: Koehn-----	0-1	Coarse sand	SP-SM, SM	A-1-b	0	0	95-100	85-98	39-50	10-17	0-20	NP-4
	1-63	Loamy sand, loamy coarse sand, sand, coarse sand	SC-SM, SM	A-2-4	0	0-5	94-100	82-98	63-83	10-19	0-22	NP-6
4431: Koehn, frequently flooded-----	0-1	Sand	SM	A-2-4	0	0	97-100	85-96	71-80	13-17	0-21	NP-4
	1-63	Coarse sand, loamy sand, loamy coarse sand, sand	SM, SC-SM	A-2-4	0	0-5	94-100	82-98	63-83	10-19	0-22	NP-6

Table 14.--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 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
4432: Koehn, occasionally flooded----	0-1	Sand	SM	A-2-4	0	0	97-100	85-96	71-80	13-17	0-21	NP-4
	1-63	Coarse sand, loamy sand, loamy coarse sand, sand	SM, SC-SM	A-2-4	0	0-5	94-100	82-98	63-83	10-19	0-22	NP-6
Koehn, frequently flooded-----	0-1	Sand	SM	A-2-4	0	0	97-100	85-96	71-80	13-17	0-21	NP-4
	1-63	Coarse sand, loamy sand, loamy coarse sand, sand	SM, SC-SM	A-2-4	0	0-5	94-100	82-98	63-83	10-19	0-22	NP-6
4435: Kernfork-----	0-10	Fine sandy loam, gravelly fine sandy loam	SM, SC-SM, SC	A-6, A-2-4	0	0	91-100	77-100	67-98	26-44	21-37	4-12
	10-31	Sandy loam, fine sandy loam, loam, gravelly loam, gravelly fine sandy loam, gravelly sandy loam	SC, SC-SM	A-2-4, A-6	0	0	91-100	77-100	55-82	26-44	21-35	4-12
	31-60	Stratified loamy sand to silt loam	SC, SC-SM	A-2-4, A-6	0	0	91-100	77-100	55-82	26-44	20-32	4-12
4436: Inyo-----	0-14	Loamy coarse sand	SC-SM, SM	A-1-b	0	0	90-100	79-100	41-57	14-23	0-21	NP-4
	14-60	Gravelly loamy coarse sand, loamy coarse sand	SM, SC-SM	A-1-b	0	0	80-92	59-85	30-49	10-20	0-21	NP-4
Riverwash.												

Table 14.--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 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
5201: Wingap-----	0-3	Loamy sand, loamy coarse sand	SM	A-1-b, A-2-4	0	0	93-100	78-92	42-55	16-24	16-23	1-6
	3-14	Loamy coarse sand, loamy sand	SM, SC-SM	A-2-4	0	0	93-98	78-92	59-75	16-25	15-22	1-6
	14-41	Gravelly sandy loam, gravelly coarse sandy loam	SC, SC-SM	A-2-4, A-2-6, A-1-b	0	0	80-92	53-77	29-49	13-26	20-30	6-12
	41-54	Gravelly loamy sand, gravelly loamy coarse sand	SM, SC-SM	A-1-b	0	0	80-93	54-78	28-46	11-20	15-22	1-6
	54-64	Bedrock	---	---	---	---	---	---	---	---	---	---
Pinyonpeak-----	0-2	Gravelly sandy loam	SC-SM	A-1-b, A-2-4	0	0	85-95	50-75	35-50	15-25	16-25	2-7
	2-6	Gravelly coarse sandy loam, gravelly sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	85-95	50-75	30-45	20-30	20-30	6-12
	6-8	Gravel			0	0	25	0-5	0-2	0-1	---	---
	8-16	Bedrock	---	---	---	---	---	---	---	---	---	---
	16-26	Bedrock	---	---	---	---	---	---	---	---	---	---
5205: Scodie-----	0-5	Gravelly coarse sand	SP-SM, SP-SC	A-1-b	0	0	88-100	51-76	25-42	6-14	0-26	NP-6
	5-15	Gravelly coarse sand, gravelly loamy coarse sand, coarse sand, loamy coarse sand	SP-SM, SP-SC	A-1-b	0	0	88-100	51-84	25-47	6-16	0-26	NP-6
	15-24	Bedrock	---	---	---	---	---	---	---	---	---	---
	24-33	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--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 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
5205: Grandora-----	0-3	Coarse sand	SW-SM	A-1-b, A-2-4	0	0	95-100	77-92	35-46	9-15	0-20	NP-3
	3-60	Sand, gravelly sand, gravelly loamy sand, loamy sand, paracobbly coarse sand, gravelly coarse sand, loamy coarse sand, gravelly loamy coarse sand	SP-SM	A-1-b, A-2-4	0	0	85-95	55-90	30-60	5-12	0-20	NP-3
5210: Grandora-----	0-3	Coarse sand	SW-SM	A-1-b, A-2-4	0	0	95-100	77-92	35-46	9-15	0-20	NP-3
	3-60	Sand, gravelly sand, gravelly loamy sand, loamy sand, paracobbly coarse sand, gravelly coarse sand, paracobbly loamy coarse sand, gravelly loamy coarse sand	SP-SM	A-1-b, A-2-4	0	0	85-95	55-90	30-60	5-12	0-20	NP-3
Grandora, warm-----	0-2	Coarse sand	SW-SM	A-1-b, A-2-4	0	0	95-100	77-92	35-46	9-15	0-20	NP-3
	2-60	Sand, gravelly sand, gravelly loamy sand, loamy sand, parastony coarse sand, gravelly coarse sand, loamy coarse sand, gravelly loamy coarse sand	SP-SM	A-1-b, A-2-4	0	0	85-95	55-90	30-60	5-12	0-20	NP-3

Table 14.--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	
5210: Pinyonpeak-----	0-2	Gravelly sandy loam	SC-SM	A-1-b, A-2-4	0	0	85-95	50-75	35-50	15-25	16-25	2-7
	2-6	Gravelly coarse sandy loam, gravelly sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	85-95	50-75	30-45	20-30	20-30	6-12
	6-8	Gravel			0	0	25	0-5	0-2	0-1	---	---
	8-16 16-26	Bedrock Bedrock	---	---	---	---	---	---	---	---	---	---
5500: Birdcanyon-----	0-2	Coarse sand	SP-SM, SM	A-1-b	0	0	92-98	77-92	33-46	6-14	0-20	NP-4
	2-61	Coarse sand, gravelly coarse sand, gravelly sand, loamy coarse sand, gravelly loamy coarse sand, gravelly loamy sand, loamy sand	SM, SP-SM	A-3, A-1-b	0	0	86-98	58-92	43-76	5-16	0-20	NP-4
6001: Goldpeak-----	0-2	Gravelly loamy sand, loamy sand	SM	A-2-4	0	0	93-98	70-91	54-74	17-27	0-22	NP-5
	2-94	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, gravelly sandy clay loam, coarse sandy loam	SC	A-2-4	0	0	90-100	64-92	38-61	21-38	20-30	6-12

Table 14.--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	
6001: Pinyonpeak-----	0-2	Gravelly sandy loam	SC-SM	A-1-b, A-2-4	0	0	85-95	50-75	35-50	15-25	16-25	2-7
	2-6	Gravelly coarse sandy loam, gravelly sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	85-95	50-75	30-45	20-30	20-30	6-12
	6-8	Gravel			0	0	25	0-5	0-2	0-1	---	---
	8-16	Bedrock	---	---	---	---	---	---	---	---	---	---
	16-26	Bedrock	---	---	---	---	---	---	---	---	---	---
Wingap-----	0-3	Loamy sand, loamy coarse sand	SM	A-1-b, A-2-4	0	0	93-100	78-92	42-55	16-24	16-23	1-6
	3-14	Loamy coarse sand, loamy sand	SM, SC-SM	A-2-4	0	0	93-98	78-92	59-75	16-25	15-22	1-6
	14-41	Gravelly sandy loam, gravelly coarse sandy loam	SC, SC-SM	A-2-4, A-2-6, A-1-b	0	0	80-92	53-77	29-49	13-26	20-30	6-12
	41-54	Gravelly loamy sand, gravelly loamy coarse sand	SM, SC-SM	A-1-b	0	0	80-93	54-78	28-46	11-20	15-22	1-6
	54-60	Bedrock	---	---	---	---	---	---	---	---	---	---
6002: Goldpeak-----	0-2	Gravelly loamy sand, loamy sand	SM	A-2-4	0	0	93-98	70-91	54-74	17-27	0-22	NP-5
	2-94	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, gravelly sandy clay loam, coarse sandy loam	SC	A-2-4	0	0	90-100	64-92	38-61	21-38	20-30	6-12

Table 14.--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	
6003: Goldpeak-----	0-3	Gravelly loamy sand, loamy sand	SM	A-2-4	0	0	93-98	70-91	54-74	17-27	0-22	NP-5
	3-94	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, gravelly sandy clay loam, coarse sandy loam	SC	A-2-4	0	0	90-100	64-92	38-61	21-38	20-30	6-12
Goldpeak, steep-----	0-2	Gravelly loamy sand, loamy sand	SM	A-2-4	0	0	93-98	70-91	54-74	17-27	0-22	NP-5
	2-94	Gravelly coarse sandy loam, sandy loam, gravelly sandy loam, gravelly sandy clay loam, coarse sandy loam	SC	A-2-4	0	0	90-100	64-92	38-61	21-38	20-30	6-12
Pinyonpeak-----	0-2	Gravelly sandy loam	SC-SM	A-1-b, A-2-4	0	0	85-95	50-75	35-50	15-25	16-25	2-7
	2-6	Gravelly coarse sandy loam, gravelly sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	85-95	50-75	30-45	20-30	20-30	6-12
	6-8	Gravel			0	0	25	0-5	0-2	0-1	---	---
	8-16	Bedrock	---	---	---	---	---	---	---	---	---	---
	16-26	Bedrock	---	---	---	---	---	---	---	---	---	---
6601: Pinyonpeak-----	0-2	Gravelly sandy loam	SC-SM	A-1-b, A-2-4	0	0	85-95	50-75	35-50	15-25	16-25	2-7
	2-6	Gravelly coarse sandy loam, gravelly sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0	85-95	50-75	30-45	20-30	20-30	6-12
	6-8	Gravel			0	0	25	0-5	0-2	0-1	---	---
	8-16	Bedrock	---	---	---	---	---	---	---	---	---	---
	16-26	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--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	
6601: Wingap-----	0-3	Loamy sand, loamy coarse sand	SM	A-1-b, A-2-4	0	0	93-100	78-92	42-55	16-24	16-23	1-6
	3-14	Loamy coarse sand, loamy sand	SM, SC-SM	A-2-4	0	0	93-98	78-92	59-75	16-25	15-22	1-6
	14-41	Gravelly sandy loam, gravelly coarse sandy loam	SC, SC-SM	A-2-4, A-2-6, A-1-b	0	0	80-92	53-77	29-49	13-26	20-30	6-12
	41-54	Gravelly loamy sand, gravelly loamy coarse sand	SM, SC-SM	A-1-b	0	0	80-93	54-78	28-46	11-20	15-22	1-6
	54-60	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 15.--Physical Properties of the Soils

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	g/cc	um/sec	In/in	Pct	Pct
3010:							
Jawbone-----	0-2	3-6	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.2
	2-6	3-7	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.5
	6-59	---	---	0.00-0.01	---	---	---
Typic Haplargids-----	0-1	10-15	1.45-1.55	1.00-100.00	0.08-0.12	0.0-3.0	0.0-0.5
	1-5	20-30	1.45-1.55	1.00-10.00	0.04-0.21	3.0-6.0	0.0-0.2
	5-37	20-35	1.30-1.50	1.00-5.00	0.07-0.14	3.0-6.0	0.0-0.2
	37-47	---	---	0.00-1.00	---	---	---
Rock outcrop.							
3250:							
Jawbone-----	0-2	3-6	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.2
	2-6	3-7	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.5
	6-59	---	---	0.00-0.01	---	---	---
Jawbone, moderately deep----	0-1	3-6	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.2
	1-7	3-7	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.2
	7-34	3-4	1.45-1.55	25.00-100.00	0.04-0.05	0.0-3.0	0.0-0.2
	34-44	---	---	0.00-0.00	---	---	---
3251:							
Jawbone, warm-----	0-2	3-6	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.2
	2-6	3-7	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.5
	6-59	---	---	0.00-0.01	---	---	---
Jawbone-----	0-2	3-6	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.2
	2-6	3-7	1.55-1.65	25.00-100.00	0.05-0.07	0.0-3.0	0.0-0.5
	6-59	---	---	0.00-0.01	---	---	---
3280:							
Typic Torriorthents-----	0-1	5-15	1.55-1.65	20.00-100.00	0.05-0.08	0.0-3.0	0.0-0.5
	1-8	5-20	1.45-1.65	10.00-20.00	0.03-0.08	0.0-3.0	0.0-0.2
	8-59	---	---	0.00-1.00	---	---	---
Rock outcrop.							
3301:							
Cutterbank-----	0-1	7-19	1.50-1.70	10.00-25.00	0.09-0.15	0.0-3.0	0.0-0.5
	1-9	10-15	1.50-1.70	10.00-25.00	0.06-0.13	0.0-3.0	0.0-0.2
	9-59	5-12	1.75-1.85	0.10-1.00	0.03-0.08	0.0-3.0	0.0-0.2
Cutterbank, warm-----	0-1	7-19	1.50-1.70	10.00-25.00	0.09-0.15	0.0-3.0	0.0-0.5
	1-9	10-15	1.50-1.70	10.00-25.00	0.06-0.13	0.0-3.0	0.0-0.2
	9-59	5-12	1.75-1.85	0.10-1.00	0.03-0.08	0.0-3.0	0.0-0.2
Cutterbank, steep-----	0-1	7-19	1.50-1.70	10.00-25.00	0.09-0.15	0.0-3.0	0.0-0.5
	1-9	10-15	1.50-1.70	10.00-25.00	0.06-0.13	0.0-3.0	0.0-0.2
	9-59	5-12	1.75-1.85	0.10-1.00	0.03-0.08	0.0-3.0	0.0-0.2
3430:							
Pasopeak-----	0-2	10-18	1.50-1.60	10.00-100.00	0.06-0.14	0.0-3.0	0.0-0.5
	2-8	17-30	1.50-1.60	1.00-10.00	0.03-0.14	3.0-6.0	0.0-0.2
	8-11	20-30	1.45-1.55	1.00-10.00	0.03-0.14	3.0-6.0	0.0-0.2
	11-17	20-36	1.35-1.50	1.00-10.00	0.03-0.14	3.0-6.0	0.0-0.2
	17-27	---	---	0.00-1.00	---	---	---
Rock outcrop.							
3630:							
Koehn, very rarely flooded---	0-1	5-7	1.60-1.70	25.00-100.00	0.05-0.08	0.0-3.0	0.0-0.5
	1-63	2-10	1.60-1.70	25.00-100.00	0.03-0.08	0.0-2.9	0.0-0.2

Soil Survey of Jawbone-Butterbrecht ACEC Area, California

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	g/cc	um/sec	In/in	Pct	Pct
3670: Inyo-----	0-12	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.1-0.5
	12-60	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.0-0.5
3671: Inyo-----	0-8	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.1-0.5
	8-60	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.0-0.5
3672: Inyo-----	0-6	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.1-0.5
	6-60	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.0-0.5
4160: Dovecanyon-----	0-2	3-10	1.48-1.60	40.00-100.00	0.05-0.08	0.0-2.0	0.2-0.6
	2-5	3-10	1.45-1.60	10.00-100.00	0.06-0.11	0.0-3.0	0.0-0.5
	5-36	10-18	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
	36-63	3-10	1.45-1.60	40.00-100.00	0.04-0.08	0.0-2.0	0.0-0.5
	63-79	10-20	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
Cutterbank-----	0-1	7-19	1.50-1.70	10.00-25.00	0.09-0.15	0.0-3.0	0.0-0.5
	1-9	10-15	1.50-1.70	10.00-25.00	0.06-0.13	0.0-3.0	0.0-0.2
	9-59	5-12	1.75-1.85	0.10-1.00	0.03-0.08	0.0-3.0	0.0-0.2
4161: Dovecanyon-----	0-2	3-10	1.48-1.60	40.00-100.00	0.05-0.08	0.0-2.0	0.2-0.6
	2-5	3-10	1.45-1.60	10.00-100.00	0.06-0.11	0.0-3.0	0.0-0.5
	5-36	10-18	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
	36-63	3-10	1.45-1.60	40.00-100.00	0.04-0.08	0.0-2.0	0.0-0.5
	63-79	10-20	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
4170: Dovecanyon, warm-----	0-2	3-10	1.48-1.60	40.00-100.00	0.05-0.08	0.0-2.0	0.2-0.6
	2-5	3-10	1.45-1.60	10.00-100.00	0.06-0.11	0.0-3.0	0.0-0.5
	5-36	10-18	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
	36-63	3-10	1.45-1.60	40.00-100.00	0.04-0.08	0.0-2.0	0.0-0.5
	63-79	10-20	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
Dovecanyon-----	0-2	3-10	1.48-1.60	40.00-100.00	0.05-0.08	0.0-2.0	0.2-0.6
	2-5	3-10	1.45-1.60	10.00-100.00	0.06-0.11	0.0-3.0	0.0-0.5
	5-36	10-18	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
	36-63	3-10	1.45-1.60	40.00-100.00	0.04-0.08	0.0-2.0	0.0-0.5
	63-79	10-20	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
4171: Dovecanyon, warm-----	0-2	3-10	1.48-1.60	40.00-100.00	0.05-0.08	0.0-2.0	0.2-0.6
	2-5	3-10	1.45-1.60	10.00-100.00	0.06-0.11	0.0-3.0	0.0-0.5
	5-36	10-18	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
	36-63	3-10	1.45-1.60	40.00-100.00	0.04-0.08	0.0-2.0	0.0-0.5
	63-79	10-20	1.40-1.60	5.00-40.00	0.07-0.12	0.0-3.0	0.0-0.5
Koehn, dry-----	0-3	3-5	1.60-1.70	25.00-100.00	0.05-0.08	0.0-3.0	0.0-0.5
	1-63	2-10	1.60-1.70	25.00-100.00	0.03-0.08	0.0-2.9	0.0-0.2
4430: Koehn-----	0-1	2-7	1.60-1.70	25.00-100.00	0.03-0.07	0.0-2.9	0.0-0.5
	1-63	2-10	1.60-1.70	25.00-100.00	0.03-0.08	0.0-2.9	0.0-0.2
4431: Koehn, frequently flooded---	0-1	3-7	1.60-1.70	25.00-100.00	0.05-0.08	0.0-3.0	0.0-0.5
	1-63	2-10	1.60-1.70	25.00-100.00	0.03-0.08	0.0-2.9	0.0-0.2

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	g/cc	um/sec	In/in	Pct	Pct
4432:							
Koehn, occasionally flooded--	0-1	3-7	1.60-1.70	25.00-100.00	0.05-0.08	0.0-3.0	0.0-0.5
	1-63	2-10	1.60-1.70	25.00-100.00	0.03-0.08	0.0-2.9	0.0-0.2
Koehn, frequently flooded----	0-1	3-7	1.60-1.70	25.00-100.00	0.05-0.08	0.0-3.0	0.0-0.5
	1-63	2-10	1.60-1.70	25.00-100.00	0.03-0.08	0.0-2.9	0.0-0.2
4435:							
Kernfork-----	0-10	8-18	1.50-1.60	14.11-42.34	0.12-0.14	0.0-2.9	1.0-4.0
	10-31	8-18	1.50-1.60	14.11-42.34	0.12-0.15	0.0-2.9	1.0-3.0
	31-60	8-18	1.50-1.60	14.11-42.34	0.08-0.12	0.0-2.9	0.5-1.5
4436:							
Inyo-----	0-14	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.1-0.5
	14-60	2-8	1.60-1.70	42.34-141.14	0.04-0.07	0.0-2.9	0.0-0.5
Riverwash.							
5201:							
Wingap-----	0-3	4-10	1.65-1.75	25.00-75.00	0.05-0.07	0.0-2.0	0.2-0.6
	3-14	4-10	1.60-1.70	25.00-75.00	0.06-0.08	0.0-2.0	0.0-0.5
	14-41	10-18	1.55-1.60	10.00-25.00	0.08-0.10	0.0-3.0	0.0-0.5
	41-54	4-10	1.65-1.75	25.00-75.00	0.04-0.05	0.0-2.0	0.0-0.5
	54-64	---	---	0.01-0.10	0.01-0.05	---	---
Pinyonpeak-----	0-2	5-12	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.2-0.5
	2-6	10-18	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.0-0.5
	6-8	---	---	50.00-100.00	0.02-0.04	---	---
	8-16	---	---	0.01-1.00	---	---	---
	16-26	---	---	0.00-0.01	---	---	---
5205:							
Scodie-----	0-5	3-10	1.45-1.60	50.00-100.00	0.03-0.07	0.0-2.0	1.0-3.0
	5-15	3-10	1.45-1.60	50.00-100.00	0.03-0.07	0.0-2.0	1.0-3.0
	15-24	---	---	0.01-1.00	---	---	---
	24-33	---	---	0.00-0.10	---	---	---
Grandora-----	0-3	2-6	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.5-1.0
	3-60	2-6	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.2-0.8
5210:							
Grandora-----	0-3	2-6	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.5-1.0
	3-60	2-6	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.2-0.8
Grandora, warm-----	0-2	2-6	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.5-1.0
	2-60	2-6	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.2-0.8
Pinyonpeak-----	0-2	5-12	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.2-0.5
	2-6	10-18	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.0-0.5
	6-8	---	---	50.00-100.00	0.02-0.04	---	---
	8-16	---	---	0.01-1.00	---	---	---
	16-26	---	---	0.00-0.01	---	---	---
5500:							
Birdcanyon-----	0-2	1-8	1.50-1.60	50.00-100.00	0.04-0.07	0.0-1.0	0.1-0.5
	2-61	2-8	1.50-1.60	25.00-100.00	0.04-0.08	0.0-1.0	0.0-0.5
6001:							
Goldpeak-----	0-2	3-9	1.60-1.70	25.00-75.00	0.05-0.06	0.0-2.0	0.2-0.6
	2-94	10-18	1.55-1.60	5.00-25.00	0.08-0.12	0.0-3.0	0.0-0.5

Soil Survey of Jawbone-Butterbrecht ACEC Area, California

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	g/cc	um/sec	In/in	Pct	Pct
6001:							
Pinyonpeak-----	0-2	5-12	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.2-0.5
	2-6	10-18	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.0-0.5
	6-8	---	---	50.00-100.00	0.02-0.04	---	---
	8-16	---	---	0.01-1.00	---	---	---
	16-26	---	---	0.00-0.01	---	---	---
Wingap-----	0-3	4-10	1.65-1.75	25.00-75.00	0.05-0.07	0.0-2.0	0.2-0.6
	3-14	4-10	1.60-1.70	25.00-75.00	0.06-0.08	0.0-2.0	0.0-0.5
	14-41	10-18	1.55-1.60	10.00-25.00	0.08-0.10	0.0-3.0	0.0-0.5
	41-54	4-10	1.65-1.75	25.00-75.00	0.04-0.05	0.0-2.0	0.0-0.5
	54-60	---	---	0.01-0.10	0.01-0.05	---	---
6002:							
Goldpeak-----	0-2	3-9	1.60-1.70	25.00-75.00	0.05-0.06	0.0-2.0	0.2-0.6
	2-94	10-18	1.55-1.60	5.00-25.00	0.08-0.12	0.0-3.0	0.0-0.5
6003:							
Goldpeak-----	0-3	3-9	1.60-1.70	25.00-75.00	0.05-0.06	0.0-2.0	0.2-0.6
	3-94	10-18	1.55-1.60	5.00-25.00	0.08-0.12	0.0-3.0	0.0-0.5
Goldpeak, steep-----	0-2	3-9	1.60-1.70	25.00-75.00	0.05-0.06	0.0-2.0	0.2-0.6
	2-94	10-18	1.55-1.60	5.00-25.00	0.08-0.12	0.0-3.0	0.0-0.5
Pinyonpeak-----	0-2	5-12	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.2-0.5
	2-6	10-18	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.0-0.5
	6-8	---	---	50.00-75.00	0.02-0.04	---	---
	8-16	---	---	0.01-1.00	---	---	---
	16-26	---	---	0.00-0.01	---	---	---
6601:							
Pinyonpeak-----	0-2	5-12	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.2-0.5
	2-6	10-18	1.50-1.60	10.00-25.00	0.06-0.11	0.0-3.0	0.0-0.5
	6-8	---	---	50.00-100.00	0.02-0.04	---	---
	8-16	---	---	0.01-1.00	---	---	---
	16-26	---	---	0.00-0.01	---	---	---
Wingap-----	0-3	4-10	1.65-1.75	25.00-75.00	0.05-0.07	0.0-2.0	0.2-0.6
	3-14	4-10	1.60-1.70	25.00-75.00	0.06-0.08	0.0-2.0	0.0-0.5
	14-41	10-18	1.55-1.60	10.00-25.00	0.08-0.10	0.0-3.0	0.0-0.5
	41-54	4-10	1.65-1.75	25.00-75.00	0.04-0.05	0.0-2.0	0.0-0.5
	54-60	---	---	0.01-0.10	0.01-0.05	---	---
Rock outcrop.							

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 16.--Erosion Properties of the Soils

(Entries under "Erosion factors" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
		Kw	Kf	T		
	In					
3010:						
Jawbone-----	0-2	.24	.32	1	2	134
	2-6	.24	.28			
	6-59	---	---			
Typic Haplargids-----	0-1	.20	.24	2	3	86
	1-5	.10	.32			
	5-37	---	---			
	37-47	---	---			
Rock outcrop.						
3250:						
Jawbone-----	0-2	.24	.32	1	2	134
	2-6	.24	.28			
	6-59	---	---			
Jawbone, moderately deep-----	0-1	.15	.20	2	2	134
	1-7	.15	.20			
	7-34	.05	.10			
	34-44	---	---			
3251:						
Jawbone, warm-----	0-2	.24	.32	1	2	134
	2-6	.24	.28			
	6-59	---	---			
Jawbone-----	0-2	.24	.32	1	2	134
	2-6	.24	.28			
	6-59	---	---			
3280:						
Typic Torriorthents-----	0-1	.28	.32	2	2	134
	1-8	.05	.37			
	8-59	---	---			
Rock outcrop.						
3301:						
Cutterbank-----	0-1	.15	.20	5	4	86
	1-9	.10	.17			
	9-59	.10	.17			
Cutterbank, warm-----	0-1	.15	.20	5	4	86
	1-9	.10	.17			
	9-59	.10	.17			
Cutterbank, steep-----	0-1	.15	.20	5	4	86
	1-9	.10	.17			
	9-59	.10	.17			
3430:						
Pasopeak-----	0-2	.24	.28	1	3	86
	2-8	.20	.28			
	8-11	.15	.28			
	11-17	.05	.20			
	17-27	---	---			

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 16.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
		Kw	Kf	T		
3430: Rock outcrop.	In					
3630: Koehn, very rarely flooded-----	0-1 1-63	.15 .05	.15 .05	5	2	134
3670: Inyo-----	0-12 12-60	.10 .10	.15 .15	5	3	86
3671: Inyo-----	0-8 8-60	.10 .10	.15 .15	5	3	86
3672: Inyo-----	0-6 6-60	.10 .10	.15 .15	5	3	86
4160: Dovecanyon-----	0-2 2-5 5-36 36-63 63-79	.15 .15 .05 .05 .10	.17 .17 .10 .10 .17	5	2	134
Cutterbank-----	0-1 1-9 9-59	.15 .10 .10	.20 .17 .17	5	4	86
4161: Dovecanyon-----	0-2 2-5 5-36 36-63 63-79	.15 .15 .05 .05 .10	.17 .17 .10 .10 .17	5	2	134
4170: Dovecanyon, warm-----	0-2 2-5 5-36 36-63 63-79	.15 .15 .05 .05 .10	.17 .17 .10 .10 .17	5	2	134
Dovecanyon-----	0-2 2-5 5-36 36-63 63-79	.15 .15 .05 .05 .10	.17 .17 .10 .10 .17	5	2	134
4171: Dovecanyon, warm-----	0-2 2-5 5-36 36-63 63-79	.15 .15 .05 .05 .10	.17 .17 .10 .10 .17	5	2	134
Koehn, dry-----	0-3 1-63	.10 .05	.10 .05	5	1	220

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 16.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
		Kw	Kf	T		
	In					
4430: Koehn-----	0-1 1-63	.05 .05	.05 .05	5	1	220
4431: Koehn, frequently flooded-----	0-1 1-63	.15 .05	.15 .05	5	2	134
4432: Koehn, occasionally flooded-----	0-1 1-63	.15 .05	.15 .05	5	2	134
Koehn, frequently flooded-----	0-1 1-63	.15 .05	.15 .05	5	2	134
4435: Kernfork-----	0-10 10-31 31-60	.15 .15 .17	.20 .20 .24	5	3	86
4436: Inyo-----	0-14 14-60	.10 .10	.15 .15	5	3	86
Riverwash.						
5201: Wingap-----	0-3 3-14 14-41 41-54 54-64	.15 .15 .10 .15 ---	.17 .17 .15 .24 ---	4	4	86
Pinyonpeak-----	0-2 2-6 6-8 8-16 16-26	.17 .10 --- --- ---	.37 .37 --- --- ---	1	5	56
5205: Scodie-----	0-5 5-15 15-24 24-33	.10 .10 --- ---	.20 .20 --- ---	1	2	134
Grandora-----	0-3 3-60	.10 .05	.10 .10	5	8	0
5210: Grandora-----	0-3 3-60	.10 .05	.10 .10	5	8	0
Grandora, warm-----	0-2 2-60	.10 .15	.10 .24	5	8	0
Pinyonpeak-----	0-2 2-6 6-8 8-16 16-26	.17 .10 --- --- ---	.37 .37 --- --- ---	1	5	56

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 16.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
		Kw	Kf	T		
	<i>In</i>					
5500: Birdcanyon-----	0-2	.10	.10	5	1	160
	2-61	.10	.10			
6001: Goldpeak-----	0-2	.17	.24	5	3	86
	2-94	.15	.20			
Pinyonpeak-----	0-2	.17	.37	1	5	56
	2-6	.10	.37			
	6-8	---	---			
	8-16	---	---			
	16-26	---	---			
Wingap-----	0-3	.15	.17	4	4	86
	3-14	.15	.17			
	14-41	.10	.15			
	41-54	.15	.24			
	54-60	---	---			
6002: Goldpeak-----	0-2	.17	.24	5	3	86
	2-94	.15	.20			
6003: Goldpeak-----	0-3	.17	.24	5	3	86
	3-94	.15	.20			
Goldpeak, steep-----	0-2	.17	.24	5	3	86
	2-94	.15	.20			
Pinyonpeak-----	0-2	.17	.37	1	4	86
	2-6	.10	.37			
	6-8	---	---			
	8-16	---	---			
	16-26	---	---			
6601: Pinyonpeak-----	0-2	.17	.37	1	5	56
	2-6	.10	.37			
	6-8	---	---			
	8-16	---	---			
	16-26	---	---			
Wingap-----	0-3	.15	.17	4	4	86
	3-14	.15	.17			
	14-41	.10	.15			
	41-54	.15	.24			
	54-60	---	---			
Rock outcrop.						

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 17.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meg/100g	pH	Pct	Pct	dS/m	
3010:							
Jawbone-----	0-2	2.0-4.5	7.2-8.0	0-1	0	0.0-2.0	0-5
	2-6	2.0-5.4	7.2-8.0	0-1	0	0.0-2.0	0-5
	6-59	---	---	---	---	---	---
Typic Haplargids-----	0-1	7.6-12	6.6-7.8	0	0	0.0-2.0	0-5
	1-5	14-23	6.6-7.8	0-1	0	0.0-2.0	0-5
	5-37	14-26	7.4-7.8	0-1	0	0.0-2.0	0-5
	37-47	---	---	---	---	---	---
Rock outcrop.							
3250:							
Jawbone-----	0-2	2.0-4.5	7.2-8.0	0-1	0	0.0-2.0	0-5
	2-6	2.0-5.4	7.2-8.0	0-1	0	0.0-2.0	0-5
	6-59	---	---	---	---	---	---
Jawbone, moderately deep----	0-1	2.0-4.5	7.2-8.0	0-1	0	0.0-2.0	0-5
	1-7	2.0-5.4	7.2-8.0	0-1	0	0.0-2.0	0-5
	7-34	---	7.8-8.2	0-1	0	0.0-2.0	0-5
	34-44	---	---	---	---	---	---
3251:							
Jawbone, warm-----	0-2	2.0-4.5	7.2-8.0	0-1	0	0.0-2.0	0-5
	2-6	2.0-5.4	7.2-8.0	0-1	0	0.0-2.0	0-5
	6-59	---	---	---	---	---	---
Jawbone-----	0-2	2.0-4.5	7.2-8.0	0-1	0	0.0-2.0	0-5
	2-6	2.0-5.4	7.2-8.0	0-1	0	0.0-2.0	0-5
	6-59	---	---	---	---	---	---
3280:							
Typic Torriorthents-----	0-1	4.1-12	7.2-7.4	0-5	0	0.0-4.0	0-2
	1-8	4.1-16	7.2-7.2	0-5	0	0.0-4.0	0-2
	8-59	---	---	---	---	---	---
Rock outcrop.							
3301:							
Cutterbank-----	0-1	5.5-15	7.4-8.4	0-1	0	0.0-2.0	0-5
	1-9	7.6-12	7.4-8.4	0-1	0	0.0-2.0	0-5
	9-59	4.1-9.9	7.4-8.4	0-1	0	0.0-2.0	0-5
Cutterbank, warm-----	0-1	5.5-15	7.4-8.4	0-1	0	0.0-2.0	0-5
	1-9	7.6-12	7.4-8.4	0-1	0	0.0-2.0	0-5
	9-59	4.1-9.9	7.4-8.4	0-1	0	0.0-2.0	0-5
Cutterbank, steep-----	0-1	5.5-15	7.4-8.4	0-1	0	0.0-2.0	0-5
	1-9	7.6-12	7.4-8.4	0-1	0	0.0-2.0	0-5
	9-59	4.1-9.9	7.4-8.4	0-1	0	0.0-2.0	0-5
3430:							
Pasopeak-----	0-2	7.6-15	6.6-7.3	0-1	0-1	0.0-4.0	0-1
	2-8	12-23	7.3-7.8	0-1	0-1	0.0-4.0	0-1
	8-11	14-23	7.3-7.8	0-1	0-1	0.0-4.0	0-1
	11-17	14-27	6.6-7.3	0-1	0-1	0.0-4.0	0-1
	17-27	---	---	---	---	---	---
Rock outcrop.							

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	dS/m	
3630: Koehn, very rarely flooded--	0-1 1-63	3.1-5.4 1.4-5.7	6.6-7.8 6.6-7.8	0-1 0-1	0 0	0.0-2.0 0.0-2.0	0-5 0-5
3670: Inyo-----	0-12 12-60	1.6-6.1 1.4-6.1	6.6-7.8 6.6-8.4	0 0	0 0	0.0-2.0 0.0-2.0	0 0
3671: Inyo-----	0-8 8-60	1.6-6.1 1.4-6.1	6.6-7.8 6.6-8.4	0 0	0 0	0.0-2.0 0.0-2.0	0 0
3672: Inyo-----	0-6 6-60	1.6-6.1 1.4-6.1	6.6-7.8 6.6-8.4	0 0	0-1 0-1	0.0-2.0 0.0-2.0	0 0
4160: Dovecanyon-----	0-2 2-5 5-36 36-63 63-79	2.8-8.7 4.5-12 5.5-15 6.9-21 5.5-8.6	6.6-7.8 6.6-7.8 6.6-7.8 6.6-7.8 6.6-8.4	0 0 0 0 0	0 0 0 0 0	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 0-5 0-5 0-5
Cutterbank-----	0-1 1-9 9-59	5.5-15 7.6-12 4.1-9.9	7.4-8.4 7.4-8.4 7.4-8.4	0-1 0-1 0-1	0 0 0	0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 0-5
4161: Dovecanyon-----	0-2 2-5 5-36 36-63 63-79	2.8-8.7 4.5-12 5.5-15 6.9-21 5.5-8.6	6.6-7.8 6.6-7.8 6.6-7.8 6.6-7.8 6.6-8.4	0 0 0 0 0	0 0 0 0 0	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 0-5 0-5 0-5
4170: Dovecanyon, warm-----	0-2 2-5 5-36 36-63 63-79	2.8-8.7 4.5-12 5.5-15 6.9-21 5.5-8.6	6.6-7.8 6.6-7.8 6.6-7.8 6.6-7.8 6.6-8.4	0 0 0 0 0	0 0 0 0 0	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 0-5 0-5 0-5
Dovecanyon-----	0-2 2-5 5-36 36-63 63-79	2.8-8.7 4.5-12 5.5-15 6.9-21 5.5-8.6	6.6-7.8 6.6-7.8 6.6-7.8 6.6-7.8 6.6-8.4	0 0 0 0 0	0 0 0 0 0	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 0-5 0-5 0-5
4171: Dovecanyon, warm-----	0-2 2-5 5-36 36-63 63-79	2.8-8.7 4.5-12 5.5-15 6.9-21 5.5-8.6	6.6-7.8 6.6-7.8 6.6-7.8 6.6-7.8 6.6-8.4	0 0 0 0 0	0 0 0 0 0	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0	0-5 0-5 0-5 0-5 0-5
Koehn, dry-----	0-3 1-63	2.0-4.0 1.4-5.7	6.6-7.8 6.6-7.8	0-1 0-1	0 0	0.0-2.0 0.0-2.0	0-5 0-5
4430: Koehn-----	0-1 1-63	3.1-5.4 1.4-5.7	6.6-7.8 6.6-7.8	0-1 0-1	0 0	0.0-2.0 0.0-2.0	0-5 0-5

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	dS/m	
4431: Koehn, frequently flooded---	0-1 1-63	3.1-5.4 1.4-5.7	6.6-7.8 6.6-7.8	0-1 0-1	0 0	0.0-2.0 0.0-2.0	0-5 0-5
4432: Koehn, occasionally flooded	0-1 1-63	3.1-5.4 1.4-5.7	6.6-7.8 6.6-7.8	0-1 0-1	0 0	0.0-2.0 0.0-2.0	0-5 0-5
Koehn, frequently flooded---	0-1 1-63	3.1-5.4 1.4-5.7	6.6-7.8 6.6-7.8	0-1 0-1	0 0	0.0-2.0 0.0-2.0	0-5 0-5
4435: Kernfork-----	0-10 10-31 31-60	7.3-16 7.3-16 7.1-15	6.6-8.4 7.3-8.4 7.3-8.4	0-1 0-3 1-5	0 0 0-1	0.0-4.0 0.0-4.0 0.0-4.0	0-5 0-10 0-15
4436: Inyo-----	0-14 14-60	1.6-6.1 1.4-6.1	6.6-7.8 6.6-8.4	0 0	0 0	0.0-2.0 0.0-2.0	0 0
Riverwash.							
5201: Wingap-----	0-3 3-14 14-41 41-54 54-64	3.7-8.7 3.3-8.6 7.6-15 3.3-8.6 ---	6.6-7.3 6.6-7.3 6.6-7.3 6.6-7.3 ---	0 0 0 0 ---	0 0 0 0 ---	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 ---	0-5 0-5 0-5 0-5 ---
Pinyonpeak-----	0-2 2-6 6-8 8-16 16-26	5.3-10 7.6-16 --- --- ---	6.6-7.8 6.6-7.8 --- --- ---	0 0 --- --- ---	0 0 --- --- ---	0.0-2.0 0.0-2.0 --- --- ---	0-5 0-5 --- --- ---
5205: Scodie-----	0-5 5-15 15-24 24-33	2.6-10.0 2.6-10 --- ---	6.6-7.3 6.6-7.3 --- ---	0 0 --- ---	0 0 --- ---	0.0-2.0 0.0-2.0 --- ---	0-2 0-2 --- ---
Grandora-----	0-3 3-60	1.8-5.0 1.7-4.9	6.6-7.3 6.6-7.8	0 0	0 0	0.0-2.0 0.0-2.0	0 0
5210: Grandora-----	0-3 3-60	1.8-5.0 1.7-4.9	6.6-7.3 6.6-7.8	0 0	0 0	0.0-2.0 0.0-2.0	0 0
Grandora, warm-----	0-2 2-60	1.8-5.0 1.7-4.9	6.6-7.3 6.6-7.8	0 0	0 0	0.0-2.0 0.0-2.0	0 0
Pinyonpeak-----	0-2 2-6 6-8 8-16 16-26	5.3-10 7.6-16 --- --- ---	6.6-7.8 6.6-7.8 --- --- ---	0 0 --- --- ---	0 0 --- --- ---	0.0-2.0 0.0-2.0 --- --- ---	0-5 0-5 --- --- ---
5500: Birdcanyon-----	0-2 2-61	0.0-6.1 0.0-6.1	6.6-7.8 6.6-7.8	0 0	0 0	0.0-2.0 0.0-2.0	0-5 0-5

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	ds/m	
6001:							
Goldpeak-----	0-2	2.8-7.9	6.1-7.4	0	0	0.0-2.0	0-5
	2-94	7.6-15	6.6-7.4	0	0	0.0-2.0	0-5
Pinyonpeak-----	0-2	5.3-10	6.6-7.8	0	0	0.0-2.0	0-5
	2-6	7.6-16	6.6-7.8	0	0	0.0-2.0	0-5
	6-8	---	---	---	---	---	---
	8-16	---	---	---	---	---	---
	16-26	---	---	---	---	---	---
Wingap-----	0-3	3.7-8.7	6.6-7.3	0	0	0.0-2.0	0-5
	3-14	3.3-8.6	6.6-7.3	0	0	0.0-2.0	0-5
	14-41	7.6-15	6.6-7.3	0	0	0.0-2.0	0-5
	41-54	3.3-8.6	6.6-7.3	0	0	0.0-2.0	0-5
	54-60	---	---	---	---	---	---
6002:							
Goldpeak-----	0-2	2.8-7.9	6.1-7.4	0	0	0.0-2.0	0-5
	2-94	7.6-15	6.6-7.4	0	0	0.0-2.0	0-5
6003:							
Goldpeak-----	0-3	2.8-7.9	6.1-7.4	0	0	0.0-2.0	0-5
	3-94	7.6-15	6.6-7.4	0	0	0.0-2.0	0-5
Goldpeak, steep-----	0-2	2.8-7.9	6.1-7.4	0	0	0.0-2.0	0-5
	2-94	7.6-15	6.6-7.4	0	0	0.0-2.0	0-5
Pinyonpeak-----	0-2	5.3-10	6.6-7.8	0	0	0.0-2.0	0-5
	2-6	7.6-16	6.6-7.8	0	0	0.0-2.0	0-5
	6-8	---	---	---	---	---	---
	8-16	---	---	---	---	---	---
	16-26	---	---	---	---	---	---
6601:							
Pinyonpeak-----	0-2	5.3-10	6.6-7.8	0	0	0.0-2.0	0-5
	2-6	7.6-16	6.6-7.8	0	0	0.0-2.0	0-5
	6-8	---	---	---	---	---	---
	8-16	---	---	---	---	---	---
	16-26	---	---	---	---	---	---
Wingap-----	0-3	3.7-8.7	6.6-7.3	0	0	0.0-2.0	0-5
	3-14	3.3-8.6	6.6-7.3	0	0	0.0-2.0	0-5
	14-41	7.6-15	6.6-7.3	0	0	0.0-2.0	0-5
	41-54	3.3-8.6	6.6-7.3	0	0	0.0-2.0	0-5
	54-60	---	---	---	---	---	---
Rock outcrop.							

Table 18.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
3010: Jawbone-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Typic Haplargids-----	C	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
3250: Jawbone-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Jawbone, moderately deep-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
3251: Jawbone, warm-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
3251: Jawbone-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
3280: Typic Torriorthents-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
3301: Cutterbank-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
3301: Cutterbank, warm-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Cutterbank, steep-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
3430: Pasopeak-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table			Ponding		Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
3630: Koehn, very rarely flooded---	A		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
		January	---	---	---	---	None	Extremely brief	Very rare
		February	---	---	---	---	None	Extremely brief	Very rare
		March	---	---	---	---	None	Extremely brief	Very rare
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Extremely brief	Very rare
	December	---	---	---	---	None	Extremely brief	Very rare	
3670: Inyo-----	A								
		January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Brief	Occasional
	December	---	---	---	---	None	Brief	Occasional	

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
3671: Inyo-----	A	January	---	---	---	---	None	Very brief	Rare
		February	---	---	---	---	None	Very brief	Rare
		March	---	---	---	---	None	Very brief	Rare
		April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Rare
		December	---	---	---	---	None	Very brief	Rare
3672: Inyo-----	A	January	---	---	---	---	None	Very brief	Rare
		February	---	---	---	---	None	Very brief	Rare
		March	---	---	---	---	None	Very brief	Rare
		April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Rare
		December	---	---	---	---	None	Very brief	Rare
4160: Dovecanyon-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
4160: Cutterbank-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
4161: Dovecanyon-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
4170: Dovecanyon, warm-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
4170: Dovecanyon-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
4171: Dovecanyon, warm-----		B	January	---	---	---	---	None	---
	February		---	---	---	---	None	---	None
	March		---	---	---	---	None	---	None
	April		---	---	---	---	None	---	None
	May		---	---	---	---	None	---	None
	June		---	---	---	---	None	---	None
	July		---	---	---	---	None	---	None
	August		---	---	---	---	None	---	None
	September		---	---	---	---	None	---	None
	October		---	---	---	---	None	---	None
	November		---	---	---	---	None	---	None
	December		---	---	---	---	None	---	None
Koehn, dry-----	A		January	---	---	---	---	None	---
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
4430: Koehn-----	A	January	---	---	---	---	None	Extremely brief	Rare
		February	---	---	---	---	None	Extremely brief	Rare
		March	---	---	---	---	None	Extremely brief	Rare
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Extremely brief	Rare
		December	---	---	---	---	None	Extremely brief	Rare
4431: Koehn, frequently flooded----	A	January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
4432: Koehn, occasionally flooded--	A		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
		January	---	---	---	---	None	Very brief	Occasional
		February	---	---	---	---	None	Very brief	Occasional
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional
Koehn, frequently flooded----	A								
		January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent
4435: Kernfork-----	D								
		January	3.0-6.0	>6.0	0.0-0.3	Very brief	Rare	Long	Frequent
		February	3.0-6.0	>6.0	0.0-0.3	Very brief	Rare	Long	Frequent
		March	3.0-6.0	>6.0	0.0-0.3	Very brief	Rare	Long	Frequent
		April	3.0-6.0	>6.0	---	---	None	---	None
		May	3.0-6.0	>6.0	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	0.0-0.3	Very brief	Rare	---	None
		December	3.0-6.0	>6.0	0.0-0.3	Very brief	Rare	Brief	Frequent

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
4436: Inyo-----	A		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
		January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent
Riverwash-----	A								
		January	1.0-3.0	>6.0	---	---	None	Long	Frequent
		February	1.0-3.0	>6.0	---	---	None	Long	Frequent
		March	1.0-3.0	>6.0	---	---	None	Long	Frequent
		April	1.0-3.0	>6.0	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	1.0-3.0	>6.0	---	---	None	Long	Frequent
5201: Wingap-----	B								
		January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
5201: Pinyonpeak-----	D		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
		January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
5205: Scodie-----	D								
		January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Grandora-----	A								
		January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
5210: Grandora-----	A	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Grandora, warm-----	A	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Pinyonpeak-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
5500: Birdcanyon-----	A		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
		January	---	---	---	---	None	Extremely brief	Rare
		February	---	---	---	---	None	Extremely brief	Rare
		March	---	---	---	---	None	Extremely brief	Rare
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	Extremely brief	Rare
	December	---	---	---	---	None	Extremely brief	Rare	
6001: Goldpeak-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
6001: Pinyonpeak-----	D	January	---	---	---	---	None	---	None
February		---	---	---	---	None	---	None	
March		---	---	---	---	None	---	None	
April		---	---	---	---	None	---	None	
May		---	---	---	---	None	---	None	
June		---	---	---	---	None	---	None	
July		---	---	---	---	None	---	None	
August		---	---	---	---	None	---	None	
September		---	---	---	---	None	---	None	
October		---	---	---	---	None	---	None	
November		---	---	---	---	None	---	None	
December		---	---	---	---	None	---	None	
Wingap-----	B	January	---	---	---	---	None	---	None
February		---	---	---	---	None	---	None	
March		---	---	---	---	None	---	None	
April		---	---	---	---	None	---	None	
May		---	---	---	---	None	---	None	
June		---	---	---	---	None	---	None	
July		---	---	---	---	None	---	None	
August		---	---	---	---	None	---	None	
September		---	---	---	---	None	---	None	
October		---	---	---	---	None	---	None	
November		---	---	---	---	None	---	None	
December		---	---	---	---	None	---	None	
6002: Goldpeak-----	B	January	---	---	---	---	None	---	None
February		---	---	---	---	None	---	None	
March		---	---	---	---	None	---	None	
April		---	---	---	---	None	---	None	
May		---	---	---	---	None	---	None	
June		---	---	---	---	None	---	None	
July		---	---	---	---	None	---	None	
August		---	---	---	---	None	---	None	
September		---	---	---	---	None	---	None	
October		---	---	---	---	None	---	None	
November		---	---	---	---	None	---	None	
December		---	---	---	---	None	---	None	

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
6003: Goldpeak-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Goldpeak, steep-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Pinyonpeak-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
6601: Pinyonpeak-----	D	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None
Wingap-----	B	January	---	---	---	---	None	---	None
		February	---	---	---	---	None	---	None
		March	---	---	---	---	None	---	None
		April	---	---	---	---	None	---	None
		May	---	---	---	---	None	---	None
		June	---	---	---	---	None	---	None
		July	---	---	---	---	None	---	None
		August	---	---	---	---	None	---	None
		September	---	---	---	---	None	---	None
		October	---	---	---	---	None	---	None
		November	---	---	---	---	None	---	None
		December	---	---	---	---	None	---	None

Table 19.--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		Hardness	Uncoated steel	Concrete
3010: Jawbone-----	Paralithic bedrock	In 4-12	In ---	Weakly cemented	Low	High	Low
Typic Haplargids----- Rock outcrop.	Lithic bedrock	30-39	---	Indurated	Low	High	Low
3250: Jawbone-----	Paralithic bedrock	4-12	---	Weakly cemented	Low	Moderate	Low
Jawbone, moderately deep----	Lithic bedrock	30-39	---	Very strongly cemented	Low	Moderate	Low
3251: Jawbone, warm-----	Paralithic bedrock	4-12	---	Moderately cemented	Low	High	Low
Jawbone-----	Paralithic bedrock	4-12	---	Moderately cemented	Low	High	Low
3280: Typic Torriorthents----- Rock outcrop.	Paralithic bedrock	3-8	---	Weakly cemented	Moderate	High	Low
3301: Cutterbank-----	Dense material	4-14	---	Extremely weakly cemented	None	High	Low
Cutterbank, warm-----	Dense material	4-14	---	Extremely weakly cemented	None	High	Low
Cutterbank, steep-----	Dense material	4-14	---	Extremely weakly cemented	None	High	Low
3430: Pasopeak----- Rock outcrop.	Lithic bedrock	8-19	---	Strongly cemented	Moderate	Moderate	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top In	Thickness In	Hardness		Uncoated steel	Concrete
3630: Koehn, very rarely flooded--	---	---	---	---	None	Moderate	Low
3670: Inyo-----	---	---	---	---	None	Moderate	Low
3671: Inyo-----	---	---	---	---	None	Moderate	Low
3672: Inyo-----	---	---	---	---	None	Moderate	Low
4160: Dovecanyon-----	---	---	---	---	Low	Low	Low
Cutterbank-----	Dense material	4-14	---	Extremely weakly cemented	Low	Low	Low
4161: Dovecanyon-----	---	---	---	---	Low	Low	Low
4170: Dovecanyon, warm-----	---	---	---	---	Low	Low	Low
Dovecanyon-----	---	---	---	---	Low	Low	Low
4171: Dovecanyon, warm-----	---	---	---	---	Low	Low	Low
Koehn, dry-----	---	---	---	---	Low	Moderate	Low
4430: Koehn-----	---	---	---	---	None	Moderate	Low
4431: Koehn, frequently flooded---	---	---	---	---	None	Moderate	Low
4432: Koehn, occasionally flooded	---	---	---	---	Low	Moderate	Low
Koehn, frequently flooded---	---	---	---	---	Low	Moderate	Low
4435: Kernfork-----	---	---	---	---	None	High	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion		
	Kind	Depth to top	Thickness		Hardness	Uncoated steel	Concrete
4436: Inyo----- Riverwash.	---	In ---	In ---	---	None	Moderate	Low
5201: Wingap----- Pinyonpeak-----	Paralithic bedrock	39-59	---	Moderately cemented	Moderate	Low	Low
	Paralithic bedrock	6-14	6-14	Weakly cemented	Moderate	Moderate	Low
	Lithic bedrock	12-20		Indurated			
5205: Scodie----- Grandora-----	Paralithic bedrock	8-20	4-20	Very weakly cemented	Low	Moderate	Low
	Lithic bedrock	20-39		Strongly cemented			
	---	---	---	---	Low	Moderate	Low
5210: Grandora----- Grandora, warm----- Pinyonpeak-----	---	---	---	---	Low	Moderate	Low
	---	---	---	---	Low	Moderate	Low
	Paralithic bedrock	6-14	6-14	Weakly cemented	Moderate	Moderate	Low
	Lithic bedrock	12-20		Indurated			
5500: Birdcanyon-----	---	---	---	---	Low	Moderate	Low
6001: Goldpeak----- Pinyonpeak-----	---	---	---	---	Moderate	Moderate	Low
	Paralithic bedrock	6-14	6-14	Weakly cemented	Moderate	Moderate	Low
	Lithic bedrock	12-20		Indurated			
Wingap-----	Paralithic bedrock	39-59	---	Moderately cemented	Moderate	Low	Low
6002: Goldpeak-----	---	---	---	---	Moderate	Moderate	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
6003:		In	In				
Goldpeak-----	---	---	---	---	Moderate	Moderate	Low
Goldpeak, steep-----	---	---	---	---	Moderate	Moderate	Low
Pinyonpeak-----	Paralithic bedrock	6-14	6-14	Weakly cemented	Moderate	Moderate	Low
	Lithic bedrock	12-20		Indurated			
6601:							
Pinyonpeak-----	Paralithic bedrock	6-14	6-14	Weakly cemented	Moderate	Moderate	Low
	Lithic bedrock	12-20		Indurated			
Wingap-----	Paralithic bedrock	39-59	---	Moderately cemented	Moderate	Low	Low
Rock outcrop.							

Soil Survey of Jawbone-Butterbrecht ACEC Area, California

Table 20.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Birdcanyon-----	Mixed, thermic Typic Torripsamments
Cutterbank-----	Loamy, mixed, superactive, calcareous, thermic, shallow Typic Torriorthents
Dovecanyon-----	Coarse-loamy, mixed, superactive, thermic Typic Haplargids
Goldpeak-----	Coarse-loamy, mixed, superactive, thermic Typic Haplargids
Grandora-----	Mixed, mesic Xeric Torripsamments
Inyo-----	Mixed, thermic Xeric Torripsamments
Jawbone-----	Mixed, thermic, shallow Typic Torripsamments
*Jawbone-----	Mixed, thermic Typic Torripsamments
Kernfork-----	Coarse-loamy, mixed, superactive, thermic Cumulic Endoaquolls
Koehn-----	Mixed, thermic Typic Torripsamments
Pasopeak-----	Loamy-skeletal, mixed, superactive, thermic Lithic Haplargids
Pinyonpeak-----	Loamy, mixed, superactive, thermic, shallow Typic Haplargids
Scodie-----	Mixed, mesic, shallow Torripsammentic Haploxerolls
Typic Haplargids-----	Loamy-skeletal, mixed, superactive, thermic Typic Haplargids
Typic Torriorthents-----	Loamy-skeletal, mixed, superactive, nonacid, thermic, shallow Typic Torriorthents
Wingap-----	Coarse-loamy, mixed, superactive, thermic Typic Haplargids

Appendix

Soil Survey of Jawbone-Butterbredt ACEC Area, California

Index of Plant Symbols and Common and Scientific Plant Names

(This list aids in the correct plant identification and serves as a cross-reference to plant species listed in table 3. The species are described the NRCS "PLANTS Database")

Plant symbol	Local common name	Scientific name
AAFF	miscellaneous annual forbs	unknown
ACHY	Indian ricegrass	Achnatherum hymenoides
ACSP	rayless goldenhead	Acamptopappus sphaerocephalus
ACSP12	desert needlegrass	Achnatherum speciosum
AMDU2	white bursage	Ambrosia dumosa
ARTR2	big sagebrush	Artemisia tridentata
ARTRV	mountain big sagebrush	Artemisia tridentata ssp. vaseyana
ATCA2	fourwing saltbush	Atriplex canescens
ATCO	shadscale saltbush	Atriplex confertifolia
ATPO	cattle saltbush	Atriplex polycarpa
BRRU2	red brome	Bromus rubens
CHRY59	rabbitbrush	Chrysothamnus spp.
CORA	blackbrush	Coleogyne ramosissima
CUAR	Arizona cypress	Cupressus arizonica
DISTI	saltgrass	Distichlis ssp.
ELEL5	squirreltail	Elymus elymoides
ENAC	Acton's brittlebush	Encelia actonii
EPNE	Nevada jointfir	Ephedra nevadensis
EPVI	mormon tea	Ephedra viridis
ERCO23	Cooper's goldenbush	Ericameria cooperi
ERFA2	California buckwheat	Eriogonum fasciculatum
ERFAP	Eastern Mojave buckwheat	Eriogonum fasciculatum var. polifolium
ERICA2	goldenbush	Ericameria spp.
ERIOG	buckwheat	Eriogonum spp.
ERLI6	narrowleaf goldenbush	Ericameria linearifolia
ERNA10	rubber rabbitbrush	Ericameria nauseosa
ERODI	stork's bill	Erodium spp.
ERTE18	green rabbitbrush	Ericameria teretifolia
ERUM	sulfur-flower buckwheat	Eriogonum umbellatum
ERWR	bastardsage	Eriogonum wrightii
GRSP	spiny hopsage	Grayia spinosa
HYSA	burrobrush	Hymenoclea salsola
JUCA7	California juniper	Juniperus californica
KRLA2	winterfat	Krascheninnikovia lanata
LATR2	creosote bush	Larrea tridentata
LESQ	California broomsage	Lepidospartum squamatum
LYCO2	peach thorn	Lycium cooperi
NEOL	oleander	Nerium oleander
OPAC	buckhorn cholla	Opuntia acanthocarpa
PIMO	singleleaf pinyon	Pinus monophylla
POPUL	cottonwood	Populus spp.
POSE	Sandberg bluegrass	Poa secunda
PPFF	miscellaneous perennial forbs	unknown
PPGG	miscellaneous perennial grasses	unknown
PSAR4	Mojave indigobush	Psorothamnus arborescens
PSFR	Fremont's dalea	Psorothamnus fremontii
PUGR2	pomegranate	Punica granatum
PURSH	bitterbrush	Purshia spp.
SALA6	arroyo willow	Salix lasiolepis
SAME	Mexican bladdersage	Salazaria mexicana
SCAR	Arabian schismus	Schismus arabicus
SCHIS	schismus	Schismus spp.
SEAR8	desertsenna	Senna armata
SSSS	miscellaneous shrubs	unknown
TEAX	longspine horsebrush	Tetradymia axillaris
TETRA3	horsebrush	Tetradymia spp.
ULPU	Siberian elm	Ulmus pumila
YUBR	Joshua tree	Yucca brevifolia

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