





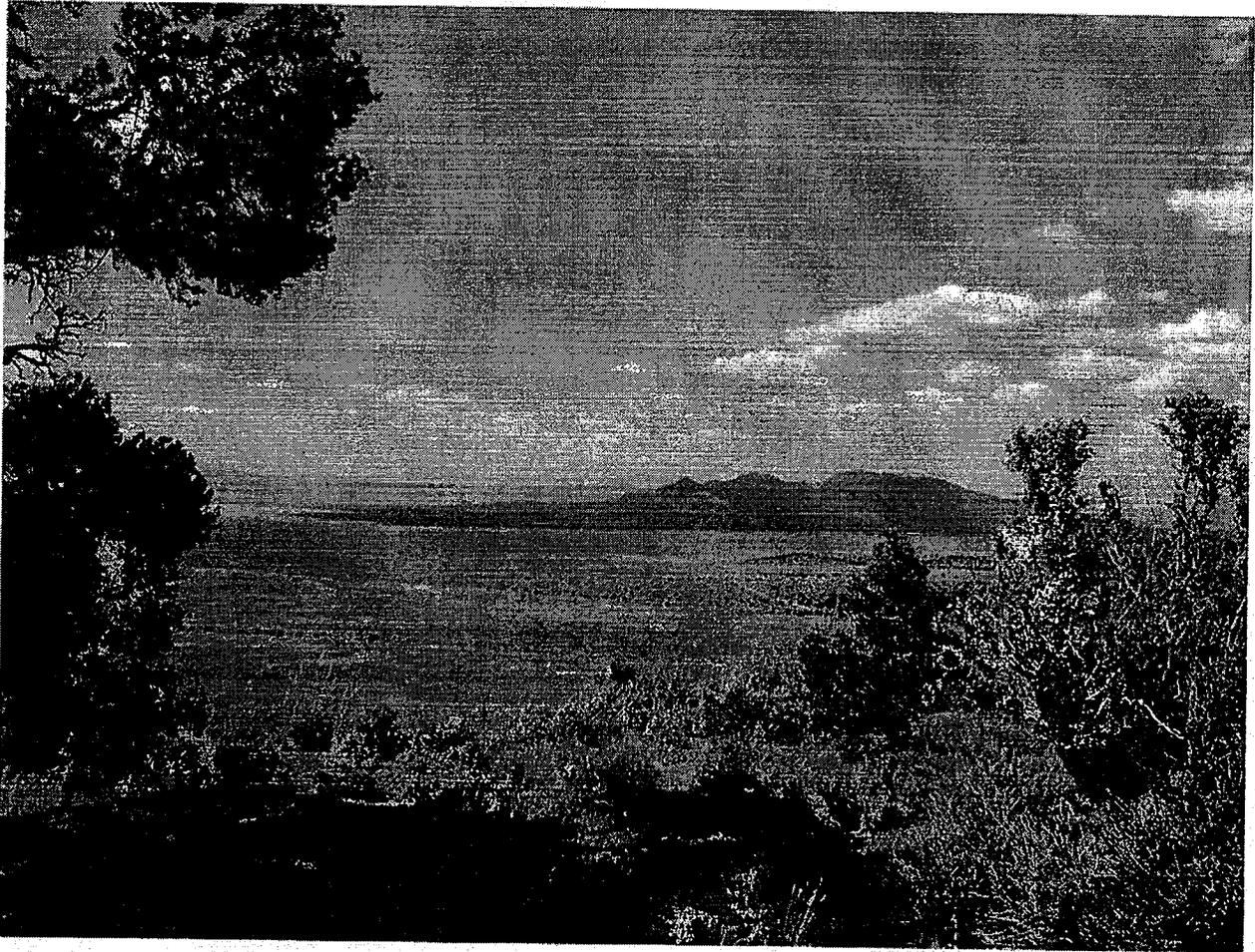
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Natural  
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In cooperation with  
United States  
Department of Interior,  
Bureau of Land  
Management, University  
of Nevada Agricultural  
Experiment Station

# Soil Survey of Lincoln County, Nevada, North Part



## How To Use This Soil Survey

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This survey is divided into two parts. Part I includes general information about the survey area; descriptions of the detailed soil map units and soil series in the area; descriptions on use and interpretations of soils, and various tables. Part II includes the maps.

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

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

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

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

A **U.S. General Soil Map (STATSGO)** is available for this survey area. This database consists of a soils map at a scale of 1 to 250,000 and descriptions of groups of associated soils. It replaces the general soil map published in older soil surveys. The map and the database can be used for multi-county planning, and map output can be tailored for a specific use. More information about the U.S. General Soil Map for this survey area, or any portion of Nevada, is available at the local office of the Natural Resources Conservation Service, and on the internet at <http://soildatamart.nrcs.usda.gov/USDGSM.aspx>.

Some standards or values may change as more information is collected and analyzed. Thus, as older published interpretive information becomes outdated, new interpretive data must be generated and tailored to local conditions. This information is added to the Soil Data Mart and Web Soil Survey as needed. See the NRCS soils home page (<http://soils.usda.gov/>) for links to these applications and other information about soils and soil surveys.

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## 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 United States Department of Agriculture, Natural Resources Conservation Service; United States Department of Interior, Bureau of Land Management; and the University of Nevada Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Lincoln County Conservation District.

Major fieldwork for this soil survey was completed in 2005. 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 at <http://websoilsurvey.nrcs.usda.gov/app/>.

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

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### Cover Caption

View across eastern Lake Valley toward the Fortification Range. The soils of the foreground are located in map unit 2296, Chubard association on hills. The soils located mid-photo are in map unit 1150, Zoda-Cath association on fan remnants. The soils in the background, *Fortification Range*, is dominated by map unit 3010, Anaud-Cagas-Rock outcrop association.

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# Foreword

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Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

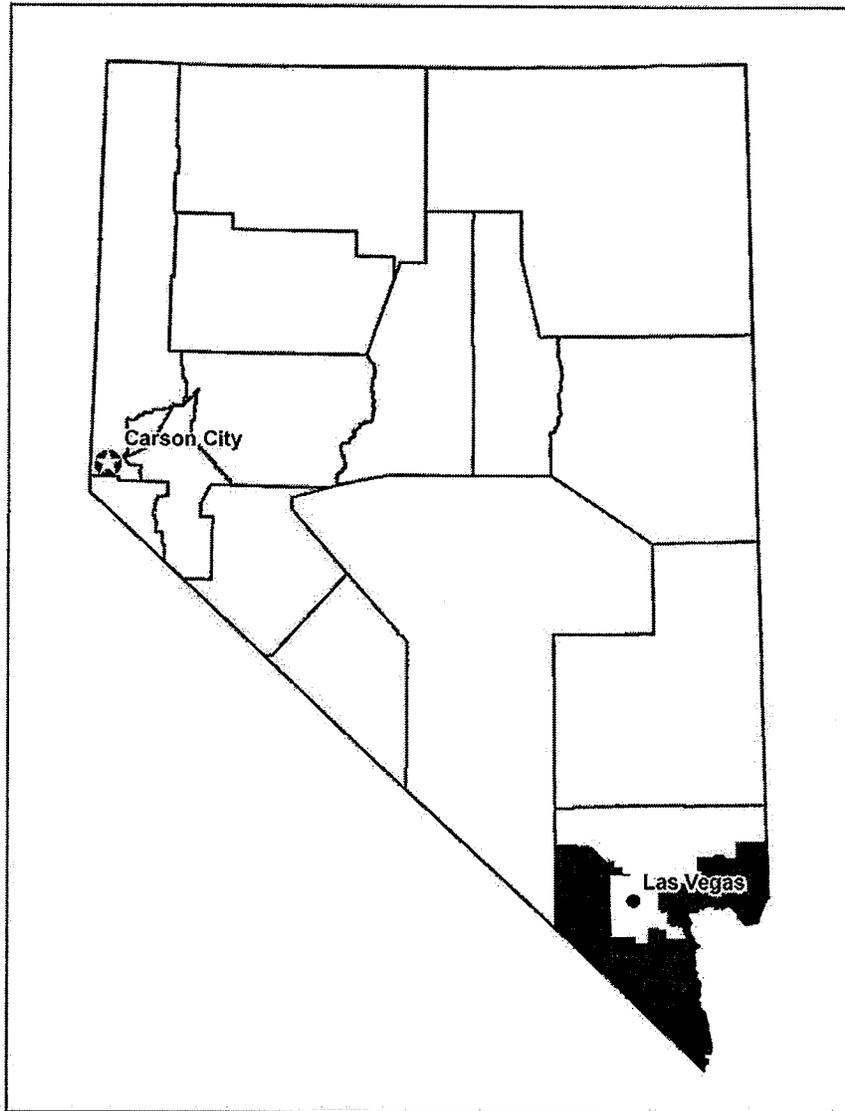
Soil surveys are designed for many different users. Farmers, ranchers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys 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 surveys 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 too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. 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.

RICHARD N. VIGIL  
State Conservationist  
Natural Resources Conservation Service



Location of the Clark County Area, Nevada Soil Survey

# Soil Survey of Lincoln County, Nevada, North Part

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By Curt Leet, Soil Survey Project Leader, Natural Resources Conservation Service

Fieldwork by Curt Leet, Bryce Griffiths, John Mosley, Paul Blackburn, Doug Merkler, John Fisher, Dave Denny, John Haberer, Bruce Lindsey, and Scott Niebur, Natural Resources Conservation Service (formerly Soil Conservation Service), and Jack Norman, Bureau of Land Management

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

The map on the facing page shows the location of the Lincoln County, Nevada, North Part soil survey. The survey area is 1,925,687 acres or about 3,009 square miles in size. The survey area is an area of high mountains, plateaus, broad fan piedmonts and valleys. It is an area of diverse geology, with volcanic and sedimentary formations common in the area. Relict lake plains, alluvial flats, and fan piedmonts are widespread in the area. The area is sparsely populated, with large areas of federal land administered by the Bureau of Land Management. No major towns or communities are present in the area. Mining and ranching are the main industries. About 98 percent of the survey area is federally controlled..

## Climate

There are no towns or weather stations located within Lincoln County, Nevada, North Part area. The climate data provided is for nearby communities that represent the climate of the survey area. Climate data are provided in Table 1, "Temperature and Precipitation," Table 2, "Freeze Dates in Spring and Fall," and Table 3, "Growing Season." The data were recorded in the nearby communities of Caliente, Pioche, and Sunnyside. Temperature and precipitation and growing season data are reported for the period 1971 to 2000. Freeze dates in spring and fall are reported for the period 1961 to 1990, the last period with data available. The climate varies widely across the survey area. Temperature and precipitation in the area are strongly affected by elevation. The higher mountains receive up to about 25 inches of total precipitation and are markedly cooler than the temperatures recorded at the climate stations in the tables.

At Caliente, in winter, the average temperature is 34.4 degrees F and the average daily minimum temperature is 19.9 degrees. The lowest temperature on record, which occurred on January 9, 1937, is -31 degrees. In summer, the average temperature is 73.2 degrees and the average daily maximum temperature is 92.4 degrees. The highest recorded temperature, which occurred on July 5, 1985, is 109 degrees. At Pioche, in winter, the average temperature is 33.5 degrees F and the average minimum temperature is 22.6 degrees. The lowest temperature on record, which occurred on February 27, 1996, is -15 degrees. In summer, the average temperature is 70.4 degrees and the average daily maximum temperature is 84.7 degrees. The highest recorded temperature, which occurred on July 18, 2005 is 105 degrees. At the Sunnyside, in winter, the average temperature is 32.2 degrees F and the average daily minimum temperature is 17.7

degrees. The lowest temperature on record, which occurred on January 30, 1979, is -20 degrees. In summer, the average temperature is 69.5 degrees and the average daily maximum temperature is 88.2 degrees. The highest recorded temperature, which occurred on July 5, 1985, is 104 degrees.

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

The total annual precipitation at the Caliente is about 9.88 inches. Of this, 4.37 inches, or 44 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than .82 inch. The heaviest 1-day rainfall during the period of record was 2.23 inches on February 24, 1998. The total annual precipitation at Pioche is about 13.91 inches. Of this, 5.84 inches, or 42 percent, usually falls in April through September. The heaviest 1-day rainfall during the period of record was 2.08 inches on February 10, 1978. At Sunnyside the total annual precipitation is about 10.11 inches. Of this, 5.29 inches, or 52 percent, falls in April through September. The heaviest 1-day rainfall during the period of record was 1.79 inches on September 2, 1997.

In Caliente, the average seasonal snowfall is about 10.1 inches. The greatest snow depth at any one time during the period of record was about 14 inches. The average total snowfall at Pioche is about 19.6 inch, and is about 16.9 inch at Sunnyside. Maximum snow depth at any one time during the period of record was about 20 inches at the Pioche and about 14 inches at Sunnyside.

## How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

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

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

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

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

levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

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

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



## Detailed Soil Map Units

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

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

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

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

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

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, Richinde very gravelly ashy sandy loam, 4 to 15 percent slopes is a phase of the Richinde 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. Chuffa-Linoyer-Playas complex is an example.

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

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Playas and rock outcrop are two examples.

Table 4, "Acreage and Proportionate Extent of the Soils" lists the map units in this survey area. 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.

## Map Unit Descriptions

### 1001—Eastmore-Armespan-Ursine association

#### *Map Unit Setting*

MLRA: 28A

Landscape: Fan piedmont

Elevation: 5,700 to 6,500

Precipitation: 8 to 10 inches

Air temperature: 50 to 53 degrees Fahrenheit

Frost-free period: 110 to 130 days

#### *Composition*

Eastmore gravelly loam, moist, 4 to 15 percent slopes—40 percent

Armespan very gravelly sandy loam, 2 to 4 percent slopes—30 percent

Ursine gravelly loam, 2 to 8 percent slopes—15 percent

Cliffdown very gravelly sandy loam, 0 to 4 percent slopes—5 percent

Hiko Peak gravelly loam, 0 to 4 percent slopes—5 percent

Yelbrick fine sand, overblown, 0 to 4 percent slopes—5 percent

#### *Component Description*

##### **Eastmore and similar soils**

Landform: Backslopes of fan remnants, west to south aspects

Slope: 4 to 15 percent

Parent material: Alluvium derived from limestone and quartzite

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

##### **Typical profile:**

Layer 1—0 to 3 inches; gravelly loam

Layer 2—3 to 17 inches; very gravelly fine sandy loam

Layer 3—17 to 49 inches; cemented material

Layer 4—49 to 65 inches; gravelly fine sandy loam

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

##### **Component Properties and Qualities**

Runoff: High

Depth to restrictive feature: Duripan: 10 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Sodicity: Sodic within 40 inches

Available water capacity: About 2 inches

Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

***Component Description***

**Armespan and similar soils**

Landform: Inset fans  
Slope: 2 to 4 percent  
Parent material: Alluvium derived from limestone, sandstone, and shale  
Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Surface rock fragments: About 35 percent gravel  
Layer 1—0 to 3 inches; very gravelly sandy loam  
Layer 2—3 to 11 inches; gravelly sandy loam  
Layer 3—11 to 22 inches; very gravelly sandy loam  
Layer 4—22 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**

Runoff: Very low  
Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
Available water capacity: About 4 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

***Component Description***

**Ursine and similar soils**

Landform: Upper fan remnants  
Slope: 2 to 8 percent  
Parent material: Alluvium derived from limestone with a minor component of quartzite  
Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; gravelly loam  
Layer 2—2 to 8 inches; gravelly loam  
Layer 3—8 to 16 inches; very gravelly sandy loam  
Layer 4—16 to 60 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

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

#### ***Contrasting Inclusions***

##### **Cliffdown and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 4 percent  
 Landform: Lower inset fans  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs  
 Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

##### **Hiko Peak and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 4 percent  
 Landform: Lower drainageways  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, other shrubs  
 Ecological site: R028AY017NV—Shallow loam 8-10 P.Z.

##### **Yelbrick and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 4 percent  
 Landform: Drainageways  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, fourwing saltbush, spiny hopsage, winterfat, other shrubs  
 Ecological site: R028AY019NV—Sandy 5-8 P.Z.

#### ***Management***

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

### **1003—Eastmore-Escalante association**

#### ***Map Unit Setting***

MLRA: 28A  
 Landscape: Fan piedmont  
 Elevation: 5,600 to 6,450  
 Precipitation: 8 to 10 inches  
 Air temperature: 50 to 52 degrees Fahrenheit  
 Frost-free period: 110 to 130 days

#### ***Composition***

Eastmore gravelly sandy loam, moist, 2 to 8 percent slopes—40 percent

Eastmore gravelly sandy loam, moist, 4 to 8 percent slopes—30 percent  
Escalante very gravelly sandy loam, 0 to 4 percent slopes—20 percent  
Ursine very gravelly loam, warm, 8 to 15 percent slopes—5 percent  
Ravendog loam, 2 to 4 percent slopes—3 percent  
Sycomat silt loam, 0 to 4 percent slopes—2 percent

### ***Component Description***

#### **Eastmore and similar soils**

Landform: Backslopes of fan remnants, west to south aspects  
Slope: 2 to 8 percent  
Parent material: Alluvium derived from limestone and quartzite  
Typical vegetation: Needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs, Indian ricegrass

#### **Typical profile:**

Layer 1—0 to 3 inches; gravelly sandy loam  
Layer 2—3 to 17 inches; very gravelly fine sandy loam  
Layer 3—17 to 49 inches; cemented material  
Layer 4—49 to 65 inches; gravelly fine sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

#### **Component Properties and Qualities**

Runoff: High  
Depth to restrictive feature: Duripan: 10 to 20 inches  
Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Sodicity: Sodic within 40 inches  
Available water capacity: About 2 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

### ***Component Description***

#### **Eastmore and similar soils**

Landform: Backslopes of fan remnants, west to south aspects  
Slope: 4 to 8 percent  
Parent material: Alluvium derived from limestone and quartzite  
Typical vegetation: Indian ricegrass, needleandthread, galleta, Sandberg bluegrass, other perennial grasses, other perennial forbs, black sagebrush, shadscale, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 3 inches; gravelly sandy loam  
Layer 2—3 to 17 inches; very gravelly fine sandy loam  
Layer 3—17 to 49 inches; cemented material  
Layer 4—49 to 65 inches; gravelly fine sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

#### **Component Properties and Qualities**

Runoff: High

Depth to restrictive feature: Duripan: 10 to 20 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Sodicity: Sodic within 40 inches  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY004NV—Shallow calcareous slope 8-10 P.Z.

### ***Component Description***

#### **Escalante and similar soils**

Landform: Inset fans  
 Slope: 0 to 4 percent  
 Parent material: Alluvium derived from rhyolite and some limestone  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 3 inches; very gravelly sandy loam  
 Layer 2—3 to 27 inches; gravelly sandy loam  
 Layer 3—27 to 60 inches; very gravelly sandy loam

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

#### **Component Properties and Qualities**

Runoff: Very low  
 Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
 Available water capacity: About 6 inches  
 Present flooding: Rare  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

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

### ***Contrasting Inclusions***

#### **Ursine and similar soils**

Composition: 0 to 5 percent  
 Slope: 8 to 15 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

#### **Ravendog and similar soils**

Composition: 0 to 3 percent  
 Slope: 2 to 4 percent  
 Landform: Drainageways  
 Typical vegetation: Indian ricegrass, thickspike wheatgrass, needleandthread, basin wildrye, other perennial grasses, other perennial forbs, Wyoming big sagebrush, winterfat, other shrubs

Ecological site: R028AY031NV—Loamy fan 8-10 P.Z.

**Sycomat and similar soils**

Composition: 0 to 2 percent

Slope: 0 to 4 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, Nevada ephedra, greenmolly kochia, winterfat, other shrubs

Ecological site: R028AY012NV—Loamy 5-8 P.Z.

**Management**

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

"Range" section

"Engineering" and "Soil Properties" sections

**1010—Armespan-Escalante association**

**Map Unit Setting**

MLRA: 28A

Landscape: Fan piedmont

Elevation: 5,600 to 6,360

Precipitation: 8 to 10 inches

Air temperature: 50 to 52 degrees Fahrenheit

Frost-free period: 110 to 130 days

**Composition**

Armespan gravelly sandy loam, 2 to 8 percent slopes—55 percent

Escalante very gravelly sandy loam, 2 to 4 percent slopes—30 percent

Cliffdown very gravelly sandy loam, 0 to 2 percent slopes—10 percent

Annabella sandy loam, 0 to 4 percent slopes—5 percent

**Component Description**

**Armespan and similar soils**

Landform: Lower fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from limestone, sandstone, and shale

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Surface rock fragments: About 35 percent gravel

Layer 1—0 to 3 inches; gravelly sandy loam

Layer 2—3 to 11 inches; gravelly sandy loam

Layer 3—11 to 22 inches; very gravelly sandy loam

Layer 4—22 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 4 inches

Present flooding: None

Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

#### ***Component Description***

##### **Escalante and similar soils**

Landform: Inset fans  
 Slope: 2 to 4 percent  
 Parent material: Alluvium derived from rhyolite and some limestone  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

##### **Typical profile:**

Layer 1—0 to 3 inches; very gravelly sandy loam  
 Layer 2—3 to 27 inches; gravelly sandy loam  
 Layer 3—27 to 60 inches; very gravelly sandy loam

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

##### **Component Properties and Qualities**

Runoff: Very low  
 Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
 Available water capacity: About 6 inches  
 Present flooding: Rare  
 Present ponding: None  
 Natural drainage class: Well drained

##### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

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

#### ***Contrasting Inclusions***

##### **Cliffdown and similar soils**

Composition: 0 to 10 percent  
 Slope: 0 to 2 percent  
 Landform: Lower inset fans  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs  
 Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

##### **Annabella and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 4 percent  
 Landform: Drainageways  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, spiny hopsage, winterfat, other shrubs  
 Ecological site: R028AY015NV—Loamy 8-10 P.Z.

#### ***Management***

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

- "Range" section
- "Crops and Pasture" section

"Engineering" and "Soil Properties" sections

### **1011—Armespan very gravelly sandy loam, 2 to 15 percent slopes**

#### ***Map Unit Setting***

MLRA: 28A

Landscape: Fan piedmont

Elevation: 5,750 to 6,400

Precipitation: 8 to 10 inches

Air temperature: 50 to 52 degrees Fahrenheit

Frost-free period: 110 to 130 days

#### ***Composition***

Armespan gravelly sandy loam, 2 to 8 percent slopes—85 percent

Cliffdown very gravelly sandy loam, 0 to 4 percent slopes—5 percent

Eastmore gravelly sandy loam, 4 to 8 percent slopes—5 percent

Escalante very gravelly sandy loam, 0 to 4 percent slopes—5 percent

#### ***Component Description***

##### **Armespan and similar soils**

Landform: Fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from limestone, sandstone, and shale

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

##### **Typical profile:**

Surface rock fragments: About 35 percent gravel

Layer 1—0 to 3 inches; gravelly sandy loam

Layer 2—3 to 11 inches; gravelly sandy loam

Layer 3—11 to 22 inches; very gravelly sandy loam

Layer 4—22 to 60 inches; very gravelly loamy sand

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

##### **Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 4 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

##### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

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

#### ***Contrasting Inclusions***

##### **Cliffdown and similar soils**

Composition: 0 to 5 percent

Slope: 0 to 4 percent

Landform: Lower drainageways

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

#### **Eastmore and similar soils**

Composition: 0 to 5 percent

Slope: 4 to 8 percent

Landform: Higher fan remnants, west to south aspects

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

#### **Escalante and similar soils**

Composition: 0 to 5 percent

Slope: 0 to 4 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

#### ***Management***

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

"Range" section

"Engineering" and "Soil Properties" sections

### **1020—Geer-Slaw association**

#### ***Map Unit Setting***

MLRA: 28A

Landscape: Fan piedmont

Elevation: 5,600 to 6,000

Precipitation: 5 to 8 inches

Air temperature: 50 to 52 degrees Fahrenheit

Frost-free period: 110 to 130 days

#### ***Composition***

Geer fine sandy loam, cool, 0 to 4 percent slopes—70 percent

Slaw silt loam, 0 to 2 percent slopes—15 percent

Penoyer silt loam, 0 to 2 percent slopes—9 percent

Koyen gravelly sandy loam, 0 to 2 percent slopes—6 percent

#### ***Component Description***

##### **Geer and similar soils**

Landform: Inset fans

Slope: 0 to 4 percent

Parent material: Alluvium derived from welded tuff and limestone with a minor component of volcanic ash

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

##### **Typical profile:**

Layer 1—0 to 12 inches; fine sandy loam

Layer 2—12 to 65 inches; fine sandy loam

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

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Available water capacity: About 8 inches  
Present flooding: Rare  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7c  
Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

***Component Description***

**Slaw and similar soils**

Landform: Drainageways  
Slope: 0 to 2 percent  
Parent material: Alluvium over lacustrine deposits derived from mixed rock sources  
Typical vegetation: Indian ricegrass, inland saltgrass, other perennial grasses, alkali sacaton, other perennial forbs, shadscale, black greasewood, other shrubs

**Typical profile:**

Layer 1—0 to 13 inches; silt loam  
Layer 2—13 to 60 inches; silty clay loam

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

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
Salinity: Saline within 40 inches  
Sodicity: Sodic within 40 inches  
Available water capacity: About 11 inches  
Present flooding: Occasional  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7w  
Ecological site: R028AY024NV—Sodic terrace 5-8 P.Z.

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

***Contrasting Inclusions***

**Penoyer and similar soils**

Composition: 0 to 9 percent  
Slope: 0 to 2 percent  
Landform: Alluvial flats  
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, bud sagebrush, fourwing saltbush, winterfat, other shrubs  
Ecological site: R028AY030NV—Silty 8-10 P.Z.

**Koyen and similar soils**

Composition: 0 to 6 percent  
Slope: 0 to 2 percent

Landform: Fan skirts

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, fourwing saltbush, spiny hopsage, winterfat, other shrubs

Ecological site: R028AY019NV—Sandy 5-8 P.Z.

### ***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

## **1021—Geer-Penoyer association**

### ***Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,250 to 4,850

Precipitation: 6 to 8 inches

Air temperature: 52 to 55 degrees Fahrenheit

Frost-free period: 130 to 170 days

### ***Composition***

Geer fine sandy loam, 0 to 2 percent slopes—65 percent

Penoyer silt loam, 0 to 2 percent slopes—30 percent

Koyen gravelly sandy loam, 0 to 2 percent slopes—5 percent

### ***Component Description***

#### **Geer and similar soils**

Landform: Fan skirts

Slope: 0 to 2 percent

Parent material: Alluvium derived from welded tuff and limestone with a minor component of volcanic ash

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 12 inches; fine sandy loam

Layer 2—12 to 65 inches; stratified fine sandy loam to very fine sandy loam

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

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 9 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7c

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

### ***Component Description***

#### **Penoyer and similar soils**

Landform: Alluvial flats

Slope: 0 to 2 percent

Parent material: Alluvium derived from limestone, welded tuff and lacustrine deposits

Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 8 inches; silt loam

Layer 2—8 to 60 inches; silt loam

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

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 12 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 1

Nonirrigated land capability: 7c

Ecological site: R029XY020NV—Silty 5-8 P.Z.

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

***Contrasting Inclusions***

**Koyen and similar soils**

Composition: 0 to 5 percent

Slope: 0 to 2 percent

Landform: Fan skirts

Typical vegetation: Fourwing saltbush, Nevada ephedra, spiny hopsage, Indian ricegrass, desert needlegrass, bush muhly, galleta, other perennial grasses, other perennial forbs, other shrubs, winterfat

Ecological site: R029XY079NV—Droughty loam 5-8 P.Z.

***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1022—Cliffdown-Geer association**

***Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,600 to 5,000

Precipitation: 6 to 8 inches

Air temperature: 52 to 55 degrees Fahrenheit

Frost-free period: 130 to 150 days

***Composition***

Cliffdown very gravelly sandy loam, 2 to 8 percent slopes—60 percent

Geer fine sandy loam, 2 to 4 percent slopes—30 percent  
 Koyen gravelly sandy loam, 2 to 4 percent slopes—5 percent  
 Annabella sandy loam, 0 to 4 percent slopes—3 percent  
 Penoyer very fine sandy loam, 0 to 2 percent slopes—2 percent

### ***Component Description***

#### **Cliffdown and similar soils**

Landform: Fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from mixed rock sources

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 4 inches; very gravelly sandy loam

Layer 2—4 to 60 inches; stratified gravelly sandy loam to very gravelly fine sandy loam

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

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 4 inches

Present flooding: None

Present ponding: None

Natural drainage class: Somewhat excessively drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

### ***Component Description***

#### **Geer and similar soils**

Landform: Fan skirts

Slope: 2 to 4 percent

Parent material: Alluvium derived from welded tuff and limestone with a minor component of volcanic ash

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 12 inches; fine sandy loam

Layer 2—12 to 65 inches; fine sandy loam

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

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 8 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7c

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

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

### ***Contrasting Inclusions***

#### **Koyen and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 4 percent

Landform: Fan skirts

Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

#### **Annabella and similar soils**

Composition: 0 to 3 percent

Slope: 0 to 4 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, big sagebrush, rubber rabbitbrush, desert peach, other shrubs

Ecological site: R029XY009NV—Upland wash

#### **Penoyer and similar soils**

Composition: 0 to 2 percent

Slope: 0 to 2 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

Ecological site: R029XY020NV—Silty 5-8 P.Z.

### ***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

## **1029—Blackcan-Veet-Armespan association**

### ***Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,900 to 6,800

Precipitation: 8 to 10 inches

Air temperature: 50 to 54 degrees Fahrenheit

Frost-free period: 110 to 130 days

### ***Composition***

Blackcan very gravelly sandy loam, 2 to 8 percent slopes—50 percent

Veet very gravelly sandy loam, 2 to 8 percent slopes—20 percent

Armespan very gravelly sandy loam, 2 to 8 percent slopes—15 percent

Cliffdown very gravelly sandy loam, 2 to 8 percent slopes—7 percent

Annabella sandy loam, 2 to 8 percent slopes—5 percent

Blackcan very gravelly sandy loam, 8 to 15 percent slopes—3 percent

### ***Component Description***

#### **Blackcan and similar soils**

Landform: Summits of fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from welded tuff, basalt, and volcanic rock

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

#### **Typical profile:**

Surface rock fragments: About 10 percent cobbles, 50 percent gravel

Layer 1—0 to 4 inches; very gravelly sandy loam

Layer 2—4 to 7 inches; very gravelly sandy loam

Layer 3—7 to 14 inches; very gravelly sandy loam

Layer 4—14 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Medium

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 1.2 inches

Present flooding: Very rare

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7e

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

### ***Component Description***

#### **Veet and similar soils**

Landform: Inset fans

Slope: 2 to 8 percent

Parent material: Alluvium derived from welded tuff

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Surface rock fragments: About 60 percent gravel, 5 percent cobbles

Layer 1—0 to 4 inches; very gravelly sandy loam

Layer 2—4 to 16 inches; very gravelly sandy loam

Layer 3—16 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

#### **Component Properties and Qualities**

Runoff: Medium

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 3 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

***Component Description***

**Armespan and similar soils**

Landform: Fan remnants

Slope: 2 to 8 percent

Parent material: Mixed alluvium

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Surface rock fragments: About 44 percent gravel, 9 percent fine gravel, 3 percent cobbles

Layer 1—0 to 1 inches; very gravelly sandy loam

Layer 2—1 to 7 inches; gravelly loam

Layer 3—7 to 18 inches; gravelly loam

Layer 4—18 to 28 inches; very gravelly sandy loam

Layer 5—28 to 60 inches; very gravelly loamy sand

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Medium

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Salinity: Saline within 40 inches

Available water capacity: About 4 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

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

***Contrasting Inclusions***

**Cliffdown and similar soils**

Composition: 0 to 7 percent

Slope: 2 to 8 percent

Landform: Fan remnants

Typical vegetation: Other shrubs, Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

**Annabella and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, big sagebrush, rubber rabbitbrush, desert peach, other shrubs

Ecological site: R029XY009NV—Upland wash

**Blackcan and similar soils**

Composition: 0 to 3 percent

Slope: 8 to 15 percent

Landform: Summits of fan remnants

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

### ***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

## **1030—Ursine-Escalante association**

### ***Map Unit Setting***

MLRA: 28A

Landscape: Fan piedmont

Elevation: 4,800 to 6,850

Precipitation: 8 to 10 inches

Air temperature: 49 to 53 degrees Fahrenheit

Frost-free period: 120 to 150 days

### ***Composition***

Ursine gravelly loam, 2 to 15 percent slopes—55 percent

Escalante fine sandy loam, 0 to 4 percent slopes—30 percent

Arnespan gravelly sandy loam, 8 to 30 percent slopes—5 percent

Annabella sandy loam, 0 to 4 percent slopes—5 percent

Lien very gravelly ashy loam, 2 to 8 percent slopes—5 percent

### ***Component Description***

#### **Ursine and similar soils**

Landform: Fan remnants

Slope: 2 to 15 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 2 inches; gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

***Component Description***

**Escalante and similar soils**

Landform: Inset fans

Slope: 0 to 4 percent

Parent material: Alluvium derived from rhyolite and some limestone

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 3 inches; fine sandy loam

Layer 2—3 to 27 inches; gravelly sandy loam

Layer 3—27 to 60 inches; very gravelly sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 6 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

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

***Contrasting Inclusions***

**Armespan and similar soils**

Composition: 0 to 5 percent

Slope: 8 to 30 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

**Annabella and similar soils**

Composition: 0 to 5 percent

Slope: 0 to 4 percent

Landform: Lower drainageways

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, spiny hopsage, winterfat, other shrubs

Ecological site: R028AY015NV—Loamy 8-10 P.Z.

**Lien and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, Thurber's needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs  
 Ecological site: R028AY035NV—Shallow clay loam 10-12 P.Z.

### ***Management***

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

- "Range" section
- "Forest land" section
- "Crops and Pasture" section
- "Engineering" and "Soil Properties" sections

## **1031—Ursine-Geer association**

### ***Map Unit Setting***

MLRA: 29  
 Landscape: Fan piedmont  
 Elevation: 5,450 to 5,750  
 Precipitation: 6 to 10 inches  
 Air temperature: 51 to 54 degrees Fahrenheit  
 Frost-free period: 120 to 150 days

### ***Composition***

Ursine very gravelly loam, warm, 15 to 30 percent slopes—55 percent  
 Geer fine sandy loam, 0 to 4 percent slopes—20 percent  
 Ursine very gravelly loam, warm, 8 to 15 percent slopes—20 percent  
 Riverwash extremely gravelly coarse sand, 0 to 4 percent slopes—5 percent

### ***Component Description***

#### **Ursine and similar soils**

Landform: Fan remnants  
 Slope: 15 to 30 percent  
 Parent material: Alluvium derived from limestone with a minor component of quartzite  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

#### **Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam  
 Layer 2—2 to 8 inches; gravelly loam  
 Layer 3—8 to 16 inches; very gravelly sandy loam  
 Layer 4—16 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Duripan: 14 to 20 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7e

Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

### ***Component Description***

#### **Geer and similar soils**

Landform: Inset fans

Slope: 0 to 4 percent

Parent material: Alluvium derived from welded tuff and limestone with a minor component of volcanic ash

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 12 inches; fine sandy loam

Layer 2—12 to 65 inches; stratified fine sandy loam to very fine sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 9 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7c

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

### ***Component Description***

#### **Ursine and similar soils**

Landform: Fan remnants

Slope: 8 to 15 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

#### **Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

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

### ***Contrasting Inclusions***

#### **Riverwash**

Composition: 0 to 5 percent

Slope: 0 to 4 percent

Landform: Drainageways

### ***Management***

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

"Range" section

"Engineering" and "Soil Properties" sections

## **1032—Ursine-Mezzer-Armespan association**

### ***Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,300 to 6,550

Precipitation: 1 to 10 inches

Air temperature: 50 to 54 degrees Fahrenheit

Frost-free period: 110 to 150 days

### ***Composition***

Ursine very gravelly loam, warm, 2 to 8 percent slopes—50 percent

Mezzer very gravelly sandy loam, 2 to 8 percent slopes—20 percent

Armespan very gravelly sandy loam, warm, 2 to 8 percent slopes—15 percent

Cliffdown very gravelly sandy loam, 2 to 8 percent slopes—7 percent

Barfan gravelly sandy loam, 8 to 15 percent slopes—5 percent

Annabella sandy loam, 0 to 4 percent slopes—3 percent

### ***Component Description***

#### **Ursine and similar soils**

Landform: Fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

#### **Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly loam

Layer 4—16 to 20 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

***Component Description***

**Mezzer and similar soils**

Landform: Inset fans  
Slope: 2 to 8 percent  
Parent material: Alluvium derived from limestone and quartzite  
Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Surface rock fragments: About 45 percent fine gravel  
Layer 1—0 to 3 inches; very gravelly sandy loam  
Layer 2—3 to 10 inches; gravelly fine sandy loam  
Layer 3—10 to 46 inches; extremely gravelly sandy loam, extremely gravelly fine sandy loam  
Layer 4—46 to 60 inches; very gravelly loamy coarse sand, extremely gravelly sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
Available water capacity: About 4 inches  
Present flooding: Rare  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

***Component Description***

**Armespan and similar soils**

Landform: Fan remnants  
Slope: 2 to 8 percent  
Parent material: Mixed alluvium  
Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Surface rock fragments: About 44 percent gravel, 9 percent fine gravel, 3 percent cobbles  
Layer 1—0 to 1 inches; very gravelly sandy loam  
Layer 2—1 to 7 inches; gravelly loam  
Layer 3—7 to 18 inches; gravelly loam  
Layer 4—18 to 28 inches; very gravelly sandy loam  
Layer 5—28 to 60 inches; very gravelly loamy sand

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

#### **Component Properties and Qualities**

Runoff: Medium

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Salinity: Saline within 40 inches

Available water capacity: About 4 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

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

#### ***Contrasting Inclusions***

##### **Cliffdown and similar soils**

Composition: 0 to 7 percent

Slope: 2 to 8 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

##### **Barfan and similar soils**

Composition: 0 to 5 percent

Slope: 8 to 15 percent

Landform: Isolated hills

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, pigmy sagebrush, other shrubs

Ecological site: R029XY092NV—Barren fan 8-10 P.Z.

##### **Annabella and similar soils**

Composition: 0 to 3 percent

Slope: 0 to 4 percent

Landform: Lower drainageways

Typical vegetation: Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, big sagebrush, rubber rabbitbrush, desert peach, other shrubs

Ecological site: R029XY009NV—Upland wash

#### ***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

#### **1033—Ursine-Cliffdown association**

#### ***Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,850 to 6,100

Precipitation: 6 to 10 inches  
Air temperature: 51 to 54 degrees Fahrenheit  
Frost-free period: 120 to 150 days

**Composition**

Ursine very gravelly loam, warm, 4 to 15 percent slopes—75 percent  
Cliffdown very gravelly sandy loam, 0 to 8 percent slopes—15 percent  
Candelaria very gravelly sandy loam, 2 to 8 percent slopes—5 percent  
Armespan gravelly sandy loam, 2 to 8 percent slopes—3 percent  
Annabella sandy loam, 0 to 4 percent slopes—2 percent

**Component Description**

**Ursine and similar soils**

Landform: Fan remnants  
Slope: 4 to 15 percent  
Parent material: Alluvium derived from limestone with a minor component of quartzite  
Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam  
Layer 2—2 to 8 inches; gravelly loam  
Layer 3—8 to 16 inches; very gravelly loam  
Layer 4—16 to 20 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high  
Depth to restrictive feature: Duripan: 14 to 20 inches  
Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Available water capacity: About 2 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

**Component Description**

**Cliffdown and similar soils**

Landform: Inset fans  
Slope: 0 to 8 percent  
Parent material: Alluvium derived from mixed rock sources  
Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 4 inches; very gravelly sandy loam  
Layer 2—4 to 60 inches; stratified gravelly sandy loam to very gravelly fine sandy loam

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

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
 Available water capacity: About 4 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Somewhat excessively drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

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

***Contrasting Inclusions***

**Candelaria and similar soils**

Composition: 0 to 5 percent  
 Slope: 2 to 8 percent  
 Landform: Lower erosional fan remnants  
 Typical vegetation: Indian ricegrass, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, winterfat, other shrubs  
 Ecological site: R029XY017NV—Loamy 5-8 P.Z.

**Armespan and similar soils**

Composition: 0 to 3 percent  
 Slope: 2 to 8 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs  
 Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

**Annabella and similar soils**

Composition: 0 to 2 percent  
 Slope: 0 to 4 percent  
 Landform: Drainageways  
 Typical vegetation: Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, big sagebrush, rubber rabbitbrush, desert peach, other shrubs  
 Ecological site: R029XY009NV—Upland wash

***Management***

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

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

**1034—Ursine association**

***Map Unit Setting***

MLRA: 29  
 Landscape: Fan piedmont  
 Elevation: 4,250 to 7,300  
 Precipitation: 8 to 10 inches  
 Air temperature: 49 to 53 degrees Fahrenheit  
 Frost-free period: 120 to 150 days

**Composition**

Ursine very gravelly loam, warm, 4 to 15 percent slopes—70 percent  
Ursine very gravelly loam, warm, 8 to 30 percent slopes—15 percent  
Armespan gravelly sandy loam, 8 to 15 percent slopes—7 percent  
Breko gravelly sandy loam, 4 to 8 percent slopes—6 percent  
Heist gravelly sandy loam, 2 to 8 percent slopes—2 percent

**Component Description**

**Ursine and similar soils**

Landform: Fan remnants

Slope: 4 to 15 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly loam

Layer 4—16 to 20 inches; cemented material

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

**Component Description**

**Ursine and similar soils**

Landform: Fan remnants

Slope: 8 to 30 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly loam

Layer 4—16 to 20 inches; cemented material

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7e  
 Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

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

#### ***Contrasting Inclusions***

##### **Armespan and similar soils**

Composition: 0 to 7 percent  
 Slope: 8 to 15 percent  
 Landform: Upper fan remnants  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs  
 Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

##### **Breko and similar soils**

Composition: 0 to 6 percent  
 Slope: 4 to 8 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, needleandthread, desert needlegrass, other perennial grasses, other perennial forbs, Wyoming big sagebrush, fourwing saltbush, Nevada ephedra, other shrubs, other trees  
 Ecological site: R029XY006NV—Loamy 8-10 P.Z.

##### **Heist and similar soils**

Composition: 0 to 2 percent  
 Slope: 2 to 8 percent  
 Landform: Inset fans  
 Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial grasses, Wyoming big sagebrush  
 Ecological site: R029XY006NV—Loamy 8-10 P.Z.

#### ***Management***

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

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

#### **1035—Ursine association, cool**

#### ***Map Unit Setting***

MLRA: 28A  
 Landscape: Fan piedmont  
 Elevation: 5,700 to 6,600  
 Precipitation: 8 to 10 inches  
 Air temperature: 49 to 53 degrees Fahrenheit  
 Frost-free period: 120 to 150 days

**Composition**

Ursine gravelly loam, 0 to 8 percent slopes—60 percent  
Ursine gravelly loam, 2 to 8 percent slopes—30 percent  
Ravendog loam, 2 to 4 percent slopes—3 percent  
Ursine very gravelly loam, 2 to 8 percent slopes—3 percent  
Ursine very gravelly loam, shallow, 2 to 8 percent slopes—2 percent  
Borvant extremely gravelly loam, 2 to 8 percent slopes—2 percent

**Component Description**

**Ursine and similar soils**

Landform: Fan remnants

Slope: 0 to 8 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

**Component Description**

**Ursine and similar soils**

Landform: Fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, galleta, Sandberg bluegrass, other perennial grasses, other perennial forbs, black sagebrush, shadscale, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY004NV—Shallow calcareous slope 8-10 P.Z.

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

***Contrasting Inclusions***

**Ravendog and similar soils**

Composition: 0 to 3 percent  
 Slope: 2 to 4 percent  
 Landform: Inset fans  
 Typical vegetation: Other perennial forbs, Indian ricegrass, thickspike wheatgrass, needleandthread, basin wildrye, other perennial grasses, Wyoming big sagebrush, winterfat, other shrubs  
 Ecological site: R028AY031NV—Loamy fan 8-10 P.Z.

**Ursine and similar soils**

Composition: 0 to 3 percent  
 Slope: 2 to 8 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs, Utah juniper  
 Ecological site: R028AY027NV—Shallow calcareous hill 8-10 P.Z.

**Ursine and similar soils**

Composition: 0 to 2 percent  
 Slope: 2 to 8 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, pigmy sagebrush, other shrubs  
 Ecological site: R028AY007NV—Gravelly barren fan

**Borvant and similar soils**

Composition: 0 to 2 percent  
 Slope: 2 to 8 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, bluebunch wheatgrass, other perennial forbs, black sagebrush, wild crab apple, other shrubs  
 Ecological site: R028AY087NV—Calcareous fan piedmont 10-14 P.Z.

***Management***

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

## 1036—Ursine-Mezzer association

### *Map Unit Setting*

MLRA: 29  
Landscape: Fan piedmont  
Elevation: 4,700 to 5,300  
Precipitation: 8 to 10 inches  
Air temperature: 49 to 53 degrees Fahrenheit  
Frost-free period: 120 to 150 days

### *Composition*

Ursine very gravelly loam, warm, 4 to 15 percent slopes—40 percent  
Ursine very gravelly loam, warm, 8 to 30 percent slopes—30 percent  
Mezzer very gravelly fine sandy loam, 2 to 8 percent slopes—15 percent  
Ursine very gravelly loam, 15 to 30 percent slopes—8 percent  
Cliffdown very gravelly sandy loam, 2 to 8 percent slopes—5 percent  
Veet gravelly sandy loam, 2 to 8 percent slopes—2 percent

### *Component Description*

#### **Ursine and similar soils**

Landform: Fan remnants  
Slope: 4 to 15 percent  
Parent material: Alluvium derived from limestone with a minor component of quartzite  
Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

#### **Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam  
Layer 2—2 to 8 inches; gravelly loam  
Layer 3—8 to 16 inches; very gravelly sandy loam  
Layer 4—16 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high  
Depth to restrictive feature: Duripan: 14 to 20 inches  
Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Available water capacity: About 2 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

### *Component Description*

#### **Ursine and similar soils**

Landform: Fan remnants  
Slope: 8 to 30 percent  
Parent material: Alluvium derived from limestone with a minor component of quartzite  
Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, fourwing saltbush, ephedra, Stansbury cliffrose, other shrubs, other trees

**Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam  
 Layer 2—2 to 8 inches; gravelly loam  
 Layer 3—8 to 16 inches; very gravelly sandy loam  
 Layer 4—16 to 60 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Duripan: 14 to 20 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R029XY081NV—Shallow calcareous hill 10-14 P.Z.

***Component Description*****Mezzer and similar soils**

Landform: Inset fans  
 Slope: 2 to 8 percent  
 Parent material: Alluvium derived from limestone and quartzite  
 Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Surface rock fragments: About 45 percent fine gravel  
 Layer 1—0 to 3 inches; very gravelly fine sandy loam  
 Layer 2—3 to 10 inches; gravelly fine sandy loam  
 Layer 3—10 to 46 inches; extremely gravelly sandy loam, extremely gravelly fine sandy loam  
 Layer 4—46 to 60 inches; very gravelly loamy coarse sand, extremely gravelly sandy loam

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

**Component Properties and Qualities**

Runoff: Low  
 Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
 Available water capacity: About 4 inches  
 Present flooding: Rare  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

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

***Contrasting Inclusions*****Ursine and similar soils**

Composition: 0 to 8 percent

Slope: 15 to 30 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

**Cliffdown and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

**Veet and similar soils**

Composition: 0 to 2 percent

Slope: 2 to 8 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

**Management**

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

"Range" section

"Engineering" and "Soil Properties" sections

**1040—Chuckmill-Qwynn association**

**Map Unit Setting**

MLRA: 28A

Landscape: Fan piedmont

Elevation: 5,650 to 6,800

Precipitation: 8 to 10 inches

Air temperature: 47 to 53 degrees Fahrenheit

Frost-free period: 100 to 130 days

**Composition**

Chuckmill gravelly ashy loam, 2 to 8 percent slopes—60 percent

Qwynn gravelly coarse sandy loam, 0 to 4 percent slopes—25 percent

Patter gravelly sandy loam, 0 to 4 percent slopes—6 percent

Qwynn gravelly coarse sandy loam, 2 to 8 percent slopes—5 percent

Ragnel loamy fine sand, 2 to 8 percent slopes—4 percent

**Component Description**

**Chuckmill and similar soils**

Landform: Fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from welded tuff

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 4 inches; gravelly ashy loam

Layer 2—4 to 14 inches; gravelly ashy clay loam  
 Layer 3—14 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Duripan: 7 to 14 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderately slow)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

#### ***Component Description***

##### **Qwynn and similar soils**

Landform: Inset fans  
 Slope: 0 to 4 percent  
 Parent material: Alluvium derived from welded tuff with minor amounts of volcanic ash and alluvium derived from limestone  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, spiny hopsage, winterfat, other shrubs

##### **Typical profile:**

Surface rock fragments: About 10 percent fine gravel, 15 percent gravel  
 Layer 1—0 to 3 inches; gravelly coarse sandy loam  
 Layer 2—3 to 28 inches; gravelly sandy loam  
 Layer 3—28 to 52 inches; gravelly sandy clay loam  
 Layer 4—52 to 70 inches; very gravelly coarse sandy loam

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

#### **Component Properties and Qualities**

Runoff: Low  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 6 inches  
 Present flooding: Very rare  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 6c  
 Ecological site: R028AY015NV—Loamy 8-10 P.Z.

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

#### ***Contrasting Inclusions***

##### **Patter and similar soils**

Composition: 0 to 6 percent  
 Slope: 0 to 4 percent

Landform: Lower fan remnants

Typical vegetation: Indian ricegrass, thickspike wheatgrass, needleandthread, basin wildrye, other perennial grasses, other perennial forbs, Wyoming big sagebrush, winterfat, other shrubs

Ecological site: R028AY031NV—Loamy fan 8-10 P.Z.

**Qwynn and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs, Utah juniper

Ecological site: R028AY027NV—Shallow calcareous hill 8-10 P.Z.

**Ragnel and similar soils**

Composition: 0 to 4 percent

Slope: 2 to 8 percent

Landform: Longshore bar (relict)s

Typical vegetation: Indian ricegrass, thickspike wheatgrass, needleandthread, other perennial grasses, other perennial forbs, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R028AY005NV—Sandy 8-10 P.Z.

**Management**

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1042—Chuckridge-Cath-Sevenmile association**

**Map Unit Setting**

MLRA: 28A

Landscape: Fan piedmont

Elevation: 6,150 to 6,750

Precipitation: 8 to 14 inches

Air temperature: 50 to 55 degrees Fahrenheit

Frost-free period: 100 to 130 days

**Composition**

Chuckridge gravelly sandy loam, 2 to 4 percent slopes—45 percent

Cath gravelly loam, 0 to 8 percent slopes—25 percent

Sevenmile ashy sandy loam, 0 to 4 percent slopes—20 percent

Yotes gravelly ashy sandy loam, 2 to 4 percent slopes—4 percent

Plegomir very gravelly sandy loam, 4 to 15 percent slopes—3 percent

Ursine gravelly loam, 2 to 8 percent slopes—3 percent

**Component Description**

**Chuckridge and similar soils**

Landform: Fan remnants

Slope: 2 to 4 percent

Parent material: Alluvium derived from rhyolite and basalt

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; gravelly sandy loam  
 Layer 2—2 to 11 inches; gravelly clay loam  
 Layer 3—11 to 60 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Duripan: 7 to 14 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderately slow)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

***Component Description***

**Cath and similar soils**

Landform: Fan remnants  
 Slope: 0 to 8 percent  
 Parent material: Alluvium derived from mixed rock sources  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, spiny hopsage, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 3 inches; gravelly loam  
 Layer 2—3 to 21 inches; clay loam  
 Layer 3—21 to 33 inches; very gravelly loam  
 Layer 4—33 to 60 inches; stratified very gravelly loamy coarse sand to very gravelly loam

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

**Component Properties and Qualities**

Runoff: Medium  
 Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
 Available water capacity: About 7 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 6c  
 Ecological site: R028AY015NV—Loamy 8-10 P.Z.

***Component Description***

**Sevenmile and similar soils**

Landform: Inset fans

Slope: 0 to 4 percent

Parent material: Alluvium derived from welded tuff and some limestone and quartzite

Typical vegetation: Indian ricegrass, thickspike wheatgrass, needleandthread, basin wildrye, other perennial grasses, other perennial forbs, Wyoming big sagebrush, winterfat, other shrubs

**Typical profile:**

Surface rock fragments: About 10 percent gravel, 5 percent fine gravel

Layer 1—0 to 11 inches; ashy sandy loam

Layer 2—11 to 35 inches; loam

Layer 3—35 to 60 inches; stratified extremely gravelly loamy coarse sand to silt loam

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

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 10 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 6s

Ecological site: R028AY031NV—Loamy fan 8-10 P.Z.

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

***Contrasting Inclusions***

**Yotes and similar soils**

Composition: 0 to 4 percent

Slope: 2 to 4 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, spiny hopsage, winterfat, other shrubs

Ecological site: R028AY015NV—Loamy 8-10 P.Z.

**Plegomir and similar soils**

Composition: 0 to 3 percent

Slope: 4 to 15 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs, Utah juniper

Ecological site: R028AY027NV—Shallow calcareous hill 8-10 P.Z.

**Ursine and similar soils**

Composition: 0 to 3 percent

Slope: 2 to 8 percent

Landform: Upper fan remnants

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

**Management**

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

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

**1043—Chuckridge-Handpah association****Map Unit Setting**

MLRA: 29  
 Landscape: Fan piedmont  
 Elevation: 4,600 to 5,450  
 Precipitation: 8 to 10 inches  
 Air temperature: 50 to 55 degrees Fahrenheit  
 Frost-free period: 110 to 150 days

**Composition**

Chuckridge gravelly sandy loam, warm, 15 to 30 percent slopes—65 percent  
 Handpah very gravelly sandy loam, dry, 8 to 30 percent slopes—25 percent  
 Stewval very gravelly sandy loam, 15 to 50 percent slopes—4 percent  
 Veet very gravelly sandy loam, 2 to 8 percent slopes—4 percent  
 Treadwell gravelly sandy loam, 2 to 8 percent slopes—2 percent

**Component Description****Chuckridge and similar soils**

Landform: Fan remnants  
 Slope: 15 to 30 percent  
 Parent material: Alluvium derived from rhyolite and basalt  
 Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; gravelly sandy loam  
 Layer 2—2 to 11 inches; gravelly clay loam  
 Layer 3—11 to 60 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Duripan: 7 to 14 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderately slow)  
 Available water capacity: About 2 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

**Component Description****Handpah and similar soils**

Landform: Upper fan remnants

Slope: 8 to 30 percent

Parent material: Alluvium derived from volcanic rocks

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial forbs, Wyoming big sagebrush, Nevada ephedra, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; very gravelly sandy loam

Layer 2—2 to 8 inches; gravelly sandy clay loam

Layer 3—8 to 14 inches; very gravelly sandy loam

Layer 4—14 to 18 inches; cemented material

Layer 5—18 to 60 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderately slow)

Available water capacity: About 1.4 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY010NV—Loamy slope 8-10 P.Z.

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

***Contrasting Inclusions***

**Stewval and similar soils**

Composition: 0 to 4 percent

Slope: 15 to 50 percent

Landform: Hills, south aspect

Typical vegetation: Indian ricegrass, other perennial forbs, black sagebrush, Nevada ephedra, Stansbury cliffrose, other shrubs, other trees

Ecological site: R029XY015NV—Shallow calcareous hill 8-10 P.Z.

**Veet and similar soils**

Composition: 0 to 4 percent

Slope: 2 to 8 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

**Treadwell and similar soils**

Composition: 0 to 2 percent

Slope: 2 to 8 percent

Landform: Lower fan remnants

Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, Nevada ephedra, spiny menodora, other shrubs

Ecological site: R029XY161NV—Shallow cobbly loam

### **Management**

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

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

## **1050—Ursine-Escalante-Lien association**

### **Map Unit Setting**

MLRA: 28A

Landscape: Fan piedmont

Elevation: 6,250 to 7,000

Precipitation: 8 to 12 inches

Air temperature: 45 to 51 degrees Fahrenheit

Frost-free period: 100 to 130 days

### **Composition**

Ursine very gravelly loam, 2 to 15 percent slopes—50 percent

Escalante fine sandy loam, 0 to 4 percent slopes—25 percent

Lien very gravelly ashy loam, 2 to 15 percent slopes—15 percent

Annabella sandy loam, 2 to 4 percent slopes—4 percent

Barfan gravelly sandy loam, 2 to 8 percent slopes—3 percent

Ursine very gravelly loam, 15 to 30 percent slopes—3 percent

### **Component Description**

#### **Ursine and similar soils**

Landform: Lower fan remnants

Slope: 2 to 15 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs, Utah juniper

#### **Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY027NV—Shallow calcareous hill 8-10 P.Z.

### **Component Description**

#### **Escalante and similar soils**

Landform: Inset fans

Slope: 0 to 4 percent

Parent material: Alluvium derived from rhyolite and some limestone

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 3 inches; fine sandy loam

Layer 2—3 to 27 inches; gravelly sandy loam

Layer 3—27 to 60 inches; very gravelly sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 6 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

***Component Description***

**Lien and similar soils**

Landform: Upper fan remnants

Slope: 2 to 15 percent

Parent material: Alluvium derived from tuff with minor amounts of volcanic ash

Typical vegetation: Indian ricegrass, Thurber's needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 3 inches; very gravelly ashy loam

Layer 2—3 to 8 inches; very gravelly ashy fine sandy loam

Layer 3—8 to 24 inches; cemented material

Layer 4—24 to 60 inches; cemented material

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 6 to 14 inches

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 0.5 inch

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY035NV—Shallow clay loam 10-12 P.Z.

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

### ***Contrasting Inclusions***

#### **Annabella and similar soils**

Composition: 0 to 4 percent

Slope: 2 to 4 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, Wyoming big sagebrush, spiny hopsage, winterfat, other shrubs

Ecological site: R028AY015NV—Loamy 8-10 P.Z.

#### **Barfan and similar soils**

Composition: 0 to 3 percent

Slope: 2 to 8 percent

Landform: Lower rock pediments

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, pigmy sagebrush, other shrubs

Ecological site: R028AY007NV—Gravelly barren fan

#### **Ursine and similar soils**

Composition: 0 to 3 percent

Slope: 15 to 30 percent

Landform: Fan remnants

Typical vegetation: Indian ricegrass, needleandthread, galleta, Sandberg bluegrass, other perennial grasses, other perennial forbs, black sagebrush, shadscale, winterfat, other shrubs

Ecological site: R028AY004NV—Shallow calcareous slope 8-10 P.Z.

### ***Management***

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

"Range" section

"Forest land" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

### **1053—Ursine, moderately sloping-Mezzer-Ursine association**

#### ***Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,700 to 6,850

Precipitation: 8 to 10 inches

Air temperature: 49 to 53 degrees Fahrenheit

Frost-free period: 120 to 150 days

#### ***Composition***

Ursine very gravelly loam, 8 to 15 percent slopes—45 percent

Mezzer very gravelly fine sandy loam, 2 to 8 percent slopes—25 percent

Ursine very gravelly loam, warm, 2 to 8 percent slopes—15 percent

Armespan gravelly sandy loam, 2 to 8 percent slopes—5 percent

Cliffdown very gravelly sandy loam, 2 to 8 percent slopes—5 percent

Annabella sandy loam, 0 to 2 percent slopes—3 percent

Kyler very gravelly very fine sandy loam, 8 to 30 percent slopes—2 percent

### ***Component Description***

#### **Ursine and similar soils**

Landform: Upper fan remnants

Slope: 8 to 15 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, Nevada ephedra, Fremont's mahonia, other shrubs, other trees

#### **Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY099NV—Stony calcareous hill

### ***Component Description***

#### **Mezzer and similar soils**

Landform: Inset fans

Slope: 2 to 8 percent

Parent material: Alluvium derived from limestone and quartzite

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Surface rock fragments: About 45 percent fine gravel

Layer 1—0 to 3 inches; very gravelly fine sandy loam

Layer 2—3 to 10 inches; gravelly fine sandy loam

Layer 3—10 to 46 inches; extremely gravelly sandy loam, extremely gravelly fine sandy loam

Layer 4—46 to 60 inches; very gravelly loamy coarse sand, extremely gravelly sandy loam

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

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 4 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

**Component Description****Ursine and similar soils**

Landform: Lower fan remnants

Slope: 2 to 8 percent

Parent material: Alluvium derived from limestone with a minor component of quartzite

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 8 inches; gravelly loam

Layer 3—8 to 16 inches; very gravelly sandy loam

Layer 4—16 to 60 inches; cemented material

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Duripan: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

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

**Contrasting Inclusions****Armespan and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

**Cliffdown and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

**Annabella and similar soils**

Composition: 0 to 3 percent

Slope: 0 to 2 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, big sagebrush, rubber rabbitbrush, desert peach, other shrubs

Ecological site: R029XY009NV—Upland wash

**Kyler and similar soils**

Composition: 0 to 2 percent

Slope: 8 to 30 percent

Landform: Backslopes of lower mountains, south aspect

Typical vegetation: Other shrubs, Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush

Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

**Management**

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1060—Gravier-Geer association**

**Map Unit Setting**

MLRA: 28A

Landscape: Fan piedmont

Elevation: 5,550 to 5,900

Precipitation: 5 to 8 inches

Air temperature: 48 to 55 degrees Fahrenheit

Frost-free period: 100 to 130 days

**Composition**

Gravier gravelly loam, 0 to 4 percent slopes—55 percent

Geer fine sandy loam, cool, 0 to 4 percent slopes—30 percent

Cliffdown very gravelly sandy loam, 2 to 8 percent slopes—9 percent

Armespan gravelly sandy loam, 2 to 8 percent slopes—6 percent

**Component Description**

**Gravier and similar soils**

Landform: Fan skirts

Slope: 0 to 4 percent

Parent material: Alluvium derived from limestone and welded tuff

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, bud sagebrush, shadscale, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 4 inches; gravelly loam

Layer 2—4 to 41 inches; stratified extremely gravelly coarse sandy loam to very gravelly loam

Layer 3—41 to 65 inches; extremely gravelly coarse sand

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

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Sodicity: Sodic within 40 inches  
 Available water capacity: About 4 inches  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY018NV—Coarse gravelly loam 5-8 P.Z.

### ***Component Description***

#### **Geer and similar soils**

Landform: Inset fans  
 Slope: 0 to 4 percent  
 Parent material: Alluvium derived from welded tuff and limestone with a minor component of volcanic ash  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 12 inches; fine sandy loam  
 Layer 2—12 to 65 inches; fine sandy loam

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

#### **Component Properties and Qualities**

Runoff: Low  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 8 inches  
 Present flooding: Rare  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7c  
 Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

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

### ***Contrasting Inclusions***

#### **Cliffdown and similar soils**

Composition: 0 to 9 percent  
 Slope: 2 to 8 percent  
 Landform: Drainageways  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs  
 Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

#### **Armespan and similar soils**

Composition: 0 to 6 percent  
 Slope: 2 to 8 percent  
 Landform: Inset fans  
 Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

### ***Management***

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

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

## **1071—Koyen sand, 2 to 8 percent slopes**

### ***Map Unit Setting***

MLRA: 29  
Landscape: Fan piedmont  
Elevation: 5,000 to 5,200  
Precipitation: 6 to 8 inches  
Air temperature: 54 to 57 degrees Fahrenheit  
Frost-free period: 120 to 160 days

### ***Composition***

Koyen sand, 2 to 8 percent slopes—90 percent  
Bienfait sandy loam, 2 to 4 percent slopes—5 percent  
Leo gravelly sandy loam, 2 to 8 percent slopes—5 percent

### ***Component Description***

#### **Koyen and similar soils**

Landform: Fan remnants  
Slope: 2 to 8 percent  
Parent material: Alluvium derived from volcanic rocks with a high component of loess  
Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 3 inches; sand  
Layer 2—3 to 17 inches; sandy loam  
Layer 3—17 to 44 inches; sandy loam  
Layer 4—44 to 60 inches; gravelly loamy sand

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

#### **Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
Available water capacity: About 6 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

#### **Interpretive Groups**

Irrigated land capability: 3e  
Nonirrigated land capability: 7s  
Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

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

### ***Contrasting Inclusions***

#### **Bienfait and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 4 percent

Landform: Lower fan remnants

Typical vegetation: Indian ricegrass, other perennial grasses, sand dropseed, other perennial forbs, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY012NV—Sandy 5-8 P.Z.

#### **Leo and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Inset fans

Typical vegetation: Indian ricegrass, other perennial grasses, other perennial forbs, fourwing saltbush, rubber rabbitbrush, burrobush, Bailey greasewood, other shrubs, littleleaf horsebrush

Ecological site: R029XY041NV—Dry wash

#### **Management**

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

### **1073—Koyen-Colval association**

#### **Map Unit Setting**

MLRA: 29

Landscape: Bolson

Elevation: 4,950 to 5,000

Precipitation: 5 to 8 inches

Air temperature: 54 to 57 degrees Fahrenheit

Frost-free period: 120 to 160 days

#### **Composition**

Koyen fine sandy loam, 0 to 2 percent slopes—45 percent

Colval silt loam, 0 to 2 percent slopes—40 percent

Woodrow silty clay loam, 0 to 2 percent slopes—6 percent

Glotrain gravelly coarse sandy loam, 0 to 4 percent slopes—5 percent

Penoyer very fine sandy loam, 0 to 2 percent slopes—4 percent

#### **Component Description**

##### **Koyen and similar soils**

Landform: Upper basin floor remnants

Slope: 0 to 2 percent

Parent material: Alluvium derived from volcanic rocks with a high component of loess

Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

##### **Typical profile:**

Layer 1—0 to 4 inches; fine sandy loam

Layer 2—4 to 15 inches; sandy loam

Layer 3—15 to 60 inches; fine sandy loam

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

##### **Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
Available water capacity: About 7 inches  
Present flooding: Rare  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3e  
Nonirrigated land capability: 7c  
Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

***Component Description***

**Colval and similar soils**

Landform: Basin floors  
Slope: 0 to 2 percent  
Parent material: Alluvium over lacustrine deposits derived from welded tuff and limestone  
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, Bonneville saltbush, greenmolly kochia, other shrubs

**Typical profile:**

Layer 1—0 to 5 inches; silt loam  
Layer 2—5 to 11 inches; silty clay loam  
Layer 3—11 to 23 inches; silty clay loam  
Layer 4—23 to 60 inches; silt loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Negligible  
Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
Salinity: Saline within 40 inches  
Available water capacity: About 9 inches  
Present flooding: None  
Present ponding: Rare  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 6c  
Ecological site: R029XY159NV—Deep silty 5-8 P.Z.

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

***Contrasting Inclusions***

**Woodrow and similar soils**

Composition: 0 to 6 percent  
Slope: 0 to 2 percent  
Landform: Flood plains  
Typical vegetation: Indian ricegrass, needleandthread, basin wildrye, western wheatgrass, other perennial grasses, other perennial forbs, Wyoming big sagebrush, other shrubs  
Ecological site: R029XY114NV—Loamy fan 8-10 P.Z.

**Glotrain and similar soils**

Composition: 0 to 5 percent  
Slope: 0 to 4 percent

Landform: Basin floor remnants

Typical vegetation: Indian ricegrass, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, winterfat, other shrubs

Ecological site: R029XY017NV—Loamy 5-8 P.Z.

**Penoyer and similar soils**

Composition: 0 to 4 percent

Slope: 0 to 2 percent

Landform: Basin floor remnants

Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

Ecological site: R029XY020NV—Silty 5-8 P.Z.

***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1074—Koyen-Slaw-Penoyer association**

***Map Unit Setting***

MLRA: 29

Landscape: Bolson

Elevation: 4,650 to 4,850

Precipitation: 5 to 8 inches

Air temperature: 52 to 57 degrees Fahrenheit

Frost-free period: 120 to 150 days

***Composition***

Koyen loamy fine sand, 0 to 2 percent slopes—55 percent

Slaw silt loam, 0 to 2 percent slopes—20 percent

Penoyer very fine sandy loam, 0 to 2 percent slopes—15 percent

Koyen loamy sand, 2 to 4 percent slopes—4 percent

Geer fine sandy loam, 0 to 2 percent slopes—3 percent

Ravendog loam, 0 to 2 percent slopes—3 percent

***Component Description***

**Koyen and similar soils**

Landform: Basin floor remnants

Slope: 0 to 2 percent

Parent material: Alluvium derived from volcanic rocks with a high component of loess

Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 4 inches; loamy fine sand

Layer 2—4 to 15 inches; sandy loam

Layer 3—15 to 60 inches; fine sandy loam

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

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
Available water capacity: About 7 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3e  
Nonirrigated land capability: 7s  
Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

***Component Description***

**Slaw and similar soils**

Landform: Basin floors  
Slope: 0 to 2 percent  
Parent material: Alluvium over lacustrine deposits derived from mixed rock sources  
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, other shrubs

**Typical profile:**

Layer 1—0 to 13 inches; silt loam  
Layer 2—13 to 60 inches; silty clay loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
Salinity: Saline within 40 inches  
Sodicity: Sodic within 40 inches  
Available water capacity: About 11 inches  
Present flooding: Occasional  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3w  
Nonirrigated land capability: 7w  
Ecological site: R029XY059NV—Shallow silty 5-8 P.Z.

***Component Description***

**Penoyer and similar soils**

Landform: Fan skirts  
Slope: 0 to 2 percent  
Parent material: Alluvium derived from limestone, welded tuff, and lacustrine deposits  
Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 8 inches; very fine sandy loam  
Layer 2—8 to 60 inches; silt loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 12 inches  
 Present flooding: Rare  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Irrigated land capability: 1  
 Nonirrigated land capability: 7c  
 Ecological site: R029XY020NV—Silty 5-8 P.Z.

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

#### ***Contrasting Inclusions***

##### **Koyen and similar soils**

Composition: 0 to 4 percent  
 Slope: 2 to 4 percent  
 Landform: Sand sheets  
 Typical vegetation: Indian ricegrass, other perennial grasses, sand dropseed, other perennial forbs, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R029XY012NV—Sandy 5-8 P.Z.

##### **Geer and similar soils**

Composition: 0 to 3 percent  
 Slope: 0 to 2 percent  
 Landform: Upper inset fans  
 Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

##### **Ravendog and similar soils**

Composition: 0 to 3 percent  
 Slope: 0 to 2 percent  
 Landform: Drainageways  
 Typical vegetation: Indian ricegrass, needleandthread, basin wildrye, western wheatgrass, other perennial grasses, other perennial forbs, Wyoming big sagebrush, other shrubs  
 Ecological site: R029XY114NV—Loamy fan 8-10 P.Z.

#### ***Management***

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

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

#### **1075—Koyen-Penoyer association**

#### ***Map Unit Setting***

MLRA: 29  
 Landscape: Bolson  
 Elevation: 4,700 to 5,150  
 Precipitation: 5 to 8 inches  
 Air temperature: 52 to 55 degrees Fahrenheit  
 Frost-free period: 120 to 160 days

**Composition**

Koyen gravelly sandy loam, 0 to 2 percent slopes—50 percent  
Penoyer silt loam, 0 to 2 percent slopes—35 percent  
Koyen loamy sand, 0 to 4 percent slopes—8 percent  
Geer fine sandy loam, 0 to 2 percent slopes—4 percent  
Slaw silt loam, 0 to 2 percent slopes—3 percent

**Component Description**

**Koyen and similar soils**

Landform: Basin floors  
Slope: 0 to 2 percent  
Parent material: Alluvium derived from volcanic rocks with a high component of loess  
Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 4 inches; gravelly sandy loam  
Layer 2—4 to 15 inches; sandy loam  
Layer 3—15 to 60 inches; fine sandy loam

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

**Component Properties and Qualities**

Runoff: Very low  
Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
Available water capacity: About 7 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 2e  
Nonirrigated land capability: 7c  
Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

**Component Description**

**Penoyer and similar soils**

Landform: Inset fans  
Slope: 0 to 2 percent  
Parent material: Alluvium derived from limestone, welded tuff and lacustrine deposits  
Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 8 inches; silt loam  
Layer 2—8 to 60 inches; silt loam

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

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Available water capacity: About 12 inches  
Present flooding: Rare  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 1

Nonirrigated land capability: 7c

Ecological site: R029XY020NV—Silty 5-8 P.Z.

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

***Contrasting Inclusions*****Koyen and similar soils**

Composition: 0 to 8 percent

Slope: 0 to 4 percent

Landform: Sand sheets

Typical vegetation: Indian ricegrass, other perennial grasses, sand dropseed, other perennial forbs, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY012NV—Sandy 5-8 P.Z.

**Geer and similar soils**

Composition: 0 to 4 percent

Slope: 0 to 2 percent

Landform: Fan skirts

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

**Slaw and similar soils**

Composition: 0 to 3 percent

Slope: 0 to 2 percent

Landform: Basin floors

Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, other shrubs

Ecological site: R029XY059NV—Shallow silty 5-8 P.Z.

***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1076—Koyen-Geer association*****Map Unit Setting***

MLRA: 29

Landscape: Fan piedmont

Elevation: 4,600 to 5,050

Precipitation: 5 to 8 inches

Air temperature: 52 to 55 degrees Fahrenheit

Frost-free period: 120 to 160 days

***Composition***

Koyen loamy sand, 0 to 4 percent slopes—60 percent

Geer sandy loam, 0 to 2 percent slopes—30 percent

Ambush fine sandy loam, 0 to 2 percent slopes—4 percent

Penoyer very fine sandy loam, 0 to 2 percent slopes—4 percent  
Annabella sandy loam, 0 to 2 percent slopes—2 percent

### ***Component Description***

#### **Koyen and similar soils**

Landform: Fan skirts

Slope: 0 to 4 percent

Parent material: Alluvium derived from volcanic rocks with a high component of loess

Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 4 inches; loamy sand

Layer 2—4 to 15 inches; sandy loam

Layer 3—15 to 60 inches; fine sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

#### **Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 7 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Irrigated land capability: 2e

Nonirrigated land capability: 7c

Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

### ***Component Description***

#### **Geer and similar soils**

Landform: Fan skirts

Slope: 0 to 2 percent

Parent material: Alluvium derived from welded tuff and limestone with a minor component of volcanic ash

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 12 inches; sandy loam

Layer 2—12 to 65 inches; fine sandy loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 8 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7c

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

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

### ***Contrasting Inclusions***

#### **Ambush and similar soils**

Composition: 0 to 4 percent

Slope: 0 to 2 percent

Landform: Alluvial flats

Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, other shrubs

Ecological site: R029XY059NV—Shallow silty 5-8 P.Z.

#### **Penoyer and similar soils**

Composition: 0 to 4 percent

Slope: 0 to 2 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

Ecological site: R029XY020NV—Silty 5-8 P.Z.

#### **Annabella and similar soils**

Composition: 0 to 2 percent

Slope: 0 to 2 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, big sagebrush, rubber rabbitbrush, desert peach, other shrubs

Ecological site: R029XY009NV—Upland wash

### ***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

## **1080—Slaw silt loam, 0 to 2 percent slopes**

### ***Map Unit Setting***

MLRA: 28A

Landscape: Bolson

Elevation: 5,700 to 5,750

Precipitation: 5 to 8 inches

Air temperature: 52 to 55 degrees Fahrenheit

Frost-free period: 120 to 140 days

### ***Composition***

Slaw silt loam, 0 to 2 percent slopes—90 percent

Cirac gravelly sandy loam, 0 to 4 percent slopes—10 percent

### ***Component Description***

#### **Slaw and similar soils**

Landform: Alluvial flats

Slope: 0 to 2 percent

Parent material: Alluvium over lacustrine deposits derived from mixed rock sources

Typical vegetation: Indian ricegrass, inland saltgrass, other perennial grasses, alkali sacaton, other perennial forbs, shadscale, black greasewood, other shrubs

**Typical profile:**

Layer 1—0 to 13 inches; silt loam

Layer 2—13 to 60 inches; silty clay loam

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

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 11 inches

Present flooding: Occasional

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7w

Ecological site: R028AY024NV—Sodic terrace 5-8 P.Z.

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

***Contrasting Inclusions***

**Cirac and similar soils**

Composition: 0 to 10 percent

Slope: 0 to 4 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, inland saltgrass, other perennial grasses, alkali sacaton, other perennial forbs, shadscale, black greasewood, other shrubs

Ecological site: R028AY024NV—Sodic terrace 5-8 P.Z.

***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1081—Slaw-Sycomat association**

***Map Unit Setting***

MLRA: 28A

Landscape: Bolson

Elevation: 5,550 to 5,700

Precipitation: 5 to 8 inches

Air temperature: 48 to 55 degrees Fahrenheit

Frost-free period: 100 to 140 days

### **Composition**

Slaw silt loam, 0 to 2 percent slopes—50 percent  
 Sycomat silt loam, 0 to 4 percent slopes—35 percent  
 Cirac gravelly sandy loam, 0 to 2 percent slopes—4 percent  
 Mazuma fine sandy loam, 2 to 8 percent slopes—4 percent  
 Geer fine sandy loam, 0 to 4 percent slopes—4 percent  
 Threedogs loam, 0 to 2 percent slopes—3 percent

### **Component Description**

#### **Slaw and similar soils**

Landform: Alluvial flats  
 Slope: 0 to 2 percent  
 Parent material: Alluvium over lacustrine deposits derived from mixed rock sources  
 Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, black greasewood, other shrubs

#### **Typical profile:**

Layer 1—0 to 13 inches; silt loam  
 Layer 2—13 to 60 inches; silty clay loam

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

#### **Component Properties and Qualities**

Runoff: Low  
 Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
 Salinity: Saline within 40 inches  
 Sodicity: Sodic within 40 inches  
 Available water capacity: About 11 inches  
 Present flooding: Occasional  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7w  
 Ecological site: R028BY074NV—Sodic terrace 5-8 P.Z.

### **Component Description**

#### **Sycomat and similar soils**

Landform: Drainageways  
 Slope: 0 to 4 percent  
 Parent material: Alluvium derived from mixed rock sources  
 Typical vegetation: Indian ricegrass, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, Nevada ephedra, greenmolly kochia, winterfat, other shrubs

#### **Typical profile:**

Layer 1—0 to 5 inches; silt loam  
 Layer 2—5 to 26 inches; gravelly loam  
 Layer 3—26 to 45 inches; sandy loam  
 Layer 4—45 to 60 inches; very gravelly sand

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

#### **Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Available water capacity: About 4 inches  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R028AY012NV—Loamy 5-8 P.Z.

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

***Contrasting Inclusions***

**Cirac and similar soils**

Composition: 0 to 4 percent  
Slope: 0 to 2 percent  
Landform: Drainageways  
Typical vegetation: Indian ricegrass, inland saltgrass, other perennial grasses, alkali sacaton, other perennial forbs, shadscale, black greasewood, other shrubs  
Ecological site: R028AY024NV—Sodic terrace 5-8 P.Z.

**Mazuma and similar soils**

Composition: 0 to 4 percent  
Slope: 2 to 8 percent  
Landform: Fan remnants  
Typical vegetation: Other shrubs, Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, spiny hopsage, black greasewood  
Ecological site: R028AY032NV—Droughty sodic loam

**Geer and similar soils**

Composition: 0 to 4 percent  
Slope: 0 to 4 percent  
Landform: Fan skirts  
Typical vegetation: Indian ricegrass, galleta, bud sagebrush, shadscale, winterfat, other shrubs  
Ecological site: R028AY002NV—Coarse silty 5-8 P.Z.

**Threedogs and similar soils**

Composition: 0 to 3 percent  
Slope: 0 to 2 percent  
Landform: Alluvial flats  
Typical vegetation: Basin wildrye, other perennial grasses, alkali sacaton, other perennial forbs, fourwing saltbush, black greasewood, other shrubs  
Ecological site: R028AY107NV—Saline floodplain

***Management***

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

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

**1084—Slaw-Penoyer association*****Map Unit Setting***

MLRA: 29

Landscape: Bolson

Elevation: 5,100 to 5,300

Precipitation: 5 to 8 inches

Air temperature: 52 to 55 degrees Fahrenheit

Frost-free period: 120 to 150 days

***Composition***

Slaw silt loam, 0 to 2 percent slopes—60 percent

Penoyer very fine sandy loam, 0 to 2 percent slopes—30 percent

Easychair silt loam, 0 to 2 percent slopes—4 percent

Geer fine sandy loam, 0 to 2 percent slopes—3 percent

Woodrow silty clay loam, 0 to 4 percent slopes—3 percent

***Component Description*****Slaw and similar soils**

Landform: Lower basin floors

Slope: 0 to 2 percent

Parent material: Alluvium over lacustrine deposits derived from mixed rock sources

Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, black greasewood, other shrubs

**Typical profile:**

Layer 1—0 to 13 inches; silt loam

Layer 2—13 to 60 inches; silty clay loam

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

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 11 inches

Present flooding: Occasional

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3w

Nonirrigated land capability: 7w

Ecological site: R028BY074NV—Sodic terrace 5-8 P.Z.

***Component Description*****Penoyer and similar soils**

Landform: Upper basin floors

Slope: 0 to 2 percent

Parent material: Alluvium derived from limestone, welded tuff and lacustrine deposits

Typical vegetation: Indian ricegrass, other perennial grasses, bud sagebrush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 8 inches; very fine sandy loam

Layer 2—8 to 60 inches; silt loam

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

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 12 inches

Present flooding: Rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 1

Nonirrigated land capability: 7c

Ecological site: R029XY020NV—Silty 5-8 P.Z.

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

***Contrasting Inclusions***

**Easychair and similar soils**

Composition: 0 to 4 percent

Slope: 0 to 2 percent

Landform: Basin floors

Typical vegetation: Basin wildrye, other perennial grasses, other perennial forbs, bud sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY048NV—Outwash plain

**Geer and similar soils**

Composition: 0 to 3 percent

Slope: 0 to 2 percent

Landform: Fan skirts

Typical vegetation: Indian ricegrass, galleta, bud sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY042NV—Coarse silty 5-8 P.Z.

**Woodrow and similar soils**

Composition: 0 to 3 percent

Slope: 0 to 4 percent

Landform: Channels

Typical vegetation: Indian ricegrass, needleandthread, basin wildrye, western wheatgrass, other perennial grasses, other perennial forbs, Wyoming big sagebrush, other shrubs

Ecological site: R029XY114NV—Loamy fan 8-10 P.Z.

***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

**1085—Colval-Slaw association****Map Unit Setting**

MLRA: 29  
 Landscape: Bolson  
 Elevation: 4,900 to 5,100  
 Precipitation: 5 to 8 inches  
 Air temperature: 53 to 57 degrees Fahrenheit  
 Frost-free period: 120 to 160 days

**Composition**

Colval silt loam, 0 to 2 percent slopes—40 percent  
 Slaw silt loam, 0 to 2 percent slopes—30 percent  
 Colval silt loam, 0 to 2 percent slopes, ponded—20 percent  
 Slaw silt loam, wet, 0 to 2 percent slopes—5 percent  
 Koyen fine sandy loam, 2 to 8 percent slopes—5 percent

**Component Description****Colval and similar soils**

Landform: Basin floors  
 Slope: 0 to 2 percent  
 Parent material: Alluvium over lacustrine deposits derived from welded tuff and limestone  
 Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, Bonneville saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 5 inches; silt loam  
 Layer 2—5 to 11 inches; silty clay loam  
 Layer 3—11 to 23 inches; silty clay loam  
 Layer 4—23 to 60 inches; silt loam

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

**Component Properties and Qualities**

Runoff: Negligible  
 Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
 Salinity: Saline within 40 inches  
 Available water capacity: About 9 inches  
 Present flooding: None  
 Present ponding: Rare  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 6c  
 Ecological site: R029XY117NV—Silty plain

**Component Description****Slaw and similar soils**

Landform: Basin floors  
 Slope: 0 to 2 percent  
 Parent material: Alluvium over lacustrine deposits derived from mixed rock sources  
 Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, other shrubs

**Typical profile:**

Layer 1—0 to 13 inches; silt loam

Layer 2—13 to 60 inches; silty clay loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)

Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches

Available water capacity: About 11 inches

Present flooding: Occasional

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3w

Nonirrigated land capability: 7w

Ecological site: R029XY059NV—Shallow silty 5-8 P.Z.

***Component Description***

**Colval and similar soils**

Landform: Basin floors

Slope: 0 to 2 percent

Parent material: Alluvium over lacustrine deposits derived from welded tuff and limestone

Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, Bonneville saltbush, greenmolly kochia, other shrubs

**Typical profile:**

Layer 1—0 to 5 inches; silt loam

Layer 2—5 to 11 inches; silty clay loam

Layer 3—11 to 23 inches; silty clay loam

Layer 4—23 to 60 inches; silt loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Negligible

Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)

Salinity: Saline within 40 inches

Available water capacity: About 9 inches

Present flooding: None

Present ponding: Rare

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 6c

Ecological site: R029XY159NV—Deep silty 5-8 P.Z.

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

### ***Contrasting Inclusions***

#### **Slaw and similar soils**

Composition: 0 to 5 percent

Slope: 0 to 2 percent

Landform: Basin floors

Typical vegetation: Indian ricegrass, galleta, other perennial grasses, bud sagebrush, shadscale, greenmolly kochia, other shrubs

Ecological site: R029XY120NV—Saline terrace

#### **Koyen and similar soils**

Composition: 0 to 5 percent

Slope: 2 to 8 percent

Landform: Upper basin floor remnants

Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

### ***Management***

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

"Range" section

"Crops and Pasture" section

"Engineering" and "Soil Properties" sections

### **1086—Slaw-Colval association**

#### ***Map Unit Setting***

MLRA: 29

Landscape: Bolson

Elevation: 4,900 to 5,050

Precipitation: 5 to 8 inches

Air temperature: 53 to 57 degrees Fahrenheit

Frost-free period: 120 to 160 days

#### ***Composition***

Slaw silt loam, wet, 0 to 2 percent slopes—55 percent

Slaw silt loam, 0 to 2 percent slopes—20 percent

Colval silt loam, 0 to 2 percent slopes, ponded—15 percent

Colval silt loam, 0 to 2 percent slopes—5 percent

Koyen fine sandy loam, 0 to 2 percent slopes—5 percent

#### ***Component Description***

#### **Slaw and similar soils**

Landform: Basin floors

Slope: 0 to 2 percent

Parent material: Alluvium over lacustrine deposits derived from mixed rock sources

Typical vegetation: Indian ricegrass, galleta, other perennial grasses, bud sagebrush, shadscale, greenmolly kochia, other shrubs

#### **Typical profile:**

Layer 1—0 to 13 inches; silt loam

Layer 2—13 to 60 inches; silty clay loam

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

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
Salinity: Saline within 40 inches  
Sodicity: Sodic within 40 inches  
Available water capacity: About 11 inches  
Present flooding: Occasional  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3w  
Nonirrigated land capability: 7w  
Ecological site: R029XY120NV—Saline terrace

***Component Description***

**Slaw and similar soils**

Landform: Basin floors  
Slope: 0 to 2 percent  
Parent material: Alluvium over lacustrine deposits derived from mixed rock sources  
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, other shrubs

**Typical profile:**

Layer 1—0 to 13 inches; silt loam  
Layer 2—13 to 60 inches; silty clay loam

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Low  
Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
Salinity: Saline within 40 inches  
Sodicity: Sodic within 40 inches  
Available water capacity: About 11 inches  
Present flooding: Occasional  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 3w  
Nonirrigated land capability: 7w  
Ecological site: R029XY059NV—Shallow silty 5-8 P.Z.

***Component Description***

**Colval and similar soils**

Landform: Basin floors  
Slope: 0 to 2 percent  
Parent material: Alluvium over lacustrine deposits derived from welded tuff and limestone  
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, shadscale, Bonneville saltbush, greenmolly kochia, other shrubs

**Typical profile:**

Layer 1—0 to 5 inches; silt loam

Layer 2—5 to 11 inches; silty clay loam  
 Layer 3—11 to 23 inches; silty clay loam  
 Layer 4—23 to 60 inches; silt loam

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

#### **Component Properties and Qualities**

Runoff: Negligible  
 Saturated hydraulic conductivity class (root zone): Moderately Low, (Permeability class: Slow)  
 Salinity: Saline within 40 inches  
 Available water capacity: About 9 inches  
 Present flooding: None  
 Present ponding: Rare  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 6c  
 Ecological site: R029XY159NV—Deep silty 5-8 P.Z.

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

#### ***Contrasting Inclusions***

##### **Colval and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 2 percent  
 Landform: Basin floors  
 Typical vegetation: Indian ricegrass, bottlebrush squirreltail, other perennial grasses, other perennial forbs, Bonneville saltbush, winterfat, other shrubs  
 Ecological site: R029XY117NV—Silty plain

##### **Koyen and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 2 percent  
 Landform: Sand sheets  
 Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

#### ***Management***

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

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

### **1087—Glotrain-Koyen association**

#### ***Map Unit Setting***

MLRA: 29  
 Landscape: Bolson  
 Elevation: 4,900 to 5,450  
 Precipitation: 5 to 8 inches  
 Air temperature: 50 to 57 degrees Fahrenheit  
 Frost-free period: 110 to 160 days

**Composition**

Glotrain gravelly coarse sandy loam, 0 to 2 percent slopes—60 percent  
Koyen loamy sand, 0 to 4 percent slopes—30 percent  
Glotrain gravelly coarse sandy loam, 0 to 4 percent slopes—5 percent  
Devildog very gravelly coarse sandy loam, 0 to 4 percent slopes—5 percent

**Component Description**

**Glotrain and similar soils**

Landform: Fan skirts

Slope: 0 to 2 percent

Parent material: Alluvium derived from welded tuff and minor amounts of volcanic ash and alluvium derived from limestone

Typical vegetation: Indian ricegrass, other perennial grasses, other perennial forbs, bud sagebrush, shadscale, winterfat, other shrubs

**Typical profile:**

Surface rock fragments: About 10 percent gravel, 10 percent fine gravel

Layer 1—0 to 4 inches; gravelly coarse sandy loam

Layer 2—4 to 26 inches; gravelly coarse sandy loam

Layer 3—26 to 60 inches; stratified coarse sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**

Runoff: Low

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 8 inches

Present flooding: Very rare

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Irrigated land capability: 2s

Nonirrigated land capability: 6c

Ecological site: R029XY017NV—Loamy 5-8 P.Z.

**Component Description**

**Koyen and similar soils**

Landform: Sand sheets

Slope: 0 to 4 percent

Parent material: Alluvium derived from volcanic rocks with a high component of loess

Typical vegetation: Indian ricegrass, galleta, fourwing saltbush, winterfat, other shrubs

**Typical profile:**

Layer 1—0 to 4 inches; loamy sand

Layer 2—4 to 15 inches; sandy loam

Layer 3—15 to 60 inches; fine sandy loam

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

**Component Properties and Qualities**

Runoff: Very low

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 7 inches  
 Present flooding: Rare  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Irrigated land capability: 3e  
 Nonirrigated land capability: 7s  
 Ecological site: R029XY046NV—Sandy loam 5-8 P.Z.

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

#### ***Contrasting Inclusions***

##### **Glotrain and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 4 percent  
 Landform: Fan remnants  
 Typical vegetation: Indian ricegrass, desert needlegrass, bush muhly, galleta, other perennial grasses, other perennial forbs, other shrubs, fourwing saltbush, Nevada ephedra, spiny hopsage, winterfat  
 Ecological site: R029XY079NV—Droughty loam 5-8 P.Z.

##### **Devildog and similar soils**

Composition: 0 to 5 percent  
 Slope: 0 to 4 percent  
 Landform: Inset fans  
 Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, galleta, other perennial grasses, Wyoming big sagebrush, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R029XY049NV—Sandy loam 8-12 P.Z.

#### ***Management***

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

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

### **1088—Radol-Eaglepass-Monarch association**

#### ***Map Unit Setting***

MLRA: 28A  
 Landscape: Mountains  
 Elevation: 6,650 to 8,050  
 Precipitation: 10 to 16 inches  
 Air temperature: 43 to 50 degrees Fahrenheit  
 Frost-free period: 80 to 110 days

#### ***Composition***

Radol very gravelly loam, 15 to 50 percent slopes—40 percent  
 Eaglepass extremely gravelly loamy coarse sand, 15 to 50 percent slopes—30 percent  
 Monarch extremely cobbly fine sandy loam, 15 to 50 percent slopes—20 percent  
 Buzztail very gravelly fine sandy loam, 15 to 50 percent slopes—5 percent  
 Rock outcrop, 15 to 50 percent slopes—3 percent  
 Pamsdel gravelly loam, 15 to 50 percent slopes—2 percent

### ***Component Description***

#### **Radol and similar soils**

Landform: Backslopes of mountains

Slope: 15 to 50 percent

Parent material: Residuum and colluvium derived from limestone and dolomite with minor components of shale and sandstone

Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, bluebunch wheatgrass, other perennial forbs, black sagebrush, wild crab apple, other shrubs

#### **Typical profile:**

Surface rock fragments: About 2 percent stones, 15 percent cobbles, 30 percent gravel

Layer 1—0 to 2 inches; very gravelly loam

Layer 2—2 to 15 inches; extremely cobbly loam

Layer 3—15 to 19 inches; bedrock

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 1.2 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7e

Ecological site: R028AY087NV—Calcareous fan piedmont 10-14 P.Z.

### ***Component Description***

#### **Eaglepass and similar soils**

Landform: Summits of mountains

Slope: 15 to 50 percent

Parent material: Residuum and colluvium derived from limestone and dolomite

Typical vegetation: Scribner needlegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, littleleaf mountain mahogany, other shrubs

#### **Typical profile:**

Layer 1—0 to 2 inches; extremely gravelly loamy coarse sand

Layer 2—2 to 6 inches; extremely gravelly sandy loam

Layer 3—6 to 10 inches; bedrock

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 4 to 6 inches

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 0.3 inch

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY029NV—Limestone hill

**Component Description****Monarch and similar soils**

Landform: Backslopes of mountains, north aspect

Slope: 15 to 50 percent

Parent material: Colluvium and residuum derived from limestone and shale

Typical vegetation: Forest canopy—singleleaf pinyon Forest understory—basin wildrye, muttongrass, other perennial grasses, bluebunch wheatgrass, other perennial forbs, Utah serviceberry, mountain big sagebrush, curl-leaf mountain mahogany, antelope bitterbrush, other shrubs, snowberry, singleleaf pinyon

Site index: Singleleaf pinyon—75 at an age base of 100 years

**Typical profile:**

Layer 1—0 to 8 inches; extremely cobbly fine sandy loam

Layer 2—8 to 15 inches; very gravelly loam

Layer 3—15 to 19 inches; bedrock

See “Chemical Soil Properties” table and the “Physical Soil Properties” table for more information.

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 14 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 1.1 inches

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: F028AY077NV

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

**Contrasting Inclusions****Buzztail and similar soils**

Composition: 0 to 5 percent

Slope: 15 to 50 percent

Landform: Backslopes of mountains, north aspect

Typical vegetation: Indian ricegrass, other perennial grasses, bluebunch wheatgrass, other perennial forbs, mountain big sagebrush, muttongrass, other shrubs

Ecological site: R028AY064NV—Shallow loam 10-14 P.Z.

**Rock outcrop**

Composition: 0 to 3 percent

Slope: 15 to 50 percent

Landform: Mountains

**Pamsdel and similar soils**

Composition: 0 to 2 percent

Slope: 15 to 50 percent

Landform: Fan remnants

Typical vegetation: Bluegrass, other perennial grasses, bluebunch wheatgrass, other perennial forbs, big sagebrush, wild crab apple, Stansbury cliffrose, other shrubs  
Ecological site: R028AY127NV—Loamy fan piedmont

### ***Management***

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

- "Range" section
- "Forest land" section
- "Engineering" and "Soil Properties" sections

## **1090—Kyler-Eaglepass-Rock outcrop association**

### ***Map Unit Setting***

MLRA: 28A  
Landscape: Mountains  
Elevation: 5,850 to 7,900  
Precipitation: 8 to 12 inches  
Air temperature: 48 to 54 degrees Fahrenheit  
Frost-free period: 100 to 130 days

### ***Composition***

Kyler very gravelly fine sandy loam, 30 to 75 percent slopes—45 percent  
Eaglepass very stony sandy loam, cool, 30 to 75 percent slopes—20 percent  
Rock outcrop, 50 to 75 percent slopes—20 percent  
Amtoft very gravelly loam, 15 to 50 percent slopes—8 percent  
Ursine gravelly loam, 8 to 15 percent slopes—5 percent  
Armespan gravelly sandy loam, 8 to 15 percent slopes—2 percent

### ***Component Description***

#### **Kyler and similar soils**

Landform: Backslopes of mountains  
Slope: 30 to 75 percent  
Parent material: Residuum and colluvium derived from limestone and dolomite  
Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs, Utah juniper

#### **Typical profile:**

Layer 1—0 to 3 inches; very gravelly fine sandy loam  
Layer 2—3 to 11 inches; very gravelly loam  
Layer 3—11 to 15 inches; bedrock

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

#### **Component Properties and Qualities**

Runoff: Very high  
Depth to restrictive feature: Lithic bedrock: 6 to 14 inches  
Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
Available water capacity: About 1.0 inch  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY027NV—Shallow calcareous hill 8-10 P.Z.

**Component Description****Eaglepass and similar soils**

Landform: Backslopes of mountains

Slope: 30 to 75 percent

Parent material: Residuum and colluvium derived from limestone and dolomite

Typical vegetation: Scribner needlegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, littleleaf mountain mahogany, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; very stony sandy loam

Layer 2—2 to 6 inches; extremely gravelly sandy loam

Layer 3—6 to 10 inches; bedrock

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 4 to 6 inches

Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)

Available water capacity: About 0.3 inch

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R028AY029NV—Limestone hill

**Component Description****Rock outcrop**

Landform: Backslopes of mountains

Slope: 50 to 75 percent

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

**Contrasting Inclusions****Amtoft and similar soils**

Composition: 0 to 8 percent

Slope: 15 to 50 percent

Landform: Backslopes of mountains, north aspect

Typical vegetation: Bluebunch wheatgrass, other perennial forbs, black sagebrush, Stansbury cliffrose, Indian ricegrass, other perennial grasses

Ecological site: R028AY034NV—Shallow calcareous slope 10-14 P.Z.

**Ursine and similar soils**

Composition: 0 to 5 percent

Slope: 8 to 15 percent

Landform: Lower hills

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs  
 Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

**Armespan and similar soils**

Composition: 0 to 2 percent

Slope: 8 to 15 percent

Landform: Upper fan remnants

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, sand dropseed, other perennial forbs, black sagebrush, fourwing saltbush, winterfat, other shrubs

Ecological site: R028AY013NV—Shallow calcareous loam 8-10 P.Z.

**Management**

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

"Range" section

"Engineering" and "Soil Properties" sections

**1091—Kyler-Eaglepass-Rock outcrop association, warm**

**Map Unit Setting**

MLRA: 29

Landscape: Mountains

Elevation: 5,000 to 7,850

Precipitation: 8 to 12 inches

Air temperature: 48 to 54 degrees Fahrenheit

Frost-free period: 100 to 150 days

**Composition**

Kyler extremely cobbly loam, moist, 30 to 50 percent slopes—50 percent

Eaglepass extremely stony loam, 30 to 75 percent slopes—20 percent

Rock outcrop, 30 to 75 percent slopes—20 percent

Ursine very gravelly loam, 4 to 8 percent slopes—5 percent

Wrango gravelly loamy sand, 2 to 8 percent slopes—3 percent

Riverwash extremely gravelly coarse sand, 2 to 8 percent slopes—2 percent

**Component Description**

**Kyler and similar soils**

Landform: Mountains

Slope: 30 to 50 percent

Parent material: Residuum and colluvium derived from limestone and dolomite

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

**Typical profile:**

Layer 1—0 to 3 inches; extremely cobbly loam

Layer 2—3 to 11 inches; very gravelly loam

Layer 3—11 to 15 inches; bedrock

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 6 to 14 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 0.9 inch  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

***Component Description***

**Eaglepass and similar soils**

Landform: Upper mountains  
 Slope: 30 to 75 percent  
 Parent material: Residuum and colluvium derived from limestone and dolomite  
 Typical vegetation: Needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, littleleaf mountain mahogany, other shrubs

**Typical profile:**

Layer 1—0 to 2 inches; extremely stony loam  
 Layer 2—2 to 6 inches; extremely gravelly sandy loam  
 Layer 3—6 to 10 inches; bedrock

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

**Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Lithic bedrock: 4 to 6 inches  
 Saturated hydraulic conductivity class (root zone): High, (Permeability class: Moderately rapid)  
 Available water capacity: About 0.4 inch  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R029XY040NV—Limestone hill

***Component Description***

**Rock outcrop**

Landform: Mountains  
 Slope: 30 to 75 percent

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

***Contrasting Inclusions***

**Ursine and similar soils**

Composition: 0 to 5 percent  
 Slope: 4 to 8 percent  
 Landform: Mountain slopes  
 Typical vegetation: Indian ricegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, other shrubs  
 Ecological site: R029XY008NV—Shallow calcareous loam 8-12 P.Z.

**Wrango and similar soils**

Composition: 0 to 3 percent

Slope: 2 to 8 percent

Landform: Drainageways

Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach, other shrubs, Indian ricegrass, Sandberg bluegrass, other perennial grasses, other perennial forbs

Ecological site: R029XY009NV—Upland wash

**Riverwash**

Composition: 0 to 2 percent

Slope: 2 to 8 percent

Landform: Drainageways

**Management**

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

"Range" section

"Engineering" and "Soil Properties" sections

**1093—Kyler-Logring-Rock outcrop association**

**Map Unit Setting**

MLRA: 29

Landscape: Mountains

Elevation: 5,250 to 8,300

Precipitation: 8 to 12 inches

Air temperature: 47 to 52 degrees Fahrenheit

Frost-free period: 100 to 130 days

**Composition**

Kyler extremely cobbly loam, 15 to 50 percent slopes—40 percent

Logring very gravelly loam, 15 to 75 percent slopes—30 percent

Rock outcrop, 15 to 75 percent slopes—20 percent

Eaglepass extremely gravelly loamy coarse sand, 15 to 50 percent slopes—3 percent

Radol very gravelly loam, warm, 15 to 50 percent slopes—3 percent

Lodar very gravelly loam, warm, 15 to 50 percent slopes—2 percent

Ravendog gravelly loamy sand, 2 to 8 percent slopes—2 percent

**Component Description**

**Kyler and similar soils**

Landform: Mountains

Slope: 15 to 50 percent

Parent material: Residuum and colluvium derived from limestone and dolomite

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, fourwing saltbush, ephedra, Stansbury cliffrose, other shrubs, other trees

**Typical profile:**

Layer 1—0 to 3 inches; extremely cobbly loam

Layer 2—3 to 11 inches; very gravelly loam

Layer 3—11 to 15 inches; bedrock

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 6 to 14 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 0.9 inch

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY081NV—Shallow calcareous hill 10-14 P.Z.

**Component Description****Logging and similar soils**

Landform: Backslopes of mountains, north aspect

Slope: 15 to 75 percent

Parent material: Colluvium and residuum derived from limestone

Typical vegetation: Forest canopy—Utah juniper, singleleaf pinyon Forest understory—muttongrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, black sagebrush, buckwheat, antelope bitterbrush, other shrubs, Utah juniper, singleleaf pinyon

Site index: Utah juniper—45 at an age base of 100 years

Site index: Singleleaf pinyon—45 at an age base of 100 years

**Typical profile:**

Layer 1—0 to 3 inches; very gravelly loam

Layer 2—3 to 10 inches; very cobbly fine sandy loam

Layer 3—10 to 14 inches; bedrock

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

**Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 7 to 14 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 0.9 inch

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: F029XY069NV

**Component Description****Rock outcrop**

Landform: Mountains

Slope: 15 to 75 percent

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

**Contrasting Inclusions****Eaglepass and similar soils**

Composition: 0 to 3 percent

Slope: 15 to 50 percent

Landform: Summits of mountains

Typical vegetation: Needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, littleleaf mountain mahogany, other shrubs

Ecological site: R029XY040NV—Limestone hill

**Radol and similar soils**

Composition: 0 to 3 percent

Slope: 15 to 50 percent

Landform: Backslopes of mountains

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, fourwing saltbush, ephedra, Stansbury cliffrose, other shrubs, other trees

Ecological site: R029XY081NV—Shallow calcareous hill 10-14 P.Z.

**Lodar and similar soils**

Composition: 0 to 2 percent

Slope: 15 to 50 percent

Landform: Backslopes of mountains

Typical vegetation: Forest canopy—Utah juniper, singleleaf pinyon Forest understory—muttongrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, black sagebrush, buckwheat, antelope bitterbrush, other shrubs, Utah juniper, singleleaf pinyon

Ecological site: F029XY069NV

**Ravendog and similar soils**

Composition: 0 to 2 percent

Slope: 2 to 8 percent

Landform: Drainageways

Typical vegetation: Indian ricegrass, needleandthread, basin wildrye, western wheatgrass, other perennial grasses, other perennial forbs, Wyoming big sagebrush, other shrubs

Ecological site: R029XY114NV—Loamy fan 8-10 P.Z.

**Management**

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

"Range" section

"Forest land" section

"Engineering" and "Soil Properties" sections

**1095—Kyler-Rock outcrop-Amtoft association**

**Map Unit Setting**

MLRA: 29

Landscape: Mountains

Elevation: 6,050 to 8,850

Precipitation: 8 to 12 inches

Air temperature: 48 to 52 degrees Fahrenheit

Frost-free period: 100 to 130 days

**Composition**

Kyler very cobbly loam, 15 to 50 percent slopes—55 percent

Rock outcrop, 30 to 75 percent slopes—15 percent

Amtoft very gravelly loam, warm, 8 to 30 percent slopes—15 percent

Logring very cobbly fine sandy loam, 15 to 50 percent slopes—7 percent

Amtoft very gravelly loam, 8 to 15 percent slopes—6 percent

Hardzem channery loam, 30 to 75 percent slopes—2 percent

### ***Component Description***

#### **Kyler and similar soils**

Landform: Mountains

Slope: 15 to 50 percent

Parent material: Residuum and colluvium derived from limestone and dolomite

Typical vegetation: Indian ricegrass, needleandthread, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs

#### **Typical profile:**

Layer 1—0 to 3 inches; very cobbly loam

Layer 2—3 to 11 inches; very gravelly very fine sandy loam

Layer 3—11 to 15 inches; bedrock

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 6 to 14 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)

Available water capacity: About 0.9 inch

Present flooding: None

Present ponding: None

Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s

Ecological site: R029XY014NV—Shallow calcareous slope 8-12 P.Z.

### ***Component Description***

#### **Rock outcrop**

Landform: Mountains

Slope: 30 to 75 percent

### ***Component Description***

#### **Amtoft and similar soils**

Landform: Backslopes of lower mountains, north aspect

Slope: 8 to 30 percent

Parent material: Residuum and colluvium weathered from limestone

Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, fourwing saltbush, ephedra, Stansbury cliffrose, other shrubs, other trees

#### **Typical profile:**

Surface rock fragments: About 70 percent gravel, 10 percent cobbles

Layer 1—0 to 3 inches; very gravelly loam

Layer 2—3 to 11 inches; very gravelly loam

Layer 3—11 to 15 inches; bedrock

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

#### **Component Properties and Qualities**

Runoff: Very high

Depth to restrictive feature: Lithic bedrock: 10 to 20 inches

Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Slow)  
Available water capacity: About 1.0 inch  
Present flooding: None  
Present ponding: None  
Natural drainage class: Well drained

**Interpretive Groups**

Nonirrigated land capability: 7s  
Ecological site: R029XY081NV—Shallow calcareous hill 10-14 P.Z.

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

***Contrasting Inclusions***

**Logring and similar soils**

Composition: 0 to 7 percent  
Slope: 15 to 50 percent  
Landform: Backslopes of mountains, north aspect  
Typical vegetation: Forest canopy—Utah juniper, singleleaf pinyon Forest understory—muttongrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, black sagebrush, buckwheat, antelope bitterbrush, other shrubs, Utah juniper, singleleaf pinyon  
Ecological site: F029XY069NV

**Amtoft and similar soils**

Composition: 0 to 6 percent  
Slope: 8 to 15 percent  
Landform: Backslopes of mountains, north aspect  
Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, other perennial grasses, other perennial forbs, black sagebrush, fourwing saltbush, ephedra, Stansbury cliffrose, other shrubs, other trees  
Ecological site: R029XY081NV—Shallow calcareous hill 10-14 P.Z.

**Hardzem and similar soils**

Composition: 0 to 2 percent  
Slope: 30 to 75 percent  
Landform: Backslopes of higher mountain slopes, north aspect  
Typical vegetation: Forest canopy—singleleaf pinyon, white fir Forest understory—Thurber's needlegrass, bottlebrush squirreltail, spike fescue, muttongrass, Sandberg bluegrass, other perennial grasses, other perennial forbs, Utah serviceberry, mountain big sagebrush, other shrubs, white fir, singleleaf pinyon  
Ecological site: F029XY096NV

***Management***

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

- "Range" section
- "Forest land" section
- "Engineering" and "Soil Properties" sections

**1096—Kyler-Lodar association**

***Map Unit Setting***

MLRA: 28A  
Landscape: Mountains  
Elevation: 6,150 to 6,500

Precipitation: 8 to 14 inches  
 Air temperature: 48 to 54 degrees Fahrenheit  
 Frost-free period: 90 to 130 days

### **Composition**

Kyler very gravelly fine sandy loam, 15 to 30 percent slopes—50 percent  
 Lodar very gravelly loam, 8 to 30 percent slopes—35 percent  
 Eaglepass extremely gravelly loamy coarse sand, 30 to 50 percent slopes—5 percent  
 Rock outcrop, 30 to 50 percent slopes—5 percent  
 Ursine gravelly loam, 8 to 30 percent slopes—5 percent

### **Component Description**

#### **Kyler and similar soils**

Landform: Backslopes of mountains, south to southeast aspects  
 Slope: 15 to 30 percent  
 Parent material: Residuum and colluvium derived from limestone and dolomite  
 Typical vegetation: Indian ricegrass, galleta, other perennial grasses, other perennial forbs, black sagebrush, other shrubs, Utah juniper

#### **Typical profile:**

Layer 1—0 to 3 inches; very gravelly fine sandy loam  
 Layer 2—3 to 11 inches; very gravelly very fine sandy loam  
 Layer 3—11 to 15 inches; bedrock

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

#### **Component Properties and Qualities**

Runoff: Very high  
 Depth to restrictive feature: Lithic bedrock: 6 to 14 inches  
 Saturated hydraulic conductivity class (root zone): Moderately High, (Permeability class: Moderate)  
 Available water capacity: About 0.9 inch  
 Present flooding: None  
 Present ponding: None  
 Natural drainage class: Well drained

#### **Interpretive Groups**

Nonirrigated land capability: 7s  
 Ecological site: R028AY027NV—Shallow calcareous hill 8-10 P.Z.

### **Component Description**

#### **Lodar and similar soils**

Landform: Backslopes of mountains, northwest to north aspects  
 Slope: 8 to 30 percent  
 Parent material: Colluvium and residuum derived from limestone  
 Typical vegetation: Forest canopy—singleleaf pinyon Forest understory—Indian ricegrass, bottlebrush squirreltail, bluegrass, other perennial grasses, bluebunch wheatgrass, other perennial forbs, black sagebrush, curlleaf mountainmahogany, wild crab apple, Stansbury cliffrose, other shrubs, Utah juniper, singleleaf pinyon  
 Site index: Singleleaf pinyon—45 at an age base of 100 years

#### **Typical profile:**

Layer 1—0 to 8 inches; very gravelly loam  
 Layer 2—8 to 16 inches; very gravelly loam  
 Layer 3—16 to 20 inches; bedrock