USDA United States Department of Agriculture

Natural Resources Conservation Service

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

# Soil Survey of Nye County, Nevada, Northeast Part

## Part I

# How To Use This Soil Survey

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

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

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

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

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

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

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 Thus, as older published interpretive information becomes outdated, new interpretive data must be generated and tailored to local conditions.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

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

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

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

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

# Contents

Part I


**Index to map units** ..... v
**Summary of tables** ..... ix
**Foreword** ..... xi
How this survey was made ..... 1
General nature of the survey area ..... 2
History ..... 2
Industry and transportation ..... 2
Physiography, drainage, and geology ..... 2
Climate ..... 3
**Detailed Soil Map Units** ..... 5
Map unit descriptions ..... 6
**Prime farmland** ..... 199
Prime farmland and other important farmland ..... 199
Prime farmland map units ..... 200
**Classification of the soils** ..... 201
Taxonomic units and their morphology ..... 201
Abgese series ..... 201
Allker series ..... 202
Amelar series ..... 204
Ardivey series ..... 205
Argalt series ..... 206
Armespan series ..... 207
Beelem series ..... 208
Bellehelen series ..... 208
Belted series ..... 209
Blueagle series ..... 210
Breko series ..... 211
Candelaria series ..... 212
Cath series ..... 213
Chuckridge series ..... 214
Cirac series ..... 216
Clanalpine series ..... 216
Cliffdown series ..... 217
Clowfin series ..... 218
Cropper series ..... 219
Delacit series ..... 220
Delamar series ..... 220
Downeyville series ..... 222
Drewing series ..... 222
Duffer series ..... 223
Eaglepass series ..... 224
Easychair series ..... 225
Eganroc series ..... 226
Eoj series ..... 227
Equis series ..... 228
Foxvire series ..... 229
Gabbvally series ..... 230
Ganaflan series ..... 230
Garhill series ..... 231
Geer series ..... 232
Grassval series ..... 233
Hackwood series ..... 234
Handpah series ..... 235
Hardhat series ..... 236
Hardol series ..... 237
Haunchee series ..... 238
Hodedo series ..... 238
Hollywell series ..... 239
Hopeka series ..... 240
Hymas series ..... 240
Hyzen series ..... 241
Izar series ..... 242
Izo series ..... 242
Jarab series ..... 243
Jotava series ..... 244
Kawich series ..... 245
Keefa series ..... 246
Koyen series ..... 247
Kunzler series ..... 248
Kyler series ..... 249
Labshaft series ..... 250
Layview series ..... 250
Leo series ..... 251
Lien series ..... 252
Linoyer series ..... 253
Logring series ..... 253
Lyda series ..... 254
Lyx series ..... 255
Mijay series ..... 256
Molion series ..... 257
Morbench series ..... 258
Mosida series ..... 259
Nuc series ..... 260
Nuyobe series ..... 261
Nyserva series ..... 262
Packer series ..... 263
Palinor series ..... 264
Parisa series ..... 265

Peeko series ..... 266
Penelas series ..... 267
Penoyer series ..... 268
Pharo series ..... 269
Portmount series ..... 270
Puett series ..... 270
Raster series ..... 271
Ravenswood series ..... 272
Rebel series ..... 273
Roden series ..... 274
Rustigate series ..... 274
Segura series ..... 275
Slaw series ..... 276
Solak series ..... 277
Spager series ..... 278
Springwarm series ..... 278
Squawtip series ..... 279
Stargo series ..... 280
Stewval series ..... 281
Stumble series ..... 282
Suak series ..... 283
Sycomat series ..... 284
Titiack series ..... 285
Tokoper series ..... 286
Ubehebe series ..... 286
Univega series ..... 287
Unsel series ..... 288
Ursine series ..... 289
Veet series ..... 290
Vindicator series ..... 291
Wardenot series ..... 292
Watoopah series ..... 292
Winu series ..... 293
Yody series ..... 294
Yomba series ..... 295
Zadvar series ..... 296
**Formation of the soils** ..... 299
Climate ..... 299
Relief ..... 300
Biological forces ..... 300
Parent material ..... 301
Time ..... 301
**References** ..... 303
**Glossary** ..... 305

**Part II**

**Summary of tables** ..... iii
**Crops and pasture** ..... 3
Yields per acre ..... 3
Land capability classification ..... 3
Erosion factors ..... 4
**Rangeland and grazeable woodland resource management** ..... 7
Rangeland management ..... 8
Plant communities of Nye County ..... 10
Rangeland seeding ..... 14
**Forest land** ..... 15
Woodland ordination system ..... 15
Forest land management and productivity ..... 16
**Engineering** ..... 17
Building site development ..... 17
Sanitary facilities ..... 18
Waste management ..... 19
Construction materials ..... 19
Water management ..... 20
**Soil properties** ..... 23
Engineering index properties ..... 23
Physical and chemical properties ..... 24
Water features ..... 26
Soil features ..... 27
**References** ..... 29
**Glossary** ..... 31
**Tables** ..... 49
**Rangeland plants and woodland understory** ..... 339

Issued 2002

# Index to Map Units


3000—Stumble loamy sand, 2 to 8 percent slopes ..... 6
3001—Stumble-Koyen association ..... 7
3020—Easychair silt loam, 0 to 2 percent slopes ..... 8
3040—Mosida-Rebel-Slaw association ..... 9
3041—Mosida loam, 0 to 4 percent slopes ..... 10
3050—Mijay-Raster association ..... 11
3060—Morbench gravelly sandy loam, 15 to 30 percent slopes ..... 12
3080—Breko-Veet-Handpah association ..... 12
3090—Univega-Koyen association ..... 14
3091—Univega-Clowfin-Molion association ..... 15
3101—Gabbvally-Vindicator-Rock outcrop association ..... 16
3102—Gabbvally-Stewval-Beelem association ..... 17
3110—Cath-Zadvar association ..... 19
3111—Cath gravelly loam, 2 to 8 percent slopes ..... 20
3112—Cath-Portmount-Abgese association ..... 21
3120—Portmount gravelly sandy loam, 2 to 8 percent slopes ..... 22
3130—Unsel gravelly sandy loam, 2 to 8 percent slopes ..... 22
3131—Unsel-Geer association ..... 23
3132—Unsel-Koyen-Keefa association ..... 24
3134—Unsel-Hollywell-Lyx association ..... 26
3137—Unsel-Koyen association ..... 27
3138—Unsel-Stumble association ..... 28
3139—Unsel-Izo association ..... 29
3140—Haunchee-Eaglepass-Rock outcrop association ..... 30
3150—Nuyobe-Blueagle-Playas complex, 0 to 30 percent slopes ..... 31
3160—Cropper-Clanalpine-Bellehelen association ..... 33
3161—Cropper-Segura-Ravenswood association ..... 34
3162—Cropper-Segura-Clanalpine association ..... 36
3170—Hackwood-Winu association ..... 37
3180—Hymas-Hopeka-Solak association ..... 38
3190—Penoyer-Geer association ..... 39
3191—Penoyer-Watoopah-Easychair association ..... 40
3200—Glanaflan gravelly loam, 2 to 15 percent slopes ..... 42
3210—Kunzler-Sycomat association ..... 43
3211—Kunzler, dry-Sycomat association ..... 44
3212—Kunzler-Candelaria association ..... 45
3220—Stewval-Beelem association ..... 46
3221—Stewval, moist-Rock outcrop association ..... 47
3223—Stewval-Rock outcrop association ..... 49
3224—Stewval-Beelem-Bellehelen association ..... 50
3226—Stewval-Bellehelen-Rock outcrop association ..... 51
3228—Stewval-Gabbvally-Beelem association ..... 52
3231—Geer fine sandy loam, 0 to 4 percent slopes ..... 53
3233—Geer-Koyen association ..... 54
3240—Stargo-Veet association ..... 55
3241—Stargo association ..... 56
3250—Wardenot gravelly sandy loam, 0 to 4 percent slopes ..... 57
3260—Springwarm-Jotava-Delacit association ..... 58
3270—Jotava silty clay loam, 0 to 2 percent slopes ..... 59
3280—Duffer-Equis association ..... 60
3300—Palinor very gravelly loam, 2 to 15 percent slopes ..... 62
3301—Palinor-Nuc association ..... 62
3302—Palinor-Parisa association ..... 64
3310—Ursine-Veet-Armespan association ..... 65
3311—Ursine-Cliffdown association ..... 66
3330—Handpah-Delamar association ..... 67
3333—Handpah-Watoopah-Zadvar association ..... 68
3334—Handpah-Palinor-Parisa association ..... 69
3335—Handpah-Watoopah-Candelaria association ..... 71
3340—Amelar-Eoj-Hardol association ..... 72
3380—Roden-Izar association ..... 73
3400—Parisa gravelly loam, 2 to 8 percent slopes ..... 75
3410—Watoopah-Veet association ..... 76
3412—Watoopah-Veet-Zadvar association ..... 77
3414—Watoopah-Cath association ..... 78
3415—Watoopah-Leo association ..... 79
3420—Squawtip-Bellehelen-Rock outcrop association ..... 80
3430—Bellehelen-Rock outcrop association ..... 81
3434—Bellehelen-Cropper-Rock outcrop association ..... 83
3440—Layview-Foxvire-Suak association ..... 84
3441—Layview-Labshaft-Winu association ..... 85
3442—Layview-Suak-Winu association ..... 87
3450—Grassval-Allker-Zadvar association ..... 88
3460—Zadvar-Handpah association ..... 90
3463—Zadvar-Veet association ..... 91

3467—Zadvar very gravelly sandy loam, 4 to 30 percent slopes ..... 92
3468—Zadvar-Allker-Peeko association ..... 92
3470—Cirac-Keefa-Nyserva association ..... 94
3471—Cirac-Nyserva complex, 0 to 4 percent slopes ..... 95
3473—Cirac-Slaw-Nyserva association ..... 96
3474—Cirac-Nyserva-Kawich complex, 0 to 30 percent slopes ..... 98
3475—Cirac-Keefa-Slaw association ..... 99
3480—Chuckridge-Zadvar association ..... 100
3481—Chuckridge-Unsel-Veet association ..... 101
3491—Slaw-Easychair association ..... 103
3520—Rustigate loam, 0 to 2 percent slopes ..... 104
3521—Rustigate-Nuyobe association ..... 104
3522—Rustigate-Nuyobe-Kawich complex, 0 to 15 percent slopes ..... 105
3530—Rebel sandy loam, 0 to 2 percent slopes ..... 107
3531—Rebel gravelly loamy coarse sand, 0 to 4 percent slopes ..... 107
3540—Packer-Suak-Foxvire association ..... 108
3560—Ubehebe-Penelas-Logring association ..... 110
3570—Eaglepass-Kyler-Rock outcrop association ..... 111
3571—Eaglepass-Rock outcrop complex, 30 to 75 percent slopes ..... 112
3572—Eaglepass-Kyler-Rock outcrop complex, 15 to 75 percent slopes ..... 113
3580—Kyler-Rock outcrop complex, 15 to 50 percent slopes ..... 114
3581—Kyler, moist-Rock outcrop complex, 15 to 50 percent slopes ..... 115
3590—Allker-Portmount association ..... 116
3600—Ardivey-Hollywell-Belted association ..... 117
3601—Ardivey-Zadvar association ..... 118
3610—Tokoper-Garhill-Rock outcrop association ..... 119
3620—Argalt-Stewval-Gabbvally association ..... 121
3630—Lyx-Geer-Koyen association ..... 122
3640—Armespan-Zadvar-Veet association ..... 123
3641—Armespan-Lyx-Candelaria association ..... 125
3642—Armespan very gravelly sandy loam, 8 to 30 percent slopes ..... 126
3643—Armespan-Morbench association ..... 127
3644—Armespan-Cliffdown-Candelaria association ..... 128
3645—Armespan-Clowfin-Peeko association ..... 129
3647—Armespan-Spager association ..... 130
3651—Candelaria very gravelly sandy loam, 2 to 8 percent slopes ..... 132
3655—Candelaria-Armespan association ..... 132
3660—Titiack-Garhill association ..... 133
3670—Logring-Rock outcrop-Kyler association ..... 134
3671—Logring-Eaglepass association ..... 136
3672—Logring-Kyler-Eaglepass association ..... 137
3700—Leo-Delamar association ..... 138
3702—Leo-Hollywell association ..... 139
3703—Leo-Koyen association ..... 140
3710—Beelem-Rock outcrop complex, 15 to 50 percent slopes ..... 141
3730—Penelas-Kyler-Rock outcrop association ..... 142
3731—Penelas-Ubehebe-Rock outcrop association ..... 143
3740—Keefa-Unsel association ..... 144
3741—Keefa-Koyen association ..... 145
3742—Keefa-Stargo association ..... 146
3744—Keefa-Garhill-Belted association ..... 147
3745—Keefa-Hollywell association ..... 149
3747—Keefa-Lyx-Linoyer association ..... 150
3748—Keefa-Koyen association ..... 151
3750—Koyen-Cliffdown association ..... 152
3751—Koyen-Unsel association ..... 153
3752—Koyen sandy loam, 2 to 8 percent slopes ..... 155
3754—Koyen-Watoopah-Geer association ..... 155
3755—Koyen-Watoopah association ..... 157
3756—Koyen-Lyx association ..... 158
3757—Koyen-Veet-Penoyer association ..... 159
3758—Koyen sand, 2 to 8 percent slopes ..... 160
3760—Vindicator very gravelly sandy loam, 8 to 30 percent slopes ..... 161
3770—Yody-Cath-Abgese association ..... 162
3780—Molion very gravelly sandy loam, 2 to 8 percent slopes ..... 163
3800—Lyda-Delamar-Lyx association ..... 164
3801—Lyda-Belted-Ardivey association ..... 165
3803—Lyda-Ardivey-Veet association ..... 166
3804—Lyda-Ardivey-Lyx association ..... 168
3805—Lyda-Hardhat association ..... 169
3810—Belted-Univega-Koyen association ..... 170
3811—Belted-Unsel-Lyx association ..... 172
3830—Downeyville-Rock outcrop complex, 15 to 50 percent slopes ..... 173
3831—Downeyville-Stewval association ..... 174
3832—Downeyville-Tokoper association ..... 175
3841—Veet very gravelly sandy loam, 2 to 8 percent slopes ..... 176
3842—Veet-Koyen-Geer association ..... 177
3850—Garhill-Tokoper-Argalt association ..... 178
3860—Hyzen-Kyler-Rock outcrop association ..... 179
3861—Hyzen-Eganroc-Rock outcrop association ..... 181
3870—Lien-Rebel association ..... 182
3880—Hardhat-Candelaria association ..... 183
3881—Hardhat-Stargo-Yomba-association ..... 184
3890—Jarab-Drewing-Pharo association ..... 185
3900—Playas ..... 187
3901—Lava flows ..... 187
3910—Yomba association ..... 187
3911—Yomba-Playas complex, 0 to 2 percent slopes ..... 188
3920—Puett-Grassval-Rebel association ..... 189
3940—Peeko-Clowfin association ..... 191
3941—Peeko gravelly loam, 2 to 8 percent slopes ..... 192

3960—Hodedo stony loam, 15 to 30 percent slopes ....192
3970—Linoyer-Rebel association .....193
3971—Linoyer-Easychair association .....194
3972—Linoyer very fine sandy loam, 0 to 4 percent slopes .....195
3973—Linoyer-Clowfin association .....196
3974—Linoyer-Kunzler association .....197
W—Water .....198

# Summary of Tables

Part II

Temperature and precipitation (table 1) ..... 49

Freeze dates in spring and fall (table 2) ..... 54

Growing season (table 3) ..... 57

Acreage and proportionate extent of the soils (table 4) ..... 59

Land capability and yields per acre of crops (table 5) ..... 62

Suitability for rangeland seeding (table 6) ..... 63

Woodland management and productivity (table 7) ..... 76

Building site development (table 8) ..... 79

Sanitary facilities (table 9) ..... 106

Construction materials (table 10) ..... 133

Water management (table 11) ..... 161

Engineering index properties (table 12) ..... 192

Physical properties of the soils (table 13) ..... 258

Chemical properties of the soils (table 14) ..... 281

Water features (table 15) ..... 309

Soil features (table 16) ..... 322

Classification of the soils (table 17) ..... 335

# Foreword

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

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

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

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

Nicholas N. Pearson

Nicholas N. Pearson
State Conservationist
Natural Resources Conservation Service

# Soil Survey of Nye County, Nevada, Northeast Part

Fieldwork by John B. Fisher, Hans Van der Noordaa, Georgia Turner, Joe DuRousseau Jr., Terry Bowerman, Douglas Merkler, Natural Resources Conservation Service

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

## How This Survey Was Made

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

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

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

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

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

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

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

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

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

# General Nature of the Survey Area

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

## History

The original inhabitants of the area were primarily the Shoshone Indians. In 1827, Jedediah Smith, part owner of the Rocky Mountain Fur Company, crossed through parts of the area, followed in 1846, by Captain John Fremont's expedition (18). Following these early explorations, the boom in mining throughout the west brought prospectors and explorers into the region seeking mineral wealth.

A number of mines and mining districts appeared in the late 1800's, including Hot Creek, established in 1867, Tybo in 1866 and Reville, also located in 1866. A number of discoveries were made in the early 1900's as well, giving rise to Sunnyside, where silver was discovered in 1906, Silver Bow, Golden Arrow, Antelope and others (3). Most of these areas experienced brief periods of economic boom and then declined quickly.

The influx of miners and others drawn by the mines, both in the area and nearby, provided opportunity for ranches to spring up to supply food to the growing populations. Often stage stations or freight stops were located at prominent ranches. Notable among these are Moore's station, Morey, and Prichard's station (3). Ranching and local farm communities continue to exist and provide a stable part of the economy in the area.

## Industry and Transportation

The major industry within this soil survey area is oil and gas production. These oil fields are located about 85 miles northeast of Tonopah. The highest capacity oil well in the United States is located in this field and total oil production exceeds 2.5 million barrels of crude per year. There are many spin-off industries associated with oil production such as refineries, exploration, and road construction.

Another unique industry within this soil survey area is provided by fresh warm water springs on the Duckwater Shoshone Indian Reservation. Channel catfish are raised in a raceway system that is fed by 5 cubic feet per second of 80 degree spring water. These provide jobs and revenues to the Shoshone tribe.

The main method of transportation in the survey area is by motor vehicle. The paved routes include U.S. route 6, and State routes 379, 318, and 375. Many gravel and improved dirt roads provide access to the area.

The supply of surface water in the survey area is very limited. Perennial streams in the area include White River, Currant Creek, Cherry Creek, Pine Creek, Hot Creek, Snowball Creek, and Duckwater Creek. Seeps, wells, and springs provide limited water for irrigation.

Water for household use is obtained from wells. The quality of the ground water is highly variable; in some areas high levels of salts or toxic minerals make the ground water unsuitable for household use.

Livestock production on native rangeland is the primary agricultural industry. Over 95 percent of the rangelands are federally owned.

There is some irrigated agriculture in this area with the primary crop being alfalfa hay.

## Physiography, Drainage, and Geology

Georgia Turner, soil scientist wrote this section.

Northeast Nye County is near the center of the Great Basin section of the Basin and Range physiographic

province that is characterized by its repetitive pattern of north to northeast trending mountain ranges and broad intermontane alluvial valleys. Basin and range normal faults account for the upthrown tilted blocks of bedrock, "horsts" forming the ranges, and the downdropped blocks of bedrock "grabens" forming the valleys. The mountain ranges, consisting principally of volcanic rocks, have a relatively smooth appearance with low rounded peaks and broad mesas. Ranges composed mainly of limestone and other sedimentary rocks have a rugged appearance with steep slopes and deep drainages.

Most of the valleys in northeast Nye County have interior drainage with ephemeral playa lakes in the lowest parts of the valleys. These lakes usually dry up during the summers, but some remain throughout the year. There are several permanent lakes in Little Fish Lake Valley which are a result of small alluvial fans that dam the southward drainage into Hot Creek. The streams on the east side of the survey in White River Valley eventually drain into the Colorado River.

Distinct relict pluvial features in some of the valleys were left by Pleistocene lakes. These features, including old beaches, wave-cut terraces, and spit bars are prominent in Railroad Valley and are easily discerned on aerial photographs of the area. Pleistocene lake sediments are the source of sand and sand sized aggregates of clay for solitary dunes and dune fields in valleys with lake basins. Thick deposits of lake sediments along with interpluvial river sediments have filled the intermontane valleys with up to several thousand feet of alluvium. Some of the soils that formed in these materials are Cirac, Blueagle, Kawich, Rustigate, and Slaw.

There are numerous springs and seeps throughout the area which are believed to be delineated along basin and range normal faults. (6) The greatest concentration of springs are found along the east and west sides of Railroad Valley which issue both cold and warm waters. Some of the hot springs have formed travertine mounds and terraces (composed of calcium and silica). One of the largest springs is Big Warm Springs at Duckwater, supplying irrigation water to several square miles of land on the Duckwater Indian Reservation. Some of the soils that formed in these materials are Delacit, Jotava, and Springwarm.

Pre-Tertiary rocks in northeast Nye County consist mainly of Paleozoic marine sedimentary strata with limestone, shale, and quartzite as the main components. Some of the oldest rock (Middle Cambrian in age) in the survey area crop out near Tybo in the Hot Creek Range, where about 1,700 feet of thinly-bedded limestone and black chert is exposed. (6) Eaglepass, Hyzen, Kyler, Logring, and Penelas are some of the soils that formed in this type of parent material.

Tertiary rocks in the area are predominantly ash-flow tuffs, often underlain with andesitic and dacitic lavas. Basaltic lavas form a cap over the volcanic section in some parts of the area. Early and Middle Tertiary volcanism preceded basin and range normal faulting resulting in the formation of caldera complexes. The most recent caldera (about 25 million years old) is the Lunar Lake caldera. This caldera is an 11 to 13 mile topographic basin. The caldera rim is exposed on its eastern side in the Wall, a volcanic section of welded tuffs and rhyolite in the southern part of the Pancake Range. (6) Middle to Late-Tertiary basin and range normal faults along north to northeast trends account for present topography in the survey. Some of the soils formed in this material include Downeyville, Beelem, Bellehelen, Clanalpine, Cropper, Gabbvally, Foxvire, Squawtip, and Stewval.

During Later-Tertiary and Quaternary times, basaltic flows occurred in the Duckwater Hills and in the southern part of the Pancake Range. The lava flows, ash deposits, and cinder cones in the Lunar Crater area is best evidence of this Late-Tertiary and Quaternary basaltic volcanism. The flows are thought to range in age from 10 million years old, in the Lunar Crater, to a few thousand or several hundred years old along a zone immediately north of Highway 6, along the eastern edge of Big Sand Springs Valley. Argalt, Garhill and Titiack are some of the soils that formed in this material.

## Climate

In Nye County, Northeast Part, summers are hot, especially at lower elevations, and winters are cold. Precipitation is normally light at lower elevations during all months of the year, and the land is used mainly for range. At higher elevations, precipitation is much greater and snow accumulates to considerable depth. Some of the snowmelt irrigates crops in nearby valleys.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Blue Eagle Ranch, Reese River Ranger Station, Smoky Valley, Snowball Ranch and Sunnyside, Nevada. Table 2 shows probable dates of the first freeze in fall and the last freeze in the spring. Table 3 provides data on length of growing season.

At Sunnyside, in winter, the average temperature is 32 degrees F. The average daily minimum temperature is 17 degrees F. In summer, the average temperature is 70 degrees F. The average daily maximum is 89 degrees F.

Growing degree days, shown in Table 1, are equivalent to "heat units". Beginning in the spring, growing degree days accumulate by the amount the average temperature exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or

successive plantings of a crop between the last freeze of spring and the first freeze of fall.

The total annual precipitation is 11 inches at Blue Eagle Ranch; 8 inches at Reese River Ranger Station; 7 inches at Smoky Valley; 9 inches at Snowball Ranch and Sunnyside.

# Detailed Soil Map Units

The map units on the detailed maps in Part III of this publication represent the soils or miscellaneous areas in the survey area The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

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

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

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

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

## Kinds of Map Units

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Some of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Linoyer very fine sandy loam, 0 to 4 percent slopes, is one of several phases of the Linoyer 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. Cirac-Nyserva complex, 0 to 4 percent slopes is an example.

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

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

## Acreage and Extent

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

## Headings and Introductory Phases

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

*Map Unit Setting* is given for the entire map unit. The MLRA, or major land resource area, is listed first. The MLRA is a broad ecological area with characteristic climate, topography, vegetation, water resources, soils and land use (16). This section identifies the landscape in which the map unit is located. The landscape positions given for the entire map unit generally are broader than those given for each component.

*Composition* is given for the components (soils or miscellaneous areas) identified in the name of the map unit as well as for the contrasting inclusions. Contrasting inclusions are in extensive components that differ in use and management from the soils or miscellaneous areas for which the map unit is named. As was explained earlier, inclusions can either be *similar* or *contrasting*. Note that in the *Composition* section a single percentage is provided for a named soil and its similar inclusions because their use and management are similar.

*Component Description* lists the characteristics of the major components. These include landform, parent material, typical vegetation, a brief profile description, slope, runoff, available water capacity, drainage class, and other important properties of the soil. Also provided are important interpretive groups including land capability classification and ecological site numbers.

*Typical Vegetation* lists the common plants growing on each soil at the present time. The present vegetation may be similar to the potential native plant community, but in some areas it consists of other plants, either cultivated or wild, that dominate the soils in the map unit.

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

*Contrasting Inclusions* lists additional information about the soils of minor extent in the map unit. The slope, landform, typical vegetation, and ecological site number are listed for each soil or miscellaneous area as appropriate.

# Map Unit Descriptions

## 3000--Stumble loamy sand, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 3,995 to 6,000 feet
Precipitation: 5 to 8 inches
Air temperature: 46 to 55 degrees Fahrenheit
Frost-free period: 130 to 160 days

### *Composition*

Stumble loamy sand, 2 to 8 percent slopes--85 percent
Typic Camborthids sandy loam, 2 to 8 percent slopes--8 percent
Typic Camborthids loamy sand, 2 to 8 percent slopes--5 percent
Typic Torriorthents sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Stumble and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, Indian ricegrass, sand dropseed

**Typical profile:**
Layer 1--0 to 3 inches; loamy sand
Layer 2--3 to 13 inches; loamy sand
Layer 3--13 to 60 inches; gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very low
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY012NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

### *Management*

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

## 3001--Stumble-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,300 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Stumble loamy sand, 2 to 8 percent slopes--65 percent
Koyen sand, 2 to 8 percent slopes--25 percent
Typic Camborthids sandy loam, 2 to 8 percent slopes--7 percent
Izo very gravelly sand, 2 to 8 percent slopes--3 percent

### *Component Description*

**Stumble and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, sand dropseed, fourwing saltbush

**Typical profile:**
Layer 1--0 to 3 inches; loamy sand
Layer 2--3 to 13 inches; loamy sand
Layer 3--13 to 60 inches; gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very low
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY012NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; sand
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY016NV

**Izo and similar soils**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, other perennial forbs, other perennial grasses, other shrubs, Indian ricegrass
Ecological site number: 029XY041NV

### *Management*

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

## 3020--Easychair silt loam, 0 to 2 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,700 to 5,295 feet
Precipitation: 5 to 8 inches
Air temperature: 54 to 57 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Easychair silt loam, 0 to 2 percent slopes--85 percent
Keefa, 0 to 2 percent slopes--8 percent
Typic Camborthids, 0 to 2 percent slopes--5 percent
Cirac, 0 to 2 percent slopes--2 percent

### *Component Description*

**Easychair and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, basin wildrye

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 46 inches; silt loam
Layer 3--46 to 60 inches; sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 11 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY048NV

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

### *Contrasting Inclusions*

**Keefa**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

Ecological site number: 029XY046NV

**Cirac**
Composition: 0 to 2 percent
Landform: Lake terrace
Typical vegetation: Indian ricegrass, black greasewood, shadscale
Ecological site number: 029XY024NV

### *Management*

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

## 3040--Mosida-Rebel-Slaw association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 6,000 to 6,500 feet
Precipitation: 6 to 12 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Mosida loam, 0 to 4 percent slopes--50 percent
Rebel gravelly loamy coarse sand, 0 to 4 percent slopes--20 percent
Slaw silty clay loam, 0 to 2 percent slopes--15 percent
Rustigate loam, 0 to 2 percent slopes--8 percent
Xerollic Camborthids, 0 to 2 percent slopes--6 percent
Typic Torriorthents sandy loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Mosida and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin big sagebrush, basin wildrye

**Typical profile:**
Layer 1--0 to 11 inches; loam
Layer 2--11 to 60 inches; fine sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 9 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 2w
Nonirrigated land capability: 6w
Ecological site number: 028BY003NV

### *Component Description*

**Rebel and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Black greasewood, big sagebrush, basin wildrye

**Typical profile:**
Layer 1--0 to 9 inches; gravelly loamy coarse sand
Layer 2--9 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 8 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY028NV

### *Component Description*

**Slaw and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, black greasewood, Torrey's saltbush

**Typical profile:**
Layer 1--0 to 9 inches; silty clay loam
Layer 2--9 to 60 inches; stratified very fine sandy loam to silty clay

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches

Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 3w
Nonirrigated land capability: 7w
Ecological site number: 029XY093NV

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

### *Contrasting Inclusions*

**Rustigate**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Bottlebrush squirreltail, alkali sacaton, black greasewood
Ecological site number: 028BY004NV

**Xerollic Camborthids**
Composition: 0 to 6 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, spiny hopsage, needleandthread, Wyoming big sagebrush
Ecological site number: 028BY052NV

**Typic Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat
Ecological site number: 028BY013NV

### *Management*

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

## 3041--Mosida loam, 0 to 4 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 6,000 to 6,800 feet
Precipitation: 10 to 12 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Mosida loam, 0 to 4 percent slopes--85 percent
Rebel, 0 to 4 percent slopes--10 percent
Portmount, 0 to 4 percent slopes--3 percent
Typic Haplaquolls, 0 to 2 percent slopes--2 percent

### *Component Description*

**Mosida and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, basin big sagebrush

**Typical profile:**
Layer 1--0 to 11 inches; loam
Layer 2--11 to 60 inches; fine sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 9 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 2w
Nonirrigated land capability: 6w
Ecological site number: 028BY003NV

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

### *Contrasting Inclusions*

**Rebel**
Composition: 0 to 10 percent
Landform: Inset fan
Typical vegetation: Basin wildrye, Wyoming big sagebrush, winterfat
Ecological site number: 028BY045NV

**Portmount**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 028BY010NV

**Typic Haplaquolls**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Sedge, bluegrass, rush

Ecological site number: 028BY001NV

### *Management*

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

## 3050--Mijay-Raster association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,695 to 7,000 feet
Precipitation: 8 to 14 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Mijay very cobbly sandy loam, 8 to 15 percent slopes--70 percent
Raster very stony sandy loam, 8 to 15 percent slopes--15 percent
Haploxerollic Durargids, 8 to 15 percent slopes--7 percent
Veet, 2 to 15 percent slopes--6 percent
Xeric Torriorthents, 2 to 15 percent slopes--2 percent

### *Component Description*

**Mijay and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Black sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; very cobbly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 33 inches; very cobbly sandy clay loam
Layer 4--33 to 58 inches; cemented
Layer 5--58 to 60 inches; very gravelly sand

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

**Component Properties and Qualities**
Slope: 8 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan 20 to 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Raster and similar soils**
Landform: Alluvial fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, Utah serviceberry, basin big sagebrush, desert bitterbrush

**Typical profile:**
Layer 1--0 to 12 inches; very stony sandy loam
Layer 2--12 to 27 inches; extremely stony sandy loam
Layer 3--27 to 60 inches; extremely stony sand

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

**Component Properties and Qualities**
Slope: 8 to 15 percent
Runoff: Low
Available water capacity: About 2 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY061NV

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

### *Contrasting Inclusions*

**Haploxerollic Durargids**
Composition: 0 to 7 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Veet**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

### *Management*

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

## 3060--Morbench gravelly sandy loam, 15 to 30 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 6,295 to 7,095 feet
Precipitation: 12 to 14 inches
Air temperature: 48 to 51 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Morbench gravelly sandy loam, 15 to 30 percent slopes--90 percent
Xeric Torriorthents, 2 to 8 percent slopes--7 percent
Veet, 2 to 8 percent slopes--2 percent
Zadvar, 2 to 8 percent slopes--1 percent

### *Component Description*

**Morbench and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Sandberg bluegrass, singleleaf pinyon, muttongrass, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 10 inches; gravelly sandy loam
Layer 2--10 to 29 inches; very gravelly sandy loam
Layer 3--29 to 50 inches; very gravelly loamy sand
Layer 4--50 to 60 inches; stratified very gravelly sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 15 to 30 percent
Runoff: High
Available water capacity. About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY058NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Rubber rabbitbrush, basin wildrye, basin big sagebrush
Ecological site number: 029XY025NV

**Veet**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass
Ecological site number: 029XY006NV

**Zadvar**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

### *Management*

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

## 3080--Breko-Veet-Handpah association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,600 feet
Precipitation: 8 to 10 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Breko very cobbly loam, 2 to 8 percent slopes--35 percent
Veet very stony sandy loam, 2 to 8 percent slopes--30 percent
Handpah gravelly sandy loam, 2 to 8 percent slopes--25 percent
Unsel, 2 to 8 percent slopes--3 percent
Chuckridge, 2 to 8 percent slopes--3 percent
Typic Camborthids, 2 to 8 percent slopes--2 percent

Xeric Torriorthents, 2 to 8 percent slopes--2 percent

### *Component Description*

**Breko and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; very cobbly loam
Layer 2--5 to 25 inches; very cobbly clay loam
Layer 3--25 to 34 inches; very cobbly sandy loam
Layer 4--34 to 60 inches; very gravelly coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very stony sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Handpah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass

**Typical profile:**
Layer 1--0 to 7 inches; gravelly sandy loam
Layer 2--7 to 14 inches; gravelly clay loam
Layer 3--14 to 18 inches; very gravelly sandy loam
Layer 4--18 to 24 inches; indurated
Layer 5--24 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

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

### *Contrasting Inclusions*

**Unsel and similar soils**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Chuckridge and similar soils**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Typic Camborthids**
Composition: 0 to 2 percent

Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

## 3090--Univega-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,995 to 6,800 feet
Precipitation: 6 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 110 to 160 days

### *Composition*

Univega gravelly fine sand, 0 to 8 percent slopes--55 percent
Koyen gravelly sandy loam, 0 to 8 percent slopes--30 percent
Watoopa gravelly sandy loam, 0 to 8 percent slopes--7 percent
Veet gravelly sandy loam, 0 to 8 percent slopes--5 percent
Zadvar gravelly sandy loam, 0 to 8 percent slopes--2 percent
Typic Haplargids gravelly sandy loam, 0 to 8 percent slopes--1 percent
Typic Haplargids, 0 to 8 percent slopes--1 percent

### *Component Description*

**Univega and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage

**Typical profile:**
Layer 1--0 to 5 inches; gravelly fine sand
Layer 2--5 to 10 inches; sandy loam
Layer 3--10 to 31 inches; indurated
Layer 4--31 to 60 inches; gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan 8 to 20 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Watoopa**
Composition: 0 to 7 percent

Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Veet**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Zadvar**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Typic Haplargids**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Spiny hopsage, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY016NV

### *Management*

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

## 3091--Univega-Clowfin-Molion association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 6,000 to 7,000 feet
Precipitation: 6 to 10 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Univega gravelly fine sand, 2 to 8 percent slopes--35 percent
Clowfin sandy loam, 2 to 4 percent slopes--30 percent
Molion loam, 2 to 8 percent slopes--20 percent
Entic Durorthids gravelly sandy loam, 2 to 8 percent slopes--10 percent
Xeric Torriorthents very gravelly sandy loam, 2 to 8 percent slopes--3 percent
Xerollic Durargids cobbly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Univega and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 5 inches; gravelly fine sand
Layer 2--5 to 10 inches; sandy loam
Layer 3--10 to 31 inches; indurated
Layer 4--31 to 60 inches; gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan 8 to 20 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

### *Component Description*

**Clowfin and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, Indian ricegrass, bottlebrush squirreltail

**Typical profile:**
Layer 1--0 to 6 inches; sandy loam
Layer 2--6 to 46 inches; stratified very gravelly sandy loam to very gravelly loam
Layer 3--46 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY013NV

### *Component Description*

**Molion and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 14 inches; very gravelly sandy loam
Layer 3--14 to 26 inches; cemented
Layer 4--26 to 60 inches; stratified very gravelly loamy sand to extremely gravelly loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan 14 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Entic Durorthids**
Composition: 0 to 10 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass
Ecological site number: 028BY010NV

**Xerollic Durargids**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Shadscale, black greasewood, Indian ricegrass
Ecological site number: 028BY021NV

### *Management*

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

## 3101--Gabbvally-Vindicator-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 5,495 to 7,200 feet
Precipitation: 6 to 10 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Gabbvally very gravelly sandy loam, 8 to 30 percent slopes--50 percent
Vindicator very gravelly sandy loam, 8 to 30 percent slopes--25 percent
Rock outcrop--10 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--5 percent
Veet very gravelly loamy sand, 2 to 8 percent slopes--5 percent
Lithic Xeric Torriorthents very gravelly sandy loam, 8 to 30 percent slopes--3 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent

### *Component Description*

**Gabbvally and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 2 inches; very gravelly sandy loam
Layer 2--2 to 11 inches; very gravelly sandy loam
Layer 3--11 to 15 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY010NV

### *Component Description*

**Vindicator and similar soils**
Landform: Hill
Parent material: Colluvium derived from tuff over residuum weathered from tuff
Typical vegetation: Anderson's wolfberry, spiny hopsage, Indian ricegrass, galleta

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 13 inches; very gravelly loam
Layer 3--13 to 17 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 4 to 14 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY021NV

### *Component Description*

**Rock outcrop**
Landform: Hill

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Lyx**
Composition: 0 to 5 percent
Landform: Alluvial fan
Typical vegetation: Fourwing saltbush, winterfat, Indian ricegrass
Ecological site number: 029XY046NV

**Veet**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Lithic Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Littleleaf mountain mahogany
Ecological site number: 029XY040NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3102--Gabbvally-Stewval-Beelem association

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 4,995 to 7,995 feet
Precipitation: 8 to 12 inches
Air temperature: 47 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Gabbvally very stony loam, 8 to 50 percent slopes--35 percent
Stewval very stony fine sandy loam, 8 to 50 percent slopes--35 percent

Beelem very gravelly sandy loam, 15 to 50 percent slopes--15 percent
Rock outcrop--6 percent
Lithic Xerollic Haplargids very stony loam, 15 to 50 percent slopes--4 percent
Lithic Argixerolls very stony loam, 15 to 50 percent slopes--3 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Gabbvally and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Beardless wheatgrass, Wyoming big sagebrush, Thurber needlegrass

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 11 inches; very gravelly sandy clay loam
Layer 3--11 to 15 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 6 to 14 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY057NV

### *Component Description*

**Stewval and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Beardless wheatgrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY028NV

### *Component Description*

**Beelem and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Needleandthread, Indian ricegrass, desert needlegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very gravelly sandy loam
Layer 2--2 to 5 inches; gravelly sandy loam
Layer 3--5 to 9 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 4 to 9 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY081NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 6 percent
Landform: Hill

Ecological site number: None

**Lithic Xerollic Haplargids**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Black greasewood, big sagebrush, basin wildrye
Ecological site number: 028BY028NV

**Lithic Argixerolls**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Bluebunch wheatgrass, Indian ricegrass, big sagebrush
Ecological site number: 028BY094NV

**Veet**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

## 3110--Cath-Zadvar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 6,000 feet
Precipitation: 8 to 10 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Cath gravelly loam, 2 to 8 percent slopes--50 percent
Zadvar very gravelly sandy loam, 2 to 8 percent slopes--35 percent
Chuckridge gravelly loam, 2 to 8 percent slopes--7 percent
Veet, 2 to 8 percent slopes--4 percent
Watoopah gravelly sandy loam, 2 to 8 percent slopes--4 percent

### *Component Description*

**Cath and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 20 inches; clay loam
Layer 3--20 to 28 inches; very gravelly sandy clay loam
Layer 4--28 to 60 inches; stratified very gravelly loamy coarse sand to very gravelly loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 029XY006NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Black sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s

Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Chuckridge**
Composition: 0 to 7 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Veet**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Watoopah**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

## 3111--Cath gravelly loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 6,000 feet
Precipitation: 8 to 10 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Cath gravelly loam, 2 to 8 percent slopes--90 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--6 percent
Watoopah gravelly sandy loam, 2 to 8 percent slopes--4 percent

### *Component Description*

**Cath and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 20 inches; clay loam
Layer 3--20 to 28 inches; very gravelly sandy clay loam
Layer 4--28 to 60 inches; stratified very gravelly loamy coarse sand to very gravelly loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 029XY006NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Watoopah**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

## 3112--Cath-Portmount-Abgese association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,000 to 6,800 feet
Precipitation: 8 to 10 inches
Air temperature: 47 to 54 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Cath gravelly loam, 2 to 8 percent slopes--40 percent
Portmount gravelly sandy loam, 2 to 8 percent slopes--25 percent
Abgese sandy loam, 2 to 8 percent slopes--25 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--5 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--3 percent
Typic Camborthids loamy sand, 0 to 8 percent slopes--2 percent

### *Component Description*

**Cath and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 20 inches; clay loam
Layer 3--20 to 28 inches; very gravelly sandy clay loam
Layer 4--28 to 60 inches: stratified very gravelly loamy coarse sand to very gravelly loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 029XY006NV

### *Component Description*

**Portmount and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches; gravelly sandy loam
Layer 2--3 to 12 inches; sandy loam
Layer 3--12 to 60 inches; gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6s
Ecological site number: 028BY010NV

### *Component Description*

**Abgese and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 5 inches; sandy loam
Layer 2--5 to 20 inches; gravelly sandy clay loam
Layer 3--20 to 35 inches; very gravelly sandy loam
Layer 4--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Watoopah**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Veet**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Winterfat, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY046NV

### *Management*

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

## 3120--Portmount gravelly sandy loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,000 to 6,695 feet
Precipitation: 8 to 10 inches
Air temperature: 47 to 54 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Portmount gravelly sandy loam, 2 to 8 percent slopes--85 percent
Cath gravelly sandy loam, 2 to 8 percent slopes--8 percent
Watoopah gravelly sandy loam, 2 to 8 percent slopes--7 percent

### *Component Description*

**Portmount and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches, gravelly sandy loam
Layer 2--3 to 12 inches; sandy loam
Layer 3--12 to 60 inches; gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6s
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Cath**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 029XY006NV

**Watoopah**
Composition: 0 to 7 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

### *Management*

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

## 3130--Unsel gravelly sandy loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29

Landscape: Fan piedmont
Elevation: 5,600 to 7,000 feet
Precipitation: 5 to 8 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Unsel gravelly sandy loam, 2 to 8 percent slopes--85 percent
Lyx, 2 to 8 percent slopes--8 percent
Typic Camborthids very gravelly loamy sand, 2 to 4 percent slopes--3 percent
Typic Torriorthents, 2 to 8 percent slopes--3 percent
Typic Haplargids gravelly sandy loam, 8 to 30 percent slopes--1 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Lyx**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

**Typic Camborthids**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, Indian ricegrass
Ecological site number: 029XY041NV

**Typic Haplargids**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY022NV

### *Management*

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

## 3131--Unsel-Geer association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,600 to 7,000 feet
Precipitation: 5 to 8 inches
Air temperature: 51 to 55 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Unsel gravelly fine sandy loam, 2 to 4 percent slopes--65 percent
Geer fine sandy loam, 0 to 4 percent slopes--25 percent
Typic Camborthids, 2 to 4 percent slopes--4 percent
Typic Torriorthents, 2 to 4 percent slopes--4 percent
Stargo gravelly sandy loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant

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

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Medium
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Geer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam
Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 4 percent
Landform: Fan skirt
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Typic Torriorthents**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Sand dropseed, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY012NV

**Stargo**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

### *Management*

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

## 3132--Unsel-Koyen-Keefa association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Unsel gravelly sandy loam, 0 to 8 percent slopes--45 percent
Koyen gravelly sandy loam, 0 to 8 percent slopes, rarely flooded--25 percent
Keefa gravelly sandy loam, 0 to 8 percent slopes--15 percent
Veet very gravelly sandy loam, 0 to 8 percent slopes--7 percent
Watoopah gravelly sandy loam, 0 to 8 percent slopes--3 percent
Stumble sand, 0 to 8 percent slopes--3 percent
Typic Calciorthids gravelly sandy loam, 0 to 8 percent slopes--2 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Medium
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, spiny hopsage, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches: very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

### *Component Description*

**Keefa and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 7 inches; gravelly sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Watoopah**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Stumble**
Composition: 0 to 3 percent

Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, sand dropseed
Ecological site number: 029XY012NV

**Typic Calciorthids**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

### *Management*

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

## 3134--Unsel-Hollywell-Lyx association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,500 feet
Precipitation: 5 to 8 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 120 to 130 days

### *Composition*

Unsel gravelly fine sandy loam, 4 to 8 percent slopes--40 percent
Hollywell gravelly loamy sand, 4 to 8 percent slopes--25 percent
Lyx gravelly loamy sand, 4 to 8 percent slopes--25 percent
Veet very gravelly loamy sand, 2 to 8 percent slopes--5 percent
Typic Torriorthents, 2 to 8 percent slopes--3 percent
Geer gravelly loamy sand, 0 to 4 percent slopes--2 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 4 inches, gravelly fine sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: High
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Hollywell and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loamy sand
Layer 2--4 to 12 inches; gravelly fine sandy loam
Layer 3--12 to 60 inches; stratified very gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Lyx and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks

Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush

**Typical profile:**
Layer 1--0 to 3 inches; gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Typic Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

**Geer**
Composition: 0 to 2 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

### *Management*

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

## 3137--Unsel-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 3,135 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 120 to 130 days

### *Composition*

Unsel gravelly fine sandy loam, 2 to 8 percent slopes--50 percent
Koyen gravelly sandy loam, 2 to 4 percent slopes--35 percent
Veet very gravelly loamy sand, 2 to 8 percent slopes--8 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--3 percent
Geer fine sandy loam, 0 to 2 percent slopes--2 percent
Typic Camborthids sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 8 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Lyx**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Geer**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood
Ecological site number: 029XY087NV

### *Management*

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

## 3138--Unsel-Stumble association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,500 to 6,000 feet
Precipitation: 5 to 8 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Unsel gravelly sandy loam, 2 to 4 percent slopes--55 percent
Stumble loamy sand, 2 to 8 percent slopes--30 percent
Typic Camborthids gravelly loamy sand, 2 to 8 percent slopes--7 percent
Typic Camborthids very gravelly loamy sand, 2 to 8 percent slopes--5 percent
Geer fine sandy loam, 0 to 4 percent slopes--3 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Medium
Sodicity: Sodic within 40 inches

Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Stumble and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, Indian ricegrass, sand dropseed

**Typical profile:**
Layer 1--0 to 3 inches; loamy sand
Layer 2--3 to 13 inches; loamy sand
Layer 3--13 to 60 inches; gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very low
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY012NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, winterfat, Indian ricegrass
Ecological site number: 029XY046NV

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Geer**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Winterfat, Indian ricegrass
Ecological site number: 029XY042NV

### *Management*

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

## 3139--Unsel-Izo association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,400 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Unsel gravelly fine sandy loam, 2 to 8 percent slopes--65 percent
Izo very gravelly sand, 2 to 8 percent slopes--20 percent
Leo very gravelly sandy loam, 2 to 8 percent slopes--8 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--4 percent
Lyda gravelly sandy loam, 2 to 8 percent slopes--3 percent

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Izo and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Rubber rabbitbrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sand
Layer 2--3 to 60 inches; stratified extremely gravelly coarse sand to gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very low
Available water capacity: About 2 inches
Present flooding: Occasional
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY041NV

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

### *Contrasting Inclusions*

**Leo**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage
Ecological site number: 029XY016NV

**Typic Camborthids**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush
Ecological site number: 029XY046NV

**Lyda**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass
Ecological site number: 029XY017NV

### *Management*

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

## 3140--Haunchee-Eaglepass-Rock outcrop association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 7,400 to 9,995 feet
Precipitation: 8 to 20 inches
Air temperature: 36 to 52 degrees Fahrenheit
Frost-free period: 50 to 150 days

### *Composition*

Haunchee very gravelly loam, 15 to 50 percent slopes--55 percent
Eaglepass very stony sandy loam, 50 to 75 percent slopes--20 percent
Rock outcrop--10 percent
Cryic Rendolls very stony loam, 15 to 50 percent slopes--7 percent
Cryic Rendolls very stony loam, 15 to 75 percent slopes--5 percent
Fluventic Haploxerolls gravelly loam, 2 to 8 percent slopes--2 percent
Aquolls loam, 0 to 4 percent slopes--1 percent

### *Component Description*

**Haunchee and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Columbia needlegrass, mountain big sagebrush, curlleaf mountainmahogany, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly loam

Layer 2--5 to 12 inches; very gravelly loam
Layer 3--12 to 16 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 10 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY043NV

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountain mahogany

**Typical profile:**
Layer 1--0 to 1 inches; very stony sandy loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 50 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 4 to 6 inches
Available water capacity: About 0.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Cryic Rendolls**
Composition: 0 to 7 percent
Landform: Mountains
Typical vegetation: Letterman needlegrass, mountain big sagebrush, muttongrass
Ecological site number: 029XY051NV

**Cryic Rendolls**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Spike fescue, mountain big sagebrush, bluebunch wheatgrass, white fir, muttongrass, Oregongrape, common juniper
Ecological site number: 028BY063NV

**Fluventic Haploxerolls**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Mountain big sagebrush
Ecological site number: 029XY026NV

**Aquolls**
Composition: 0 to 1 percent
Landform: Swale
Typical vegetation: Rush, tufted hairgrass, sedge, alpine timothy
Ecological site number: 029XY060NV

### *Management*

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

## 3150--Nuyobe-Blueagle-Playas complex, 0 to 30 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,500 to 5,500 feet
Precipitation: 5 to 8 inches
Air temperature: 52 to 55 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Nuyobe silt loam, 0 to 2 percent slopes--45 percent

Blueagle silt loam, 4 to 30 percent slopes--30 percent
Playas silty clay loam, 0 to 1 percent slopes--15 percent
Kawich fine sand, 0 to 30 percent slopes--5 percent
Cirac sandy loam, 0 to 4 percent slopes--3 percent
Rustigate loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Nuyobe and similar soils**
Landform: Alluvial flat
Parent material: Lacustrine deposits derived from volcanic breccia
Typical vegetation: Baltic rush, inland saltgrass, alkali sacaton

**Typical profile:**
Layer 1--0 to 5 inches; silt loam
Layer 2--5 to 60 inches; stratified very fine sandy loam to silty clay loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY002NV

### *Component Description*

**Blueagle and similar soils**
Landform: Dune
Parent material: Eolian deposits
Typical vegetation: Black greasewood, inland saltgrass

**Typical profile:**
Layer 1--0 to 13 inches; silt loam
Layer 2--13 to 60 inches; silty clay loam

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY076NV

### *Component Description*

**Playas**
Landform: Playa

**Component Properties and Qualities**
Slope: 0 to 1 percent
Runoff: Very high
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches

**Interpretive Groups**
Nonirrigated land capability: 8w
Ecological site number: None

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

### *Contrasting Inclusions*

**Kawich**
Composition: 0 to 5 percent
Landform: Dune
Typical vegetation: Indian ricegrass, black greasewood, shadscale
Ecological site number: 029XY018NV

**Cirac**
Composition: 0 to 3 percent
Landform: Alluvial flat
Typical vegetation: Black greasewood, Indian ricegrass, shadscale
Ecological site number: 029XY024NV

**Rustigate**
Composition: 0 to 2 percent
Landform: Lake plain
Typical vegetation: Inland saltgrass, alkali sacaton, black greasewood, basin wildrye
Ecological site number: 029XY004NV

### *Management*

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

"Engineering" and "Soil Properties" sections

## 3160--Cropper-Clanalpine-Bellehelen association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 6,200 to 9,000 feet
Precipitation: 12 to 16 inches
Air temperature: 41 to 48 degrees Fahrenheit
Frost-free period: 80 to 100 days

### *Composition*

Cropper very stony loam, 15 to 50 percent slopes--60 percent
Clanalpine extremely cobbly loam, 15 to 50 percent slopes--15 percent
Bellehelen very stony loam, 8 to 50 percent slopes--10 percent
Rock outcrop--9 percent
Gabbvally very gravelly loam, 4 to 15 percent slopes--3 percent
Cumulic Haploxerolls gravelly loam, 0 to 8 percent slopes--2 percent
Argic Lithic Cryoborolls, 4 to 50 percent slopes--1 percent

### *Component Description*

**Cropper and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Snowberry, serviceberry, basin wildrye, curlleaf mountainmahogany, muttongrass, bluebunch wheatgrass, mountain big sagebrush, antelope bitterbrush

**Typical profile:**
Layer 1--0 to 4 inches; very stony loam
Layer 2--4 to 15 inches; extremely gravelly sandy clay loam
Layer 3--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY058NV

### *Component Description*

**Clanalpine and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, mountain big sagebrush

**Typical profile:**
Layer 1--0 to 13 inches; extremely cobbly loam
Layer 2--13 to 39 inches; very cobbly loam
Layer 3--39 to 43 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic) 20 to 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 024XY054NV

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Singleleaf pinyon, Stansbury cliffrose, bluegrass, muttongrass, bottlebrush squirreltail, black sagebrush, green ephedra

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 7 to 14 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 9 percent
Landform: Mountains
Ecological site number: None

**Gabbvally**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY010NV

**Cumulic Haploxerolls**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Basin big sagebrush, basin wildrye
Ecological site number: 028BY003NV

**Argic Lithic Cryoborolls**
Composition: 0 to 1 percent
Landform: Mountains
Typical vegetation: Mountain big sagebrush, curlleaf mountainmahogany
Ecological site number: 029XY043NV

### *Management*

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

## 3161--Cropper-Segura-Ravenswood association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 6,500 to 8,200 feet
Precipitation: 12 to 16 inches
Air temperature: 40 to 46 degrees Fahrenheit
Frost-free period: 80 to 100 days

### *Composition*

Cropper very stony loam, 8 to 50 percent slopes--50 percent
Segura very stony sandy clay loam, 8 to 50 percent slopes--20 percent
Ravenswood very cobbly loam, 8 to 50 percent slopes--15 percent
Lithic Xerollic Haplargids very gravelly loam, 8 to 30 percent slopes--8 percent
Rock outcrop--4 percent
Argic Lithic Cryoborolls very cobbly loam, 4 to 8 percent slopes--2 percent
Cumulic Haploxerolls gravelly loam, 0 to 8 percent slopes--1 percent

### *Component Description*

**Cropper and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Serviceberry, snowberry, antelope bitterbrush, mountain big sagebrush, curlleaf mountainmahogany, bluebunch wheatgrass, basin wildrye, muttongrass

**Typical profile:**
Layer 1--0 to 4 inches; very stony loam
Layer 2--4 to 15 inches; extremely gravelly sandy clay loam
Layer 3--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 14 to 20 inches
Available water capacity: About 2 inches

Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY058NV

### *Component Description*

**Segura and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 3 inches; very stony sandy clay loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 7 to 14 inches
Available water capacity: About 1.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY015NV

### *Component Description*

**Ravenswood and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bluebunch wheatgrass, mountain big sagebrush, basin wildrye, antelope bitterbrush, snowberry, serviceberry, curlleaf mountainmahogany, muttongrass

**Typical profile:**
Layer 1--0 to 8 inches; very cobbly loam
Layer 2--8 to 13 inches; very gravelly clay loam
Layer 3--13 to 34 inches; very gravelly clay loam
Layer 4--34 to 38 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 30 to 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY058NV

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

### *Contrasting Inclusions*

**Lithic Xerollic Haplargids**
Composition: 0 to 8 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 028BY010NV

**Rock outcrop**
Composition: 0 to 4 percent
Landform: Mountains
Ecological site number: None

**Argic Lithic Cryoborolls**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Curlleaf mountainmahogany, mountain big sagebrush
Ecological site number: 029XY043NV

**Cumulic Haploxerolls**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Basin big sagebrush, basin wildrye
Ecological site number: 028BY003NV

### *Management*

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

## 3162--Cropper-Segura-Clanalpine association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 6,495 to 8,995 feet
Precipitation: 12 to 16 inches
Air temperature: 41 to 46 degrees Fahrenheit
Frost-free period: 70 to 100 days

### *Composition*

Cropper very stony loam, 8 to 50 percent slopes--35 percent
Segura very stony sandy clay loam, 8 to 50 percent slopes--25 percent
Clanalpine very cobbly loam, 30 to 75 percent slopes--25 percent
Rock outcrop--8 percent
Layview very stony loam, 30 to 50 percent slopes--4 percent
Suak very gravelly sandy loam, 15 to 50 percent slopes--3 percent

### *Component Description*

**Cropper and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Muttongrass, basin wildrye, mountain big sagebrush, antelope bitterbrush, snowberry, bluebunch wheatgrass, serviceberry, curlleaf mountainmahogany

**Typical profile:**
Layer 1--0 to 4 inches; very stony loam
Layer 2--4 to 15 inches; extremely gravelly sandy clay loam
Layer 3--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 14 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY058NV

### *Component Description*

**Segura and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 3 inches; very stony sandy clay loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 7 to 14 inches
Available water capacity: About 1.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY015NV

### *Component Description*

**Clanalpine and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Thurber needlegrass, mountain big sagebrush, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 13 inches; very cobbly loam
Layer 2--13 to 39 inches; very cobbly loam
Layer 3--39 to 45 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic) 20 to 40 inches

Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 024XY054NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 8 percent
Landform: Mountains
Ecological site number: None

**Layview**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Low sagebrush, Letterman needlegrass, muttongrass
Ecological site number: 029XY052NV

**Suak**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Curlleaf mountainmahogany
Ecological site number: 029XY027NV

### *Management*

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

## 3170--Hackwood-Winu association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 7,000 to 9,500 feet
Precipitation: 14 to 20 inches
Air temperature: 38 to 45 degrees Fahrenheit
Frost-free period: 45 to 80 days

### *Composition*

Hackwood gravelly loam, 4 to 50 percent slopes--70 percent
Winu gravelly loam, 8 to 15 percent slopes--15 percent
Layview very cobbly sandy loam, 8 to 50 percent slopes--6 percent
Aquic Cryoborolls gravelly loam, 0 to 15 percent slopes--4 percent
Aquic Cryoborolls gravelly loam, 0 to 15 percent slopes--4 percent
Argic Cryoborolls cobbly loam, 8 to 50 percent slopes--3 percent
Rock outcrop--2 percent

### *Component Description*

**Hackwood and similar soils**
Landform: Mountains
Parent material: Alluvium derived from mixed rocks colluvium derived from mixed rocks
Typical vegetation: Groundsel, mountain brome, bluebunch wheatgrass, meadowrue, snowberry

**Typical profile:**
Layer 1--0 to 8 inches; gravelly loam
Layer 2--8 to 30 inches; gravelly loam
Layer 3--30 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 4 to 50 percent
Runoff: High
Available water capacity: About 7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY067NV

### *Component Description*

**Winu and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Letterman needlegrass, mountain big sagebrush, mountain brome

**Typical profile:**
Layer 1--0 to 5 inches; gravelly loam
Layer 2--5 to 39 inches; gravelly sandy clay loam
Layer 3--39 to 43 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 15 percent
Runoff: High
Depth to restrictive feature: Bedrock (lithic) 24 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6e
Ecological site number: 028BY029NV

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

### *Contrasting Inclusions*

**Layview**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Muttongrass, Letterman needlegrass, low sagebrush
Ecological site number: 029XY052NV

**Aquic Cryoborolls**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Rush, sedge, bluegrass
Ecological site number: 028BY001NV

**Argic Cryoborolls**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Common juniper, spike fescue, bluebunch wheatgrass, white fir, Oregongrape, muttongrass, mountain big sagebrush
Ecological site number: 028BY063NV

**Rock outcrop**
Composition: 0 to 2 percent
Landform: Mountains
Ecological site number: None

### *Management*

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

## 3180--Hymas-Hopeka-Solak association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 6,000 to 8,995 feet
Precipitation: 10 to 16 inches
Air temperature: 36 to 45 degrees Fahrenheit
Frost-free period: 50 to 85 days

### *Composition*

Hymas very cobbly loam, 15 to 75 percent slopes--65 percent
Hopeka very gravelly loam, 15 to 50 percent slopes--10 percent
Solak very gravelly loam, 15 to 50 percent slopes--10 percent
Xeric Torriorthents very gravelly loam, 15 to 50 percent slopes--5 percent
Haunchee very cobbly loam, 15 to 50 percent slopes--4 percent
Cropper extremely stony loam, 15 to 50 percent slopes--3 percent
Rock outcrop--3 percent

### *Component Description*

**Hymas and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Bluebunch wheatgrass, Indian ricegrass, bluegrass, bottlebrush squirreltail, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very cobbly loam
Layer 2--2 to 13 inches; very cobbly loam
Layer 3--13 to 17 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 75 percent
Runoff: High
Depth to restrictive feature: Bedrock (lithic) 10 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY060NV

### *Component Description*

**Hopeka and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Bluegrass, Indian ricegrass, bluebunch wheatgrass, black sagebrush, bottlebrush squirreltail

**Typical profile:**
Layer 1--0 to 9 inches; very gravelly loam
Layer 2--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 4 to 10 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY060NV

### *Component Description*

**Solak and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Black sagebrush, needleandthread, Indian ricegrass

**Typical profile:**
Layer 1--0 to 14 inches; very gravelly loam
Layer 2--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic) 10 to 20 inches
Available water capacity: About 1.1 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY016NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Black sagebrush, bluebunch wheatgrass, Indian ricegrass, bluegrass, bottlebrush squirreltail
Ecological site number: 028BY060NV

**Haunchee and similar soils**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Bluebunch wheatgrass, Columbia needlegrass, mountain big sagebrush, curlleaf mountainmahogany
Ecological site number: 028BY043NV

**Cropper and similar soils**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Antelope bitterbrush, snowberry, muttongrass, basin wildrye, bluebunch wheatgrass, mountain big sagebrush, serviceberry, curlleaf mountainmahogany
Ecological site number: 028BY058NV

**Rock outcrop**
Composition: 0 to 3 percent
Landform: Mountains
Ecological site number: None

### *Management*

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

## 3190--Penoyer-Geer association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont

Elevation: 4,000 to 6,600 feet
Precipitation: 6 to 8 inches
Air temperature: 51 to 56 degrees Fahrenheit
Frost-free period: 130 to 170 days

### *Composition*

Penoyer silt loam, 0 to 2 percent slopes--45 percent
Geer fine sandy loam, 0 to 4 percent slopes--40 percent
Typic Torriorfluvents silt loam, 0 to 4 percent slopes--8 percent
Easychair silt loam, 0 to 2 percent slopes--4 percent
Xeric Torrifluvents silt loam, 0 to 2 percent slopes--3 percent

### *Component Description*

**Penoyer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; silt loam
Layer 2--4 to 60 inches; silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 12 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 2c
Nonirrigated land capability: 7c
Ecological site number: 029XY020NV

### *Component Description*

**Geer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, Indian ricegrass

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam
Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 2c
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Typic Torriorfluvents**
Composition: 0 to 8 percent
Landform: Fan skirt
Typical vegetation: Shadscale, Indian ricegrass, black greasewood
Ecological site number: 029XY024NV

**Easychair**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, basin wildrye
Ecological site number: 029XY048NV

**Xeric Torrifluvents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, desert peach, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3191--Penoyer-Watoopah-Easychair association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,995 to 6,600 feet
Precipitation: 5 to 10 inches
Air temperature: 50 to 55 degrees Fahrenheit

Frost-free period: 120 to 140 days

### *Composition*

Penoyer silt loam, 0 to 2 percent slopes--55 percent
Watoopah gravelly loamy sand, 0 to 8 percent slopes--15 percent
Easychair silt loam, 0 to 4 percent slopes--15 percent
Veet gravelly loam, 0 to 4 percent slopes--8 percent
Geer fine sandy loam, 0 to 4 percent slopes--5 percent
Slaw silt loam, 0 to 4 percent slopes--2 percent

### *Component Description*

**Penoyer and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; silt loam
Layer 2--4 to 60 inches; silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 12 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY020NV

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; gravelly sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Very low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Easychair and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, fourwing saltbush

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 46 inches; silt loam
Layer 3--46 to 60 inches; sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 11 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY048NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 8 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Geer**
Composition: 0 to 5 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Slaw**
Composition: 0 to 2 percent
Landform: Lagoon
Typical vegetation: Inland saltgrass, black greasewood
Ecological site number: 029XY076NV

### *Management*

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

## 3200--Ganaflan gravelly loam, 2 to 15 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Bolson, intermontane basin
Elevation: 4,015 to 4,185 feet
Precipitation: 5 to 8 inches
Air temperature: 50 to 52 degrees Fahrenheit
Frost-free period: 90 to 130 days

### *Composition*

Ganaflan gravelly loam, 2 to 15 percent slopes--85 percent
Candelaria gravelly sandy loam, 0 to 8 percent slopes--5 percent
Rock outcrop--5 percent
Lithic Torriorthents very gravelly sandy loam, 15 to 30 percent slopes--4 percent
Fluventic Haploxerolls silt loam, 0 to 4 percent slopes--1 percent

### *Component Description*

**Ganaflan and similar soils**
Landform: Lake terrace
Parent material: Lacustrine deposits derived from mixed rocks and lacustrine deposits derived from tufa
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loam
Layer 2--4 to 37 inches; stratified loam to very gravelly loam
Layer 3--37 to 50 inches; weathered bedrock
Layer 4--50 to 60 inches; stratified very gravelly coarse sand to sand

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

**Component Properties and Qualities**
Slope: 2 to 15 percent
Runoff: High
Depth to restrictive feature: Bedrock (paralithic) 20 to 40 inches
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 4s
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

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

### *Contrasting Inclusions*

**Candelaria**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass
Ecological site number: 029XY017NV

**Rock outcrop**
Composition: 0 to 5 percent
Landform: Stream terrace
Ecological site number: None

**Lithic Torriorthents**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY022NV

**Fluventic Haploxerolls**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Meadow barley, Nevada bluegrass, sedge, rush
Ecological site number: 029XY001NV

### *Management*

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

## 3210--Kunzler-Sycomat association

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 4,800 to 6,500 feet
Precipitation: 5 to 10 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Kunzler loam, 0 to 4 percent slopes--55 percent
Sycomat sandy loam, 0 to 2 percent slopes--30 percent
Kunzler loam, 0 to 4 percent slopes--5 percent
Unsel very gravelly sandy loam, 0 to 2 percent slopes--5 percent
Typic Torriorthents loam, 0 to 2 percent slopes--3 percent
Xerollic Paleorthids very gravelly sandy loam, 0 to 8 percent slopes--2 percent

### *Component Description*

**Kunzler and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Big sagebrush, black greasewood, basin wildrye

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 2e
Nonirrigated land capability: 6c
Ecological site number: 028BY028NV

### *Component Description*

**Sycomat and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, black greasewood

**Typical profile:**
Layer 1--0 to 10 inches; sandy loam
Layer 2--10 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 3c
Nonirrigated land capability: 7s
Ecological site number: 028BY074NV

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

### *Contrasting Inclusions*

**Kunzler**
Composition: 0 to 5 percent
Landform: Stream terrace
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 028BY010NV

**Unsel**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Typic Torriorthents**
Composition: 0 to 3 percent
Landform: Stream terrace

Typical vegetation: Black greasewood, shadscale
Ecological site number: 028BY074NV

**Xerollic Paleorthids**
Composition: 0 to 2 percent
Landform: Stream terrace
Typical vegetation: Pigmy sagebrush
Ecological site number: 029XY092NV

### *Management*

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

## 3211--Kunzler, dry-Sycomat association

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 4,800 to 6,500 feet
Precipitation: 5 to 10 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Kunzler loam, 0 to 4 percent slopes--50 percent
Kunzler loam, 0 to 4 percent slopes--20 percent
Sycomat sandy loam, 0 to 2 percent slopes--15 percent
Typic Calciorthids loam, 0 to 4 percent slopes--10 percent
Xeric Torriorthents gravelly sandy loam, 0 to 1 percent slopes--4 percent
Nuyobe loam, 0 to 1 percent slopes--1 percent

### *Component Description*

**Kunzler and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Big sagebrush, basin wildrye, black greasewood

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY028NV

### *Component Description*

**Kunzler and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

### *Component Description*

**Sycomat and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Black greasewood, shadscale

**Typical profile:**
Layer 1--0 to 10 inches; sandy loam
Layer 2--10 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY074NV

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

### *Contrasting Inclusions*

**Typic Calciorthids**
Composition: 0 to 10 percent
Landform: Stream terrace
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush, bottlebrush squirreltail
Ecological site number: 028BY017NV

**Xeric Torriorthents**
Composition: 0 to 4 percent
Landform: Stream terrace
Typical vegetation: Pigmy sagebrush
Ecological site number: 029XY092NV

**Nuyobe**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Alkali cordgrass, sedge, alkali sacaton
Ecological site number: 028BY002NV

### *Management*

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

## 3212--Kunzler-Candelaria association

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 4,395 to 6,500 feet
Precipitation: 6 to 10 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 110 to 130 days

### *Composition*

Kunzler loam, 0 to 4 percent slopes--50 percent
Kunzler loam, 0 to 4 percent slopes--20 percent
Candelaria very gravelly sandy loam, 0 to 4 percent slopes--15 percent
Durixerollic Haplargids sandy loam, 0 to 2 percent slopes--8 percent
Xerollic Paleorthids very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Typic Calciorthids gravelly sandy loam, 0 to 4 percent slopes--2 percent

### *Component Description*

**Kunzler and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

### *Component Description*

**Kunzler and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Black greasewood, basin wildrye, big sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY028NV

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam
Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Durixerollic Haplargids**
Composition: 0 to 8 percent
Landform: Stream terrace
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Xerollic Paleorthids**
Composition: 0 to 5 percent
Landform: Stream terrace
Typical vegetation: Pigmy sagebrush
Ecological site number: 029XY092NV

**Typic Calciorthids**
Composition: 0 to 2 percent
Landform: Stream terrace
Typical vegetation: Basin wildrye, Torrey's saltbush, black greasewood
Ecological site number: 029XY093NV

### *Management*

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

## 3220--Stewval-Beelem association

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 5,495 to 7,995 feet
Precipitation: 8 to 12 inches
Air temperature: 47 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Stewval very stony fine sandy loam, 8 to 30 percent slopes--45 percent
Beelem cobbly sandy loam, 15 to 50 percent slopes--40 percent
Zadvar gravelly sandy loam, 2 to 8 percent slopes--8 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--3 percent
Rock outcrop--3 percent
Gabbvally, 8 to 50 percent slopes--1 percent

### *Component Description*

**Stewval and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Beelem and similar soils**
Landform: Hill
Parent material: Colluvium derived from tuff over residuum weathered from tuff
Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches: cobbly sandy loam
Layer 2--2 to 5 inches; gravelly sandy loam
Layer 3--5 to 9 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 9 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY081NV

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

### *Contrasting Inclusions*

**Zadvar**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Veet**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Rock outcrop**
Composition: 0 to 3 percent
Landform: Mountains
Ecological site number: None

**Gabbvally**
Composition: 0 to 1 percent
Landform: Hill
Typical vegetation: Sedge, meadow barley, rush, Nevada bluegrass
Ecological site number: 029XY001NV

### *Management*

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

## 3221--Stewval, moist-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Foothills
Elevation: 5,495 to 7,995 feet
Precipitation: 8 to 12 inches
Air temperature: 47 to 50 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--40 percent
Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--30 percent
Rock outcrop--15 percent
Gabbvally very stony sandy loam, 30 to 50 percent slopes--8 percent

Downeyville very gravelly sandy loam, 8 to 30 percent slopes--4 percent
Xeric Torrifluvents very gravelly loamy sand, 2 to 8 percent slopes--3 percent

### *Component Description*

**Stewval and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Beardless wheatgrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY028NV

### *Component Description*

**Stewval and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Black sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly fine sandy loam
Layer 2--1 to 7 inches; very gravelly loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Rock outcrop**
Landform: Hill

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Gabbvally**
Composition: 0 to 8 percent
Landform: Hill
Typical vegetation: Beardless wheatgrass, Thurber needlegrass, Wyoming big sagebrush
Ecological site number: 029XY057NV

**Downeyville**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY022NV

**Xeric Torrifluvents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, big sagebrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3223--Stewval-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,495 to 7,995 feet
Precipitation: 8 to 12 inches
Air temperature: 47 to 50 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--70 percent
Rock outcrop--15 percent
Downeyville very gravelly sandy loam, 15 to 50 percent slopes--5 percent
Lithic Xerollic Haplargids very stony sandy loam, 15 to 50 percent slopes--4 percent
Lithic Argixerolls very stony sandy loam, 30 to 75 percent slopes--4 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 15 percent slopes--2 percent

### *Component Description*

**Stewval and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Downeyville**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY022NV

**Lithic Xerollic Haplargids**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY010NV

**Lithic Argixerolls**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Stansbury cliffrose, other perennial forbs, black sagebrush, green ephedra, muttongrass, bluegrass, bottlebrush squirreltail, singleleaf pinyon
Ecological site number: 029XY069NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Desert peach, rubber rabbitbrush, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3224--Stewval-Beelem-Bellehelen association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,800 to 8,000 feet
Precipitation: 8 to 14 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--40 percent
Beelem cobbly sandy loam, 15 to 50 percent slopes--25 percent
Bellehelen very stony loam, 30 to 75 percent slopes--20 percent
Rock outcrop--5 percent
Gabbvally very cobbly sandy loam, 8 to 50 percent slopes--4 percent
Zadvar gravelly sandy loam, 2 to 8 percent slopes--4 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent

### *Component Description*

**Stewval and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Beardless wheatgrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY028NV

### *Component Description*

**Beelem and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Needleandthread, desert needlegrass, black sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 2 inches; cobbly sandy loam
Layer 2--2 to 5 inches; gravelly sandy loam
Layer 3--5 to 9 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 9 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY081NV

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Green ephedra, black sagebrush, bluegrass, singleleaf pinyon, Stansbury cliffrose, bottlebrush squirreltail, muttongrass

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches

Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 5 percent
Landform: Mountains
Ecological site number: None

**Gabbvally**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY010NV

**Zadvar**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Desert peach, rubber rabbitbrush, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3226--Stewval-Bellehelen-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,495 to 8,000 feet
Precipitation: 8 to 14 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--40 percent
Bellehelen very stony loam, 30 to 50 percent slopes--35 percent
Rock outcrop--10 percent
Lithic Xerollic Haplargids very gravelly sandy loam, 30 to 75 percent slopes--5 percent
Xeric Torriorthents very gravelly loamy sand, 4 to 15 percent slopes--5 percent

### *Component Description*

**Stewval and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Muttongrass, bluegrass, singleleaf pinyon, black sagebrush, green ephedra, bottlebrush squirreltail, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam

Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Lithic Xerollic Haplargids**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY010NV

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 029XY010NV

### *Management*

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

## 3228--Stewval-Gabbvally-Beelem association

### *Map Unit Setting*

MLRA: 29
Landscape: Foothills, mountains
Elevation: 5,495 to 7,995 feet
Precipitation: 8 to 12 inches
Air temperature: 47 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Stewval very gravelly sandy loam, 15 to 50 percent slopes--45 percent
Gabbvally very stony loam, 30 to 50 percent slopes--25 percent
Beelem very gravelly sandy loam, 15 to 50 percent slopes--15 percent
Lithic Xerollic Haplargids very gravelly sandy loam, 15 to 50 percent slopes--6 percent
Rock outcrop--5 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--4 percent

### *Component Description*

**Stewval and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Gabbvally and similar soils**
Landform: Hill

Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 11 inches; very gravelly sandy clay loam
Layer 3--11 to 15 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY010NV

### *Component Description*

**Beelem and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Needleandthread, black sagebrush, Indian ricegrass, desert needlegrass

**Typical profile:**
Layer 1--0 to 2 inches; very gravelly sandy loam
Layer 2--2 to 5 inches; gravelly sandy loam
Layer 3--5 to 9 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 9 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY081NV

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

### *Contrasting Inclusions*

**Lithic Xerollic Haplargids**
Composition: 0 to 6 percent
Landform: Hill
Typical vegetation: Beardless wheatgrass, black sagebrush
Ecological site number: 029XY028NV

**Rock outcrop**
Composition: 0 to 5 percent
Landform: Hill
Ecological site number: None

**Veet**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

### *Management*

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

## 3231--Geer fine sandy loam, 0 to 4 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,000 to 6,495 feet
Precipitation: 6 to 8 inches
Air temperature: 51 to 55 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Geer fine sandy loam, 0 to 4 percent slopes--85 percent
Keefa gravelly sandy loam, 0 to 4 percent slopes--6 percent
Typic Camborthids sandy loam, 0 to 4 percent slopes--6 percent
Stumble sand, 0 to 4 percent slopes--2 percent
Xeric Torrifluvents sandy loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Geer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam
Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Keefa**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Typic Camborthids**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, Indian ricegrass, spiny hopsage
Ecological site number: 029XY016NV

**Stumble**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, sand dropseed, Indian ricegrass
Ecological site number: 029XY012NV

**Xeric Torrifluvents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3233--Geer-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,500 feet
Precipitation: 4 to 8 inches
Air temperature: 54 to 57 degrees Fahrenheit
Frost-free period: 130 to 160 days

### *Composition*

Geer fine sandy loam, 0 to 4 percent slopes--55 percent
Koyen sandy loam, 0 to 4 percent slopes--30 percent
Duric Haplargids sandy loam, 0 to 4 percent slopes--7 percent
Typic Torriorthents gravelly loamy sand, 2 to 8 percent slopes--4 percent
Typic Camborthids sandy loam, 0 to 4 percent slopes--2 percent
Unsel gravelly loamy sand, 2 to 4 percent slopes--2 percent

### *Component Description*

**Geer and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam
Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

### *Component Description*

**Koyen and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Duric Haplargids**
Composition: 0 to 7 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Torriorthents**
Composition: 0 to 4 percent
Landform: Fan skirt
Typical vegetation: Fourwing saltbush, Indian ricegrass, sand dropseed
Ecological site number: 029XY012NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

**Unsel**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY017NV

### *Management*

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

## 3240--Stargo-Veet association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont, intermontane basin
Elevation: 4,795 to 5,500 feet
Precipitation: 5 to 10 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Stargo loam, 0 to 2 percent slopes--50 percent
Veet loam, 0 to 2 percent slopes--40 percent
Keefa gravelly sandy loam, 0 to 4 percent slopes--7 percent
Cirac sandy loam, 0 to 2 percent slopes--2 percent
Xeric Torrifluvents loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Stargo and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; loam
Layer 2--5 to 15 inches; sandy clay loam

Layer 3--15 to 60 inches; stratified very gravelly sand to sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Veet and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 8 inches; loam
Layer 2--8 to 20 inches; very gravelly sandy loam
Layer 3--20 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Keefa**
Composition: 0 to 7 percent
Landform: Fan skirt
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale
Ecological site number: 029XY017NV

**Cirac**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, black greasewood, shadscale
Ecological site number: 029XY024NV

**Xeric Torrifluvents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3241--Stargo association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 5,200 feet
Precipitation: 5 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Stargo loam, 0 to 2 percent slopes--50 percent
Stargo loam, 0 to 2 percent slopes--35 percent
Playas, 0 to 1 percent slopes--8 percent
Cirac sandy loam, 0 to 2 percent slopes--5 percent
Typic Camborthids gravelly sand, 0 to 4 percent slopes--2 percent

### *Component Description*

**Stargo and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 5 inches; loam
Layer 2--5 to 15 inches; sandy clay loam
Layer 3--15 to 60 inches; stratified very gravelly sand to sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Stargo and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood

**Typical profile:**
Layer 1--0 to 5 inches; loam
Layer 2--5 to 15 inches; sandy clay loam
Layer 3--15 to 60 inches; stratified very gravelly sand to sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 8 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY087NV

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

### *Contrasting Inclusions*

**Playas**
Composition: 0 to 8 percent
Landform: Flood-plain playa
Ecological site number: None

**Cirac**
Composition: 0 to 5 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, black greasewood, shadscale
Ecological site number: 029XY024NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Fan skirt
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

### *Management*

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

## 3250--Wardenot gravelly sandy loam, 0 to 4 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,300 to 6,000 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 100 to 150 days

### *Composition*

Wardenot gravelly sandy loam, 0 to 4 percent slopes--85 percent
Lyx gravelly loamy sand, 0 to 4 percent slopes--10 percent
Typic Torriorthents, 2 to 8 percent slopes--5 percent

### *Component Description*

**Wardenot and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 6 inches; gravelly sandy loam
Layer 2--6 to 60 inches; stratified extremely cobbly loamy sand to very gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Lyx**
Composition: 0 to 10 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale
Ecological site number: 029XY087NV

### *Management*

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

## 3260--Springwarm-Jotava-Delacit association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,500 to 5,495 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Springwarm sandy loam, 0 to 2 percent slopes--35 percent
Jotava silty clay loam, 0 to 2 percent slopes--30 percent
Delacit gravelly sand, 0 to 4 percent slopes--20 percent
Kawich sandy loam, 0 to 30 percent slopes--9 percent
Nuyobe sandy loam, 0 to 2 percent slopes--4 percent
Rustigate sandy loam, 0 to 2 percent slopes--1 percent
Rock outcrop--1 percent

### *Component Description*

**Springwarm and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Inland saltgrass, black greasewood, alkali sacaton, basin wildrye

**Typical profile:**
Layer 1--0 to 1 inches; sandy loam
Layer 2--1 to 10 inches; gravelly clay loam
Layer 3--10 to 22 inches; extremely gravelly loam
Layer 4--22 to 36 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 4 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY004NV

### *Component Description*

**Jotava and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Black greasewood, basin wildrye, alkali sacaton, inland saltgrass

**Typical profile:**
Layer 1--0 to 8 inches; silty clay loam
Layer 2--8 to 15 inches; stratified silt loam to clay loam
Layer 3--15 to 57 inches: stratified sandy loam to silty clay loam
Layer 4--57 to 89 inches; stratified loamy sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Somewhat poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY004NV

### *Component Description*

**Delacit and similar soils**
Landform: Barrier beach
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, black greasewood

**Typical profile:**
Layer 1--0 to 1 inches; gravelly sand
Layer 2--1 to 3 inches; loam
Layer 3--3 to 9 inches; very gravelly clay loam
Layer 4--9 to 15 inches; very gravelly loam
Layer 5--15 to 60 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Water table: Present
Natural drainage class: Moderately well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

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

### *Contrasting Inclusions*

**Kawich**
Composition: 0 to 9 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, black greasewood, shadscale
Ecological site number: 029XY018NV

**Nuyobe**
Composition: 0 to 4 percent
Landform: Depression
Typical vegetation: Baltic rush, inland saltgrass, alkali sacaton
Ecological site number: 029XY002NV

**Rustigate**
Composition: 0 to 1 percent
Landform: Alluvial flat
Typical vegetation: Black greasewood, basin wildrye, inland saltgrass, alkali sacaton
Ecological site number: 029XY004NV

**Rock outcrop**
Composition: 0 to 1 percent
Landform: Hill
Ecological site number: None

### *Management*

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

## 3270--Jotava silty clay loam, 0 to 2 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,500 to 5,495 feet
Precipitation: 6 to 8 inches
Air temperature: 52 to 55 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Jotava silty clay loam, 0 to 2 percent slopes--90 percent
Typic Torriorthents, 0 to 4 percent slopes--4 percent
Nuyobe loam, 0 to 2 percent slopes--3 percent
Rustigate loam, 0 to 2 percent slopes--2 percent
Playas, 0 to 1 percent slopes--1 percent

### *Component Description*

**Jotava and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, inland saltgrass, alkali sacaton, black greasewood

**Typical profile:**
Layer 1--0 to 8 inches; silty clay loam
Layer 2--8 to 15 inches; stratified silt loam to clay loam
Layer 3--15 to 57 inches; stratified sandy loam to silty clay loam
Layer 4--57 to 89 inches; stratified loamy sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Somewhat poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY004NV

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

### *Contrasting Inclusions*

**Typic Torriorthents**
Composition: 0 to 4 percent
Landform: Beach terrace
Typical vegetation: Indian ricegrass, shadscale, black greasewood
Ecological site number: 029XY024NV

**Nuyobe**
Composition: 0 to 3 percent
Landform: Alluvial flat
Typical vegetation: Inland saltgrass, Baltic rush, alkali sacaton
Ecological site number: 029XY002NV

**Rustigate**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Bottlebrush squirreltail, black greasewood, alkali sacaton
Ecological site number: 028BY004NV

**Playas**
Composition: 0 to 1 percent
Landform: Flood-plain playa
Ecological site number: None

### *Management*

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

## 3280--Duffer-Equis association

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 4,995 to 6,295 feet
Precipitation: 7 to 10 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Duffer silt loam, 0 to 2 percent slopes--40 percent
Duffer silt loam, drained, 0 to 2 percent slopes--35 percent
Equis silty clay, 0 to 2 percent slopes--15 percent
Fluventic Haplaquolls silty clay loam, 0 to 2 percent slopes--5 percent
Kunzler loam, 2 to 4 percent slopes--2 percent
Rustigate loam, 0 to 2 percent slopes--2 percent
Nuyobe silty clay loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Duffer and similar soils**
Landform: Flood plain
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Alkali sacaton, sedge, alkali cordgrass

**Typical profile:**
Layer 1--0 to 4 inches; silt loam
Layer 2--4 to 36 inches; silty clay loam

Layer 3--36 to 60 inches; stratified very fine sandy loam to silty clay loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 11 inches
Present flooding: Occasional
Water table: Present
Natural drainage class: Poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 028BY002NV

### *Component Description*

**Duffer and similar soils**
Landform: Flood plain
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Alkali sacaton, bottlebrush squirreltail, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; silt loam
Layer 2--4 to 60 inches; silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 23 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Somewhat poorly drained

**Interpretive Groups**
Nonirrigated land capability: 6w
Ecological site number: 028BY004NV

### *Component Description*

**Equis and similar soils**
Landform: Flood plain
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Alkali cordgrass, alkali sacaton, sedge

**Typical profile:**
Layer 1--0 to 4 inches; silty clay
Layer 2--4 to 29 inches; silty clay
Layer 3--29 to 52 inches; silty clay loam
Layer 4--52 to 60 inches; silty clay loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Very high
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Poorly drained

**Interpretive Groups**
Nonirrigated land capability: 6w
Ecological site number: 028BY002NV

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

### *Contrasting Inclusions*

**Fluventic Haplaquolls**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Sedge, rush, bluegrass
Ecological site number: 028BY001NV

**Kunzler**
Composition: 0 to 2 percent
Landform: Stream terrace
Typical vegetation: Black greasewood, basin wildrye, big sagebrush
Ecological site number: 028BY028NV

**Rustigate**
Composition: 0 to 2 percent
Landform: Stream terrace
Typical vegetation: Alkali sacaton, basin wildrye, inland saltgrass, black greasewood
Ecological site number: 029XY004NV

**Nuyobe**
Composition: 0 to 1 percent

Landform: Stream terrace
Typical vegetation: Black greasewood, basin wildrye
Ecological site number: 028BY069NV

### *Management*

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

## 3300--Palinor very gravelly loam, 2 to 15 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,200 to 7,400 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 48 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Palinor very gravelly loam, 2 to 15 percent slopes--90 percent
Parisa gravelly loam, 2 to 8 percent slopes--5 percent
Typic Camborthids very gravelly sandy loam, 0 to 1 percent slopes--3 percent
Kyler very gravelly loam, 8 to 15 percent slopes--2 percent

### *Component Description*

**Palinor and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly loam
Layer 2--8 to 18 inches; extremely gravelly loam
Layer 3--18 to 29 inches; indurated
Layer 4--29 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Parisa**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 028BY010NV

**Typic Camborthids**
Composition: 0 to 3 percent
Landform: Fan skirt
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale, bottlebrush squirreltail
Ecological site number: 028BY017NV

**Kyler**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Beardless wheatgrass, black sagebrush
Ecological site number: 029XY028NV

### *Management*

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

## 3301--Palinor-Nuc association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,000 to 7,400 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 50 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Palinor very gravelly loam, 2 to 8 percent slopes--60 percent
Nuc gravelly loam, 4 to 30 percent slopes--25 percent
Rebel gravelly loam, 2 to 8 percent slopes--6 percent
Clowfin very gravelly sandy loam, 2 to 8 percent slopes--4 percent
Kyler very gravelly fine sandy loam, 4 to 15 percent slopes--4 percent
Lien gravelly loam, 4 to 15 percent slopes--1 percent

### *Component Description*

**Palinor and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 18 inches; extremely gravelly loam
Layer 3--18 to 29 inches; indurated
Layer 4--29 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

### *Component Description*

**Nuc and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 9 inches; gravelly loam
Layer 2--9 to 36 inches; very gravelly clay loam
Layer 3--36 to 60 inches; extremely gravelly loam

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7e
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Rebel**
Composition: 0 to 6 percent
Landform: Drainageway
Typical vegetation: Winterfat, Wyoming big sagebrush, basin wildrye
Ecological site number: 028BY045NV

**Clowfin**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Winterfat, Indian ricegrass, bottlebrush squirreltail
Ecological site number: 028BY013NV

**Kyler**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Needleandthread, black sagebrush, Indian ricegrass
Ecological site number: 029XY014NV

**Lien**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, singleleaf pinyon, pigmy sagebrush, Indian ricegrass
Ecological site number: 028AY021NV

### *Management*

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

"Engineering" and "Soil Properties" sections

## 3302--Palinor-Parisa association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,200 to 6,700 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 48 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Palinor very gravelly loam, 2 to 8 percent slopes--50 percent
Parisa gravelly loam, 2 to 8 percent slopes--35 percent
Veet very gravelly loam, 2 to 8 percent slopes--8 percent
Clowfin gravelly sandy loam, 2 to 4 percent slopes--5 percent
Xeric Torriorthents gravelly sandy loam, 0 to 1 percent slopes--2 percent

### *Component Description*

**Palinor and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 18 inches; extremely gravelly loam
Layer 3--18 to 29 inches; indurated
Layer 4--29 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

### *Component Description*

**Parisa and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loam
Layer 2--4 to 32 inches; very gravelly loam
Layer 3--32 to 50 inches; indurated
Layer 4--50 to 60 inches; extremely gravelly coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Veet and similar soils**
Composition: 0 to 8 percent
Landform: Inset fans
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Clowfin**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat, bottlebrush squirreltail
Ecological site number: 028BY013NV

**Xeric Torriorthents**
Composition: 0 to 2 percent

Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3310--Ursine-Veet-Armespan association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 6,300 feet
Precipitation: 8 to 12 inches
Air temperature: 49 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Ursine very gravelly 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 gravelly sandy loam, 2 to 8 percent slopes--5 percent
Xerollic Calciorthids very cobbly sandy loam, 8 to 50 percent slopes--5 percent
Lithic Xeric Torriorthents very gravelly sandy loam, 15 to 30 percent slopes--3 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent

### *Component Description*

**Ursine and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches: very gravelly loam
Layer 2--3 to 19 inches; very gravelly loam
Layer 3--19 to 23 inches, indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Cliffdown**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Xerollic Calciorthids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Lithic Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Pigmy sagebrush, Indian ricegrass
Ecological site number: 028BY040NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3311--Ursine-Cliffdown association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,100 feet
Precipitation: 6 to 10 inches
Air temperature: 49 to 54 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Ursine very gravelly loam, 2 to 8 percent slopes--75 percent
Cliffdown very gravelly sandy loam, 2 to 8 percent slopes--15 percent
Candelaria very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Armespan very gravelly sandy loam, 2 to 8 percent slopes--3 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent

### *Component Description*

**Ursine and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 19 inches; very gravelly loam
Layer 3--19 to 23 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Cliffdown and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks

Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 60 inches; stratified gravelly sandy loam to very gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Candelaria**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Armespan**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3330--Handpah-Delamar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 3,995 to 5,500 feet
Precipitation: 5 to 10 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 110 to 150 days

### *Composition*

Handpah gravelly sandy loam, 2 to 8 percent slopes--50 percent
Delamar sandy loam, 2 to 8 percent slopes--35 percent
Veet sandy loam, 2 to 8 percent slopes--6 percent
Zadvar gravelly sandy loam, 2 to 8 percent slopes--4 percent
Unsel sandy loam, 2 to 8 percent slopes--3 percent
Typic Camborthids sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Handpah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; gravelly sandy loam
Layer 2--7 to 14 inches; gravelly clay loam
Layer 3--14 to 18 inches; very gravelly sandy loam
Layer 4--18 to 24 inches; indurated
Layer 5--24 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

### *Component Description*

**Delamar and similar soils**
Landform: Fan remnant

Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 12 inches; gravelly clay loam
Layer 3--12 to 20 inches; gravelly clay loam
Layer 4--20 to 25 inches; gravelly sandy loam
Layer 5--25 to 29 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Zadvar**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Black sagebrush, Indian ricegrass
Ecological site number: 029XY008NV

**Unsel**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass
Ecological site number: 029XY017NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, spiny hopsage, Indian ricegrass
Ecological site number: 029XY016NV

### *Management*

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

## 3333--Handpah-Watoopah-Zadvar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Handpah gravelly fine sandy loam, 2 to 8 percent slopes--40 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--30 percent
Zadvar very gravelly sandy loam, 2 to 8 percent slopes--15 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--10 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 4 percent slopes--5 percent

### *Component Description*

**Handpah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 7 inches; gravelly fine sandy loam
Layer 2--7 to 14 inches; gravelly clay loam
Layer 3--14 to 18 inches; very gravelly sandy loam
Layer 4--18 to 24 inches; indurated
Layer 5--24 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 10 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3334--Handpah-Palinor-Parisa association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 7,000 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Handpah gravelly fine sandy loam, 2 to 8 percent slopes--45 percent
Palinor very gravelly loam, 2 to 8 percent slopes--30 percent
Parisa gravelly loam, 2 to 8 percent slopes--15 percent
Rebel loam, 2 to 8 percent slopes--5 percent
Clowfin gravelly sandy loam, 0 to 4 percent slopes--3 percent
Xeric Torriorthents very gravelly sandy loam, 0 to 4 percent slopes--2 percent

### *Component Description*

**Handpah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 7 inches; gravelly fine sandy loam
Layer 2--7 to 14 inches; gravelly clay loam
Layer 3--14 to 18 inches; very gravelly sandy loam
Layer 4--18 to 24 inches; indurated
Layer 5--24 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

### *Component Description*

**Palinor and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 18 inches; extremely gravelly loam
Layer 3--18 to 29 inches; indurated
Layer 4--29 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

### *Component Description*

**Parisa and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loam
Layer 2--4 to 32 inches; very gravelly loam
Layer 3--32 to 50 inches; indurated
Layer 4--50 to 60 inches; extremely gravelly coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Rebel**
Composition: 0 to 5 percent

Landform: Inset fan
Typical vegetation: Winterfat, basin wildrye, Wyoming big sagebrush
Ecological site number: 028BY045NV

**Clowfin**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Bottlebrush squirreltail, winterfat, Indian ricegrass
Ecological site number: 028BY013NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3335--Handpah-Watoopah-Candelaria association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,395 to 6,800 feet
Precipitation: 4 to 10 inches
Air temperature: 48 to 57 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Handpah gravelly fine sandy loam, 2 to 8 percent slopes--40 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--25 percent
Candelaria very gravelly fine sandy loam, 2 to 8 percent slopes--20 percent
Typic Calciorthids sandy loam, 0 to 4 percent slopes--8 percent
Zadvar gravelly sandy loam, 2 to 8 percent slopes--5 percent
Cliffdown gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Handpah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; gravelly fine sandy loam
Layer 2--7 to 14 inches; gravelly clay loam
Layer 3--14 to 18 inches; very gravelly sandy loam
Layer 4--18 to 24 inches; indurated
Layer 5--24 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s

Ecological site number: 029XY049NV

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly fine sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam
Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Typic Calciorthids**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Zadvar**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Cliffdown**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

### *Management*

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

## 3340--Amelar-Eoj-Hardol association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 7,200 to 11,000 feet
Precipitation: 12 to 30 inches
Air temperature: 39 to 45 degrees Fahrenheit
Frost-free period: 50 to 90 days

### *Composition*

Amelar gravelly silt loam, 15 to 30 percent slopes--35 percent
Eoj very stony loam, 8 to 30 percent slopes--30 percent
Hardol very gravelly silt loam, 15 to 50 percent slopes--20 percent
Rock outcrop--8 percent
Pharo very gravelly loam, 15 to 50 percent slopes--3 percent
Lithic Cryoborolls very gravelly loam, 4 to 30 percent slopes--3 percent
Argiaquic Cryoborolls silty clay, 4 to 30 percent slopes--1 percent

### *Component Description*

**Amelar and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone
Typical vegetation: Utah serviceberry, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 6 inches; gravelly silt loam
Layer 2--6 to 15 inches; very cobbly clay loam
Layer 3--15 to 60 inches; very gravelly silt loam

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

**Component Properties and Qualities**
Slope: 15 to 30 percent
Runoff: Very high
Available water capacity: About 7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6e
Ecological site number: 028BY091NV

### *Component Description*

**Eoj and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone
Typical vegetation: Black sagebrush, muttongrass, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 12 inches; very stony loam
Layer 2--12 to 60 inches; cobbly clay

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY092NV

### *Component Description*

**Hardol and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Letterman needlegrass, bluebunch wheatgrass, mountain big sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly silt loam
Layer 2--3 to 33 inches; extremely gravelly silt loam
Layer 3--33 to 60 inches; extremely gravelly loam

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: High
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY085NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 8 percent
Landform: Mountains
Ecological site number: None

**Pharo**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Bluebunch wheatgrass, Oregongrape, muttongrass, mountain big sagebrush, white fir
Ecological site number: 028BY049NV

**Lithic Cryoborolls**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Argiaquic Cryoborolls**
Composition: 0 to 1 percent
Landform: Depression
Typical vegetation: Bluegrass, sedge, rush
Ecological site number: 028BY001NV

### *Management*

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

## 3380--Roden-Izar association

### *Map Unit Setting*

MLRA: 28B
Landscape: Hills
Elevation: 6,200 to 7,200 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 48 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Roden very gravelly clay loam, 8 to 30 percent slopes--50 percent
Izar very gravelly loam, 8 to 30 percent slopes--20 percent
Roden very gravelly loam, 8 to 30 percent slopes--15 percent
Xerollic Haplargids gravelly loam, 4 to 15 percent slopes--8 percent
Xeric Torriorthents silt loam, 2 to 8 percent slopes--4 percent
Lithic Xerollic Haplargids very gravelly loam, 0 to 1 percent slopes--3 percent

### *Component Description*

**Roden and similar soils**
Landform: Hill
Parent material: Colluvium derived from interbedded sedimentary rock over residuum weathered from interbedded sedimentary rock
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly clay loam
Layer 2--3 to 12 inches; very gravelly clay
Layer 3--12 to 20 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 8 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY016NV

### *Component Description*

**Izar and similar soils**
Landform: Hill
Parent material: Colluvium derived from interbedded sedimentary rock over residuum weathered from interbedded sedimentary rock
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 6 inches; very gravelly loam
Layer 2--6 to 13 inches; very gravelly loam
Layer 3--13 to 17 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY016NV

### *Component Description*

**Roden and similar soils**
Landform: Hill
Parent material: Colluvium derived from interbedded sedimentary rock over residuum weathered from interbedded sedimentary rock
Typical vegetation: Black sagebrush, Indian ricegrass, bottlebrush squirreltail, bluebunch wheatgrass, bluegrass

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 12 inches; very gravelly clay
Layer 3--12 to 20 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 8 to 14 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY060NV

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

### *Contrasting Inclusions*

**Xerollic Haplargids**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass
Ecological site number: 028BY010NV

**Xeric Torriorthents**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 028BY010NV

**Lithic Xerollic Haplargids**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Indian ricegrass, desert needlegrass, needleandthread, black sagebrush
Ecological site number: 029XY081NV

### *Management*

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

## 3400--Parisa gravelly loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,200 to 6,495 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 48 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Parisa gravelly loam, 2 to 8 percent slopes--85 percent
Palinor very gravelly loam, 2 to 8 percent slopes--6 percent
Typic Camborthids very gravelly loam, 2 to 8 percent slopes--5 percent
Kunzler loam, 2 to 8 percent slopes--3 percent
Linoyer very gravelly loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Parisa and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loam
Layer 2--4 to 32 inches; very gravelly loam
Layer 3--32 to 50 inches; indurated
Layer 4--50 to 60 inches; extremely gravelly coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Palinor**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Black sagebrush, Indian ricegrass, needleandthread
Ecological site number: 028BY011NV

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Kunzler**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, Ind an ricegrass, Wyoming big sagebrush

Ecological site number: 028BY010NV

**Linoyer**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Winterfat, bottlebrush squirreltail, Indian ricegrass
Ecological site number: 028BY013NV

### *Management*

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

## 3410--Watoopah-Veet association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 7,095 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Watoopah gravelly loamy sand, 2 to 4 percent slopes--50 percent
Veet very stony sandy loam, 2 to 8 percent slopes--35 percent
Xeric Torripsamments gravelly loamy sand, 2 to 8 percent slopes--8 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--3 percent
Zadvar very gravelly sandy loam, 2 to 4 percent slopes--2 percent
Xerollic Camborthids gravelly sandy loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very stony sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Xeric Torripsamments**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

**Zadvar**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Xerollic Camborthids**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Desert peach, rubber rabbitbrush, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3412--Watoopah-Veet-Zadvar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 90 to 130 days

### *Composition*

Watoopah gravelly loamy sand, 2 to 8 percent slopes--45 percent
Veet very stony sandy loam, 2 to 4 percent slopes--30 percent
Zadvar gravelly fine sandy loam, 2 to 8 percent slopes--15 percent
Xeric Torripsamments gravelly loamy sand, 2 to 8 percent slopes--8 percent
Stewval very gravelly fine sandy loam, 8 to 30 percent slopes--2 percent

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very stony sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant

Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; gravelly fine sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Xeric Torripsamments**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Stewval**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Black sagebrush, Indian ricegrass
Ecological site number: 029XY008NV

### *Management*

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

## 3414--Watoopah-Cath association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 6,200 feet
Precipitation: 8 to 12 inches
Air temperature: 48 to 53 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Watoopah gravelly loamy sand, 2 to 8 percent slopes--50 percent
Cath gravelly loam, 2 to 8 percent slopes--40 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--6 percent
Geer fine sandy loam, 0 to 4 percent slopes--3 percent
Typic Camborthids sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Cath and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks

Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 20 inches; clay loam
Layer 3--20 to 28 inches; very gravelly sandy clay loam
Layer 4--28 to 60 inches; stratified very gravelly loamy coarse sand to very gravelly loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 029XY006NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Geer**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Typic Camborthids**
Composition: 0 to 1 percent
Landform: Inset fan
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

### *Management*

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

## 3415--Watoopah-Leo association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 6,000 feet
Precipitation: 5 to 10 inches
Air temperature: 48 to 53 degrees Fahrenheit
Frost-free period: 90 to 130 days

### *Composition*

Watoopah gravelly loamy sand, 2 to 8 percent slopes--70 percent
Leo gravelly sandy loam, 2 to 8 percent slopes--15 percent
Cath gravelly sandy loam, 2 to 8 percent slopes--9 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--4 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Leo and similar soils**
Landform: Inset fan

Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage

**Typical profile:**
Layer 1--0 to 8 inches; gravelly sandy loam
Layer 2--8 to 60 inches; stratified extremely gravelly coarse sand to gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Cath**
Composition: 0 to 9 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass
Ecological site number: 029XY006NV

**Veet**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

### *Management*

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

## 3420--Squawtip-Bellehelen-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 7,000 to 9,000 feet
Precipitation: 12 to 16 inches
Air temperature: 41 to 48 degrees Fahrenheit
Frost-free period: 70 to 100 days

### *Composition*

Squawtip very stony loam, 30 to 75 percent slopes--45 percent
Bellehelen very stony loam, 30 to 75 percent slopes--25 percent
Rock outcrop--15 percent
Suak gravelly loam, 15 to 50 percent slopes--5 percent
Packer very gravelly sandy loam, 15 to 50 percent slopes--5 percent
Fluventic Haploxerolls loam, 4 to 15 percent slopes--4 percent
Aquolls loam, 2 to 8 percent slopes--1 percent

### *Component Description*

**Squawtip and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Sandberg bluegrass, antelope bitterbrush, Letterman needlegrass, Columbia needlegrass, mountain big sagebrush

**Typical profile:**
Layer 1--0 to 6 inches; very stony loam
Layer 2--6 to 21 inches; very gravelly sandy clay loam
Layer 3--21 to 25 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent, northeast to north aspects
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 20 to 40 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY066NV

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bluegrass, bottlebrush squirreltail, black sagebrush, muttongrass, green ephedra, singleleaf pinyon, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Suak**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Curlleaf mountainmahogany
Ecological site number: 029XY027NV

**Packer**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Muttongrass, low sagebrush, Letterman needlegrass
Ecological site number: 029XY052NV

**Fluventic Haploxerolls**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Mountain big sagebrush
Ecological site number: 029XY026NV

**Aquolls**
Composition: 0 to 1 percent
Landform: Swale
Typical vegetation: Sedge, alpine timothy, rush, tufted hairgrass
Ecological site number: 029XY060NV

### *Management*

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

## 3430--Bellehelen-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 6,200 to 9,500 feet
Precipitation: 12 to 14 inches
Air temperature: 45 to 48 degrees Fahrenheit
Frost-free period: 90 to 110 days

### *Composition*

Bellehelen very stony loam, 30 to 50 percent slopes--55 percent
Bellehelen very stony loam, 50 to 75 percent slopes--15 percent
Rock outcrop--15 percent
Squawtip very stony loam, 15 to 50 percent slopes--6 percent
Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--5 percent
Fluventic Haploxerolls loam, 4 to 15 percent slopes--2 percent
Lithic Cryoborolls very stony loam, 30 to 50 percent slopes--2 percent

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains

Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bluegrass, bottlebrush squirreltail, muttongrass, black sagebrush, singleleaf pinyon, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bluegrass, bottlebrush squirreltail, black sagebrush, muttongrass, green ephedra, singleleaf pinyon, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 50 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Squawtip**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Bluegrass, green ephedra, black sagebrush, Stansbury cliffrose, singleleaf pinyon, muttongrass, bottlebrush squirreltail
Ecological site number: 029XY069NV

**Stewval**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Fluventic Haploxerolls**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Mountain big sagebrush
Ecological site number: 029XY026NV

**Lithic Cryoborolls**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Curlleaf mountainmahogany, mountain big sagebrush
Ecological site number: 029XY043NV

### *Management*

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

## 3434--Bellehelen-Cropper-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 6,200 to 9,000 feet
Precipitation: 12 to 14 inches
Air temperature: 41 to 48 degrees Fahrenheit
Frost-free period: 80 to 110 days

### *Composition*

Bellehelen very stony loam, 15 to 50 percent slopes--40 percent
Cropper very stony loam, 15 to 50 percent slopes--30 percent
Rock outcrop--15 percent
Lithic Argixerolls very stony loam, 30 to 50 percent slopes--5 percent
Lithic Argixerolls very stony loam, 30 to 50 percent slopes--5 percent
Gabbvally very stony loam, 30 to 50 percent slopes--3 percent
Xeric Torrifluvents very stony loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Bellehelen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bluegrass, bottlebrush squirreltail, muttongrass, black sagebrush, singleleaf pinyon, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 9 inches; very gravelly loam
Layer 3--9 to 13 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Cropper and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Muttongrass, basin wildrye, mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass, snowberry, curlleaf mountainmahogany, serviceberry

**Typical profile:**
Layer 1--0 to 4 inches; very stony loam
Layer 2--4 to 15 inches; extremely gravelly sandy clay loam
Layer 3--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 14 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY058NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Lithic Argixerolls**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Bluegrass, bottlebrush squirreltail, bluebunch wheatgrass, black sagebrush, Indian ricegrass

Ecological site number: 028BY060NV

**Lithic Argixerolls**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Bluebunch wheatgrass, Thurber needlegrass, mountain big sagebrush
Ecological site number: 028BY030NV

**Gabbvally**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass
Ecological site number: 029XY010NV

**Xeric Torrifluvents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3440--Layview-Foxvire-Suak association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 7,000 to 9,995 feet
Precipitation: 12 to 18 inches
Air temperature: 39 to 45 degrees Fahrenheit
Frost-free period: 50 to 80 days

### *Composition*

Layview very gravelly sandy loam, 8 to 50 percent slopes--40 percent
Foxvire gravelly loam, 8 to 50 percent slopes--30 percent
Suak very stony loam, 15 to 50 percent slopes--15 percent
Lithic Cryoborolls very gravelly loam, 15 to 40 percent slopes--6 percent
Typic Cryoboralfs gravelly loam, 15 to 50 percent slopes--4 percent
Rock outcrop--3 percent
Argic Cryoborolls very gravelly loam, 15 to 50 percent slopes--2 percent

### *Component Description*

**Layview and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Letterman needlegrass, muttongrass, low sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY052NV

### *Component Description*

**Foxvire and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia
Typical vegetation: Muttongrass, Letterman needlegrass, mountain big sagebrush

**Typical profile:**
Layer 1--0 to 13 inches; gravelly loam
Layer 2--13 to 60 inches; gravelly loam

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Medium

Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6e
Ecological site number: 029XY051NV

### *Component Description*

**Suak and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Curlleaf mountainmahogany

**Typical profile:**
Layer 1--0 to 6 inches; very stony loam
Layer 2--6 to 25 inches; extremely cobbly loam
Layer 3--25 to 29 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY027NV

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

### *Contrasting Inclusions*

**Lithic Cryoborolls**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Mountain big sagebrush, curlleaf mountainmahogany
Ecological site number: 029XY043NV

**Typic Cryoboralfs**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Ecological site number: 028BY030NV

**Rock outcrop**
Composition: 0 to 3 percent
Landform: Mountains
Ecological site number: None

**Argic Cryoborolls**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass
Ecological site number: 028BY015NV

### *Management*

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

## 3441--Layview-Labshaft-Winu association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,800 to 9,995 feet
Precipitation: 12 to 20 inches
Air temperature: 40 to 45 degrees Fahrenheit
Frost-free period: 45 to 80 days

### *Composition*

Layview very gravelly sandy loam, 8 to 50 percent slopes--40 percent
Labshaft extremely stony loam, 15 to 50 percent slopes--25 percent
Winu gravelly loam, 15 to 50 percent slopes--20 percent
Suak very stony sandy loam, 15 to 50 percent slopes--5 percent
Rock outcrop--4 percent
Packer very gravelly loam, 8 to 50 percent slopes--4 percent
Argiaquic Cryoborolls gravelly loam, 0 to 15 percent slopes--2 percent

### *Component Description*

**Layview and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia

Typical vegetation: Muttongrass, Letterman needlegrass, low sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY052NV

### *Component Description*

**Labshaft and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Mountain big sagebrush, curlleaf mountainmahogany

**Typical profile:**
Layer 1--0 to 8 inches; extremely stony loam
Layer 2--8 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY043NV

### *Component Description*

**Winu and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Mountains brome, mountain big sagebrush, Letterman needlegrass

**Typical profile:**
Layer 1--0 to 5 inches; gravelly loam
Layer 2--5 to 39 inches; gravelly sandy clay loam
Layer 3--39 to 43 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6s
Ecological site number: 028BY029NV

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

### *Contrasting Inclusions*

**Suak**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Curlleaf mountainmahogany
Ecological site number: 029XY027NV

**Rock outcrop**
Composition: 0 to 4 percent
Landform: Mountains
Ecological site number: None

**Packer**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Muttongrass, low sagebrush, Letterman needlegrass

Ecological site number: 029XY052NV

**Argiaquic Cryoborolls**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Bluegrass, sedge, rush
Ecological site number: 028BY001NV

### *Management*

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

## 3442--Layview-Suak-Winu association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 7,000 to 9,995 feet
Precipitation: 12 to 20 inches
Air temperature: 39 to 45 degrees Fahrenheit
Frost-free period: 45 to 90 days

### *Composition*

Layview very gravelly sandy loam, 8 to 50 percent slopes--40 percent
Suak very stony loam, 15 to 50 percent slopes--25 percent
Winu gravelly loam, 15 to 50 percent slopes--20 percent
Lithic Cryoborolls very gravelly sandy loam, 15 to 50 percent slopes--5 percent
Rock outcrop--4 percent
Packer very gravelly loam, 8 to 50 percent slopes--4 percent
Argiaquic Cryoborolls gravelly loam, 0 to 15 percent slopes--2 percent

### *Component Description*

**Layview and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Muttongrass, Letterman needlegrass, low sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 10 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY052NV

### *Component Description*

**Suak and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Curlleaf mountainmahogany

**Typical profile:**
Layer 1--0 to 6 inches; very stony loam
Layer 2--6 to 25 inches; extremely cobbly loam
Layer 3--25 to 29 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY027NV

### *Component Description*

**Winu and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Mountains brome, Letterman needlegrass, mountain big sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; gravelly loam
Layer 2--5 to 39 inches; gravelly sandy clay loam
Layer 3--39 to 43 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 24 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6s
Ecological site number: 028BY029NV

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

### *Contrasting Inclusions*

**Lithic Cryoborolls**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Bluebunch wheatgrass, Columbia needlegrass, curlleaf mountainmahogany, mountain big sagebrush
Ecological site number: 028BY043NV

**Rock outcrop**
Composition: 0 to 4 percent
Landform: Mountains
Ecological site number: None

**Packer**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Low sagebrush, Letterman needlegrass, muttongrass
Ecological site number: 029XY052NV

**Argiaquic Cryoborolls**
Composition. 0 to 2 percent
Landform: Drainageway
Typical vegetation: Bluegrass, rush, sedge
Ecological site number: 028BY001NV

### *Management*

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

## 3450--Grassval-Allker-Zadvar association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,495 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Grassval gravelly loam, 4 to 15 percent slopes--50 percent
Allker gravelly sandy loam, 2 to 8 percent slopes--20 percent
Zadvar very gravelly sandy loam, 4 to 30 percent slopes--15 percent
Haploxerollic Durargids gravelly sandy loam, 4 to 30 percent slopes--6 percent
Haploxerollic Durorthids gravelly sandy loam, 8 to 50 percent slopes--6 percent
Rebel loam, 0 to 4 percent slopes--2 percent
Mosida loam, 0 to 4 percent slopes--1 percent

### *Component Description*

**Grassval and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 5 inches; gravelly loam
Layer 2--5 to 13 inches; gravelly loam
Layer 3--13 to 60 inches; indurated

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches

Available water capacity: About 1.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

### *Component Description*

**Allker and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread

**Typical profile:**
Layer 1--0 to 9 inches; gravelly sandy loam
Layer 2--9 to 24 inches; gravelly loam
Layer 3--24 to 32 inches; gravelly loam
Layer 4--32 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material. Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Haploxerollic Durargids**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Bottlebrush squirreltail, Stansbury cliffrose, singleleaf pinyon, bluegrass, green ephedra, muttongrass, black sagebrush
Ecological site number: 029XY069NV

**Haploxerollic Durorthids**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush, desert needlegrass
Ecological site number: 029XY081NV

**Rebel**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 028BY010NV

**Mosida**
Composition: 0 to 1 percent
Landform: Inset fan
Typical vegetation: Basin big sagebrush, basin wildrye
Ecological site number: 028BY003NV

### *Management*

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

## 3460--Zadvar-Handpah association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Zadvar very gravelly sandy loam, 2 to 8 percent slopes--60 percent
Handpah gravelly fine sandy loam, 4 to 8 percent slopes--25 percent
Veet stony loamy sand, 2 to 8 percent slopes--7 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--5 percent
Stewval very stony fine sandy loam, 8 to 30 percent slopes--3 percent

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Handpah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; gravelly fine sandy loam
Layer 2--3 to 14 inches; gravelly clay loam
Layer 3--14 to 18 inches; very gravelly sandy loam
Layer 4--18 to 24 inches; indurated
Layer 5--24 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY006NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Watoopah**
Composition: 0 to 5 percent
Landform: Fan skirt
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Stewval**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Black sagebrush, Indian ricegrass
Ecological site number: 029XY008NV

### *Management*

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

## 3463--Zadvar-Veet association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Zadvar very gravelly sandy loam, 2 to 8 percent slopes--65 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--20 percent
Watoopah fine sandy loam, 4 to 15 percent slopes--8 percent
Unsel very gravelly sandy loam, 2 to 8 percent slopes--4 percent
Stewval very gravelly fine sandy loam, 8 to 15 percent slopes--3 percent

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Watoopah**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Unsel**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY017NV

**Stewval**
Composition: 0 to 3 percent

Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

### *Management*

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

## 3467--Zadvar very gravelly sandy loam, 4 to 30 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Zadvar very gravelly sandy loam, 4 to 30 percent slopes--85 percent
Chuckridge very cobbly loam, 2 to 8 percent slopes--8 percent
Cath gravelly sandy loam, 2 to 8 percent slopes--3 percent
Watoopah sandy loam, 2 to 8 percent slopes--2 percent
Veet sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Chuckridge**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Cath**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 029XY006NV

**Watoopah**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Veet**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

### *Management*

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

## 3468--Zadvar-Allker-Peeko association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,400 to 6,300 feet

Precipitation: 8 to 10 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Zadvar cobbly sandy loam, 4 to 30 percent slopes--30 percent
Allker gravelly sandy loam, 2 to 8 percent slopes--30 percent
Peeko gravelly loam, 4 to 30 percent slopes--30 percent
Xerollic Durorthids very gravelly sandy loam, 2 to 30 percent slopes--5 percent
Rebel gravelly sandy loam, 0 to 4 percent slopes--2 percent
Handpah very cobbly sandy loam, 2 to 8 percent slopes--2 percent
Mosida sandy loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; cobbly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Allker and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 9 inches; gravelly sandy loam
Layer 2--9 to 24 inches; gravelly loam
Layer 3--24 to 32 inches; gravelly loam
Layer 4--32 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

### *Component Description*

**Peeko and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loam
Layer 2--4 to 13 inches; gravelly silt loam
Layer 3--13 to 60 inches; indurated

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7e
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Xerollic Durorthids**
Composition: 0 to 5 percent

Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 028BY059NV

**Rebel**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass
Ecological site number: 028BY010NV

**Handpah**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Mosida**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Basin wildrye, basin big sagebrush
Ecological site number: 028BY003NV

### *Management*

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

## 3470--Cirac-Keefa-Nyserva association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,395 to 5,700 feet
Precipitation: 3 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Cirac sandy loam, 0 to 2 percent slopes--35 percent
Keefa gravelly sandy loam, 0 to 2 percent slopes--35 percent
Nyserva loam, 0 to 2 percent slopes--15 percent
Playas, 0 to 1 percent slopes--6 percent
Typic Camborthids sandy loam, 0 to 2 percent slopes--5 percent
Nuyobe fine sandy loam, 0 to 2 percent slopes--4 percent

### *Component Description*

**Cirac and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black greasewood, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 60 inches; stratified gravelly sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Very low
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

### *Component Description*

**Keefa and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; gravelly sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Nyserva and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, black greasewood

**Typical profile:**
Layer 1--0 to 6 inches; loam
Layer 2--6 to 15 inches; clay loam
Layer 3--15 to 60 inches; stratified gravelly sand to clay loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Natural drainage class: Moderately well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

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

### *Contrasting Inclusions*

**Playas**
Composition: 0 to 6 percent
Landform: Playa
Ecological site number: None

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Fan skirt
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

**Nuyobe**
Composition: 0 to 4 percent
Landform: Alluvial flat
Typical vegetation: Alkali sacaton, Baltic rush, inland saltgrass
Ecological site number: 029XY002NV

### *Management*

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

## 3471--Cirac-Nyserva complex, 0 to 4 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,395 to 5,695 feet
Precipitation: 3 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Cirac sandy loam, 0 to 4 percent slopes--50 percent
Nyserva loam, 0 to 4 percent slopes--35 percent
Duric Haplargids sandy loam, 2 to 4 percent slopes--6 percent
Typic Torriorthents very gravelly loamy sand, 2 to 15 percent slopes--5 percent
Geer sandy loam, 0 to 2 percent slopes--2 percent
Rustigate loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Cirac and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 60 inches; stratified gravelly sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

### *Component Description*

**Nyserva and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, black greasewood

**Typical profile:**
Layer 1--0 to 6 inches; loam
Layer 2--6 to 15 inches; clay loam
Layer 3--15 to 60 inches; stratified gravelly sand to clay loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Natural drainage class: Moderately well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

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

### *Contrasting Inclusions*

**Duric Haplargids**
Composition: 0 to 6 percent
Landform: Fan skirt
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Typic Torriorthents**
Composition: 0 to 5 percent
Landform: Barrier beach
Typical vegetation: Black greasewood, Indian ricegrass, shadscale
Ecological site number: 029XY024NV

**Geer**
Composition: 0 to 2 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Rustigate**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Alkali sacaton, basin wildrye, black greasewood, inland saltgrass
Ecological site number: 029XY004NV

### *Management*

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

## 3473--Cirac-Slaw-Nyserva association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,395 to 5,695 feet
Precipitation: 3 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Cirac sandy loam, 0 to 4 percent slopes--40 percent
Slaw silt loam, 0 to 2 percent slopes--35 percent
Nyserva loam, 0 to 4 percent slopes--15 percent
Playas, 0 to 1 percent slopes--6 percent
Rustigate silt loam, 0 to 2 percent slopes--2 percent
Typic Torriorthents loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Cirac and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 60 inches; stratified gravelly sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 3s
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

### *Component Description*

**Slaw and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Inland saltgrass, black greasewood

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 60 inches; stratified very fine sandy loam to silty clay

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 11 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 3w
Nonirrigated land capability: 7w
Ecological site number: 029XY076NV

### *Component Description*

**Nyserva and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, black greasewood

**Typical profile:**
Layer 1--0 to 6 inches; loam
Layer 2--6 to 15 inches; clay loam
Layer 3--15 to 60 inches; stratified gravelly sand to clay loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Natural drainage class: Moderately well drained

**Interpretive Groups**
Irrigated land capability: 3s
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

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

### *Contrasting Inclusions*

**Playas**
Composition: 0 to 6 percent
Landform: Playa
Ecological site number: None

**Rustigate**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Basin wildrye, alkali sacaton, inland saltgrass, black greasewood
Ecological site number: 029XY004NV

**Typic Torriorthents**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Black greasewood, Torrey's saltbush, basin wildrye
Ecological site number: 029XY093NV

### *Management*

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

## 3474--Cirac-Nyserva-Kawich complex, 0 to 30 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Bolson, intermontane basin
Elevation: 4,395 to 5,700 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Cirac sandy loam, 0 to 4 percent slopes--45 percent
Nyserva loam, 0 to 4 percent slopes--25 percent
Kawich fine sand, 0 to 30 percent slopes--20 percent
Rustigate loam, 0 to 2 percent slopes--3 percent
Playas, 0 to 1 percent slopes--3 percent
Yomba gravelly sandy loam, 2 to 4 percent slopes--2 percent
Typic Camborthids sandy loam, 0 to 4 percent slopes--2 percent

### *Component Description*

**Cirac and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 60 inches; stratified gravelly sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

### *Component Description*

**Nyserva and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black greasewood, shadscale

**Typical profile:**
Layer 1--0 to 6 inches; loam
Layer 2--6 to 15 inches; clay loam
Layer 3--15 to 60 inches; stratified gravelly sand to clay loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 9 inches
Present flooding: Rare
Natural drainage class: Moderately well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

### *Component Description*

**Kawich and similar soils**
Landform: Dune
Parent material: Eolian deposits
Typical vegetation: Black greasewood, Indian ricegrass, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; fine sand
Layer 2--4 to 60 inches; fine sand

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

**Component Properties and Qualities**
Slope: 0 to 30 percent
Runoff: Very low
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY018NV

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

### *Contrasting Inclusions*

**Rustigate**
Composition: 0 to 3 percent
Landform: Lake plain
Typical vegetation: Basin wildrye, black greasewood, alkali sacaton, inland saltgrass
Ecological site number: 029XY004NV

**Playas**
Composition: 0 to 3 percent
Landform: Playa
Ecological site number: None

**Yomba**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood
Ecological site number: 029XY087NV

**Typic Camborthids**
Composition: 0 to 2 percent
Landform: Fan skirt
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

### *Management*

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

## 3475--Cirac-Keefa-Slaw association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,395 to 6,500 feet
Precipitation: 3 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Cirac sandy loam, 0 to 4 percent slopes--40 percent
Keefa gravelly sandy loam, 0 to 4 percent slopes--30 percent
Slaw silt loam, 0 to 2 percent slopes--15 percent
Playas, 0 to 1 percent slopes--6 percent
Nuyobe silt loam, 0 to 2 percent slopes--4 percent
Typic Camborthids sandy loam, 0 to 4 percent slopes--3 percent
Stumble loamy sand, 0 to 4 percent slopes--2 percent

### *Component Description*

**Cirac and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 60 inches; stratified gravelly sand to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

### *Component Description*

**Keefa and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; gravelly sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 5 inches

Present floooing: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Slaw and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Inland saltgrass, black greasewood

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 60 inches; stratified very fine sandy loam to silty clay

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 11 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY076NV

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

### *Contrasting Inclusions*

**Playas**
Composition: 0 to 6 percent
Landform: Flood-plain playa
Ecological site number: None

**Nuyobe**
Composition: 0 to 4 percent
Landform: Alluvial flat
Typical vegetation: Alkali sacaton, Baltic rush, inland saltgrass
Ecological site number: 029XY002NV

**Typic Camborthids**
Composition: 0 to 3 percent
Landform: Fan skirt
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

**Stumble**
Composition: 0 to 2 percent
Landform: Sand sheet
Typical vegetation: Indian ricegrass, sand dropseed, fourwing saltbush
Ecological site number: 029XY012NV

### *Management*

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

## 3480--Chuckridge-Zadvar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,800 to 7,000 feet
Precipitation: 8 to 12 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Chuckridge very cobbly loam, 2 to 8 percent slopes--75 percent
Zadvar cobbly sandy loam, 4 to 15 percent slopes--10 percent
Veet gravelly loamy sand, 2 to 8 percent slopes--7 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--5 percent
Handpah cobbly sandy loam, 2 to 8 percent slopes--3 percent

### *Component Description*

**Chuckridge and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very cobbly loam
Layer 2--3 to 14 inches; gravelly loam
Layer 3--14 to 27 inches; indurated
Layer 4--27 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 7 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; cobbly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Veet and similar soils**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Basin big sagebrush, basin wildrye, rubber rabbitbrush
Ecological site number: 029XY025NV

**Handpah and similar soils**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY006NV

### *Management*

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

## 3481--Chuckridge-Unsel-Veet association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,600 to 7,000 feet
Precipitation: 5 to 12 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Chuckridge gravelly sandy loam, 2 to 8 percent slopes--35 percent
Unsel gravelly fine sandy loam, 2 to 8 percent slopes--30 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--20 percent
Lyx very gravelly sandy loam, 2 to 8 percent slopes--7 percent
Stewval very gravelly fine sandy loam, 15 to 30 percent slopes--5 percent
Handpah gravelly loam, 2 to 8 percent slopes--2 percent
Xeric Torrifluvents very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Chuckridge and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; gravelly sandy loam
Layer 2--3 to 14 inches; gravelly loam
Layer 3--14 to 27 inches; indurated

Layer 4--27 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 7 to 14 inches
Available water capacity: About 1.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Lyx**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Stewval**
Composition: 0 to 5 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Handpah**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Xeric Torrifluvents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Desert peach, big sagebrush, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3491--Slaw-Easychair association

### *Map Unit Setting*

MLRA: 29
Landscape: Bolson, intermontane basin
Elevation: 4,700 to 6,500 feet
Precipitation: 5 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Slaw silt loam, 0 to 2 percent slopes--70 percent
Easychair silt loam, 0 to 2 percent slopes--15 percent
Xeric Torrifluvents silt loam, 0 to 2 percent slopes--6 percent
Penoyer silt loam, 0 to 2 percent slopes--6 percent
Slaw silt loam, 0 to 2 percent slopes--3 percent

### *Component Description*

**Slaw and similar soils**
Landform: Lake plain
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 60 inches; stratified very fine sandy loam to silty clay

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: High
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY059NV

### *Component Description*

Easychair and similar soils
Landform: Lake plain
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, fourwing saltbush

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 46 inches; silt loam
Layer 3--46 to 60 inches; sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 11 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY048NV

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

### *Contrasting Inclusions*

**Xeric Torrifluvents**
Composition: 0 to 6 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

**Penoyer**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY020NV

**Slaw**
Composition: 0 to 3 percent
Landform: Lake plain
Typical vegetation: Inland saltgrass, black greasewood
Ecological site number: 029XY076NV

### *Management*

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

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

## 3520--Rustigate loam, 0 to 2 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 3,395 to 6,295 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 55 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Rustigate loam, 0 to 2 percent slopes--90 percent
Typic Haplaquolls silt loam, 0 to 2 percent slopes--4 percent
Xerollic Camborthids very stony loamy sand, 2 to 4 percent slopes--4 percent
Typic Halaquepts silt loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Rustigate and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bottlebrush squirreltail, black greasewood, alkali sacaton

**Typical profile:**
Layer 1--0 to 4 inches; loam
Layer 2--4 to 25 inches; loam
Layer 3--25 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 9 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Somewhat poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 028BY004NV

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

### *Contrasting Inclusions*

**Typic Haplaquolls**
Composition: 0 to 4 percent
Landform: Depression
Typical vegetation: Alkali sacaton, sedge, alkali cordgrass
Ecological site number: 028BY002NV

**Xerollic Camborthids**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush, spiny hopsage
Ecological site number: 028BY052NV

**Typic Halaquepts**
Composition: 0 to 2 percent
Landform: Stream terrace
Typical vegetation: Sedge, alkali sacaton, alkali cordgrass
Ecological site number: 028BY002NV

### *Management*

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

## 3521--Rustigate-Nuyobe association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 3,995 to 6,295 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 55 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Rustigate loam, 0 to 2 percent slopes--45 percent
Nuyobe silt loam, 0 to 2 percent slopes--40 percent
Cirac sandy loam, 0 to 2 percent slopes--6 percent
Aquolls silt loam, 0 to 2 percent slopes--6 percent
Aquic Calciorthids silt loam, 0 to 2 percent slopes--3 percent

### *Component Description*

**Rustigate and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks

Typical vegetation: Alkali sacaton, inland saltgrass, basin wildrye, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; loam
Layer 2--4 to 25 inches; loam
Layer 3--25 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 9 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Somewhat poorly drained

**Interpretive Groups**
Irrigated land capability: 4w
Nonirrigated land capability: 7w
Ecological site number: 029XY004NV

### *Component Description*

**Nuyobe and similar soils**
Landform: Alluvial flat
Parent material: Lacustrine deposits derived from volcanic breccia
Typical vegetation: Alkali sacaton, inland saltgrass, Baltic rush

**Typical profile:**
Layer 1--0 to 5 inches; silt loam
Layer 2--5 to 60 inches; stratified very fine sandy loam to silty clay loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Poorly drained

**Interpretive Groups**
Irrigated land capability: 4w
Nonirrigated land capability: 7w
Ecological site number: 029XY002NV

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

### *Contrasting Inclusions*

**Cirac**
Composition: 0 to 6 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, shadscale, black greasewood
Ecological site number: 029XY024NV

**Aquolls**
Composition: 0 to 6 percent
Landform: Swale
Typical vegetation: Sedge, meadow barley, rush, Nevada bluegrass
Ecological site number: 029XY001NV

**Aquic Calciorthids**
Composition: 0 to 3 percent
Landform: Alluvial flat
Typical vegetation: Common spikerush, bulrush, cattail
Ecological site number: 029XY044NV

### *Management*

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

## 3522--Rustigate-Nuyobe-Kawich complex, 0 to 15 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Bolson, intermontane basin
Elevation: 3,995 to 6,295 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Rustigate loam, 0 to 2 percent slopes--40 percent
Nuyobe silt loam, 0 to 2 percent slopes--35 percent
Kawich fine sand, 0 to 15 percent slopes--15 percent
Cirac sandy loam, 0 to 2 percent slopes--6 percent
Playas, 0 to 1 percent slopes--3 percent
Aquolls loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Rustigate and similar soils**
Landform: Lake plain
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Alkali sacaton, basin wildrye, inland saltgrass, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; loam
Layer 2--4 to 25 inches; loam
Layer 3--25 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 9 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Somewhat poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY004NV

### *Component Description*

**Nuyobe and similar soils**
Landform: Alluvial flat
Parent material: Lacustrine deposits derived from volcanic breccia
Typical vegetation: Inland saltgrass, alkali sacaton, Baltic rush

**Typical profile:**
Layer 1--0 to 5 inches; silt loam
Layer 2--5 to 60 inches; stratified very fine sandy loam to silty clay loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 12 inches
Present flooding: Rare
Water table: Present
Natural drainage class: Poorly drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY002NV

### *Component Description*

**Kawich and similar soils**
Landform: Dune
Parent material: Eolian deposits
Typical vegetation: Indian ricegrass, black greasewood, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; fine sand
Layer 2--4 to 60 inches; fine sand

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

**Component Properties and Qualities**
Slope: 0 to 15 percent
Runoff: Very low
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY018NV

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

### *Contrasting Inclusions*

**Cirac**
Composition: 0 to 6 percent
Landform: Lake plain
Typical vegetation: Indian ricegrass, black greasewood, shadscale
Ecological site number: 029XY024NV

**Playas**
Composition: 0 to 3 percent
Landform: Playa
Ecological site number: None

**Aquolls**
Composition: 0 to 1 percent
Landform: Lake plain
Typical vegetation: Alkali sacaton, Baltic rush, inland saltgrass

Ecological site number: 029XY002NV

### *Management*

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

## 3530--Rebel sandy loam, 0 to 2 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 3,995 to 6,500 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Rebel sandy loam, 0 to 2 percent slopes--85 percent
Fluventic Haploxerolls silt loam, 0 to 2 percent slopes--9 percent
Rustigate sandy loam, 0 to 2 percent slopes--3 percent
Xerollic Camborthids very stony sandy loam, 2 to 4 percent slopes--2 percent
Xeric Torriorthents very gravelly loamy sand, 0 to 2 percent slopes--1 percent

### *Component Description*

**Rebel and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 16 inches; sandy loam
Layer 2--16 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Very low
Available water capacity: About 8 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Fluventic Haploxerolls**
Composition: 0 to 9 percent
Landform: Drainageway
Typical vegetation: Basin big sagebrush, basin wildrye
Ecological site number: 028BY003NV

**Rustigate**
Composition: 0 to 3 percent
Landform: Stream terrace
Typical vegetation: Bottlebrush squirreltail, alkali sacaton, black greasewood
Ecological site number: 028BY004NV

**Xerollic Camborthids**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass, spiny hopsage
Ecological site number: 028BY052NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Bottlebrush squirreltail, shadscale, Indian ricegrass
Ecological site number: 028BY009NV

### *Management*

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

## 3531--Rebel gravelly loamy coarse sand, 0 to 4 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 6,000 to 6,500 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 50 degrees Fahrenheit

Frost-free period: 100 to 120 days

### *Composition*

Rebel gravelly loamy coarse sand, 0 to 4 percent slopes--85 percent
Typic Torriorthents gravelly loamy sand, 0 to 4 percent slopes--6 percent
Xeric Torrifluvents silt loam, 0 to 4 percent slopes--6 percent
Xeric Torriorthents very gravelly sandy loam, 0 to 2 percent slopes--2 percent
Rustigate loam, 0 to 2 percent slopes--1 percent

### *Component Description*

**Rebel and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Big sagebrush, black greasewood, basin wildrye

**Typical profile:**
Layer 1--0 to 9 inches; gravelly loamy coarse sand
Layer 2--9 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 8 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY028NV

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

### *Contrasting Inclusions*

**Typic Torriorthents**
Composition: 0 to 6 percent
Landform: Stream terrace
Typical vegetation: Shadscale, black greasewood
Ecological site number: 028BY074NV

**Xeric Torrifluvents**
Composition: 0 to 6 percent
Landform: Drainageway
Typical vegetation: Basin wildrye, basin big sagebrush
Ecological site number: 028BY041NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, shadscale
Ecological site number: 028BY009NV

**Rustigate**
Composition: 0 to 1 percent
Landform: Stream terrace
Typical vegetation: Bottlebrush squirreltail, black greasewood, alkali sacaton
Ecological site number: 028BY004NV

### *Management*

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

## 3540--Packer-Suak-Foxvire association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 7,200 to 9,995 feet
Precipitation: 12 to 18 inches
Air temperature: 39 to 45 degrees Fahrenheit
Frost-free period: 50 to 80 days

### *Composition*

Packer very gravelly loam, 15 to 50 percent slopes--40 percent
Suak very stony loam, 15 to 30 percent slopes--35 percent
Foxvire gravelly loam, 30 to 75 percent slopes--15 percent
Lithic Cryoborolls gravelly loam, 50 to 75 percent slopes--4 percent
Lithic Cryoborolls gravelly loam, 50 to 75 percent slopes--4 percent
Squawtip gravelly loam, 50 to 75 percent slopes--3 percent
Squawtip very stony loam, 50 to 75 percent slopes--3 percent
Rock outcrop--3 percent

### *Component Description*

**Packer and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Letterman needlegrass, low sagebrush, muttongrass

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly loam
Layer 2--5 to 13 inches; extremely cobbly loam
Layer 3--13 to 60 inches; extremely cobbly sandy loam

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: High
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY052NV

### *Component Description*

**Suak and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Curlleaf mountainmahogany

**Typical profile:**
Layer 1--0 to 6 inches; very stony loam
Layer 2--6 to 25 inches; extremely cobbly loam
Layer 3--25 to 29 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 30 percent, northeast to north aspects
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 20 to 40 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY027NV

### *Component Description*

**Foxvire and similar soils**
Landform: Mountains
Parent material: Colluvium derived from volcanic breccia
Typical vegetation: Letterman needlegrass, muttongrass, mountain big sagebrush

**Typical profile:**
Layer 1--0 to 13 inches; gravelly loam
Layer 2--13 to 60 inches; gravelly loam

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Medium
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7e
Ecological site number: 029XY051NV

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

### *Contrasting Inclusions*

**Lithic Cryoborolls**
Composition: 0 to 4 percent
Landform: Mountains
Typical vegetation: Sandberg bluegrass, antelope bitterbrush, Letterman needlegrass, Columbia needlegrass, mountain big sagebrush
Ecological site number: 029XY066NV

**Squawtip**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Sandberg bluegrass, Letterman needlegrass, antelope bitterbrush, Columbia needlegrass, mountain big sagebrush
Ecological site number: 029XY066NV

**Rock outcrop**
Composition: 0 to 3 percent
Landform: Mountains
Ecological site number: None

### *Management*

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

## 3560--Ubehebe-Penelas-Logring association

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 6,000 to 7,995 feet
Precipitation: 8 to 14 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Ubehebe very gravelly sandy loam, 30 to 50 percent slopes--45 percent
Penelas very channery loam, 15 to 30 percent slopes--20 percent
Logring very gravelly loam, 30 to 75 percent slopes--20 percent
Rock outcrop--7 percent
Xeric Torriorthents very gravelly sandy loam, 15 to 50 percent slopes--4 percent
Kyler very gravelly loam, 15 to 30 percent slopes--4 percent

### *Component Description*

**Ubehebe and similar soils**
Landform: Hill
Parent material: Colluvium derived from interbedded sedimentary rock over residuum weathered from interbedded sedimentary rock
Typical vegetation: Bluegrass, bottlebrush squirreltail, muttongrass, black sagebrush, other perennial forbs, green ephedra, Stansbury cliffrose, singleleaf pinyon

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly sandy loam
Layer 2--1 to 4 inches; very gravelly loam
Layer 3--4 to 15 inches; very gravelly loam
Layer 4--15 to 19 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Penelas and similar soils**
Landform: Hill
Parent material: Colluvium derived from interbedded sedimentary rock over residuum weathered from interbedded sedimentary rock
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very channery loam
Layer 2--2 to 10 inches; extremely channery clay loam
Layer 3--10 to 14 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 5 to 14 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Logring and similar soils**
Landform: Hill
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Bluegrass, muttongrass, bottlebrush squirreltail, singleleaf pinyon, black sagebrush, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 12 inches; very cobbly loam
Layer 3--12 to 16 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.0 inches

Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 7 percent
Landform: Hill
Ecological site number: None

**Xeric Torriorthents**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

**Kyler**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush
Ecological site number: 029XY014NV

### *Management*

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

## 3570--Eaglepass-Kyler-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,200 to 7,800 feet
Precipitation: 8 to 12 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Eaglepass extremely stony loam, 30 to 75 percent slopes--35 percent
Kyler extremely cobbly loam, 15 to 50 percent slopes--30 percent
Rock outcrop--25 percent
Calciorthidic Haploxerolls extremely stony loam, 15 to 50 percent slopes--5 percent
Lithic Xerollic Haplargids extremely cobbly sandy loam, 8 to 30 percent slopes--3 percent
Xeric Torriorthents very stony sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountain mahogany

**Typical profile:**
Layer 1--0 to 1 inches; extremely stony loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 6 inches
Available water capacity: About 0.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Needleandthread, Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; extremely cobbly loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Calciorthidic Haploxerolls**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Muttongrass, singleleaf pinyon, bluegrass, bottlebrush squirreltail, black sagebrush, green ephedra, Stansbury cliffrose
Ecological site number: 029XY069NV

**Lithic Xerollic Haplargids**
Composition: 0 to 3 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Desert peach, big sagebrush, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3571--Eaglepass-Rock outcrop complex, 30 to 75 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,895 to 7,800 feet
Precipitation: 8 to 10 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Eaglepass extremely stony loam, 30 to 50 percent slopes--55 percent
Eaglepass extremely stony loam, 50 to 75 percent slopes--20 percent
Rock outcrop--10 percent
Logring very stony sandy loam, 30 to 75 percent slopes--8 percent
Kyler very stony loam, 15 to 30 percent slopes--5 percent
Xeric Torriorthents very stony sandy loam, 2 to 15 percent slopes--2 percent

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountain mahogany

**Typical profile:**
Layer 1--0 to 1 inches; extremely stony loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 6 inches
Available water capacity: About 0.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains

Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountain mahogany

**Typical profile:**
Layer 1--0 to 1 inches; extremely stony loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 50 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 6 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Logring**
Composition: 0 to 8 percent
Landform: Mountains
Typical vegetation: Bluegrass, bottlebrush squirreltail, black sagebrush, muttongrass, green ephedra, singleleaf pinyon, Stansbury cliffrose
Ecological site number: 029XY069NV

**Kyler**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush
Ecological site number: 029XY014NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3572--Eaglepass-Kyler-Rock outcrop complex, 15 to 75 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,200 to 7,800 feet
Precipitation: 8 to 12 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Eaglepass extremely stony loam, 30 to 75 percent slopes--35 percent
Kyler extremely cobbly loam, 15 to 50 percent slopes--30 percent
Rock outcrop--25 percent
Kyler extremely cobbly loam, 15 to 50 percent slopes--5 percent
Calciorthidic Haploxerolls very cobbly loam, 0 to 0 percent slopes--3 percent
Xeric Torriorthents very stony sandy loam, 2 to 15 percent slopes--2 percent

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountainmahogany

**Typical profile:**
Layer 1--0 to 1 inches; extremely stony loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high

Depth to restrictive feature: Bedrock (lithic): 4 to 6 inches
Available water capacity: About 0.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Beardless wheatgrass, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; extremely cobbly loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY028NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Kyler**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread
Ecological site number: 029XY014NV

**Calciorthidic Haploxerolls**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Mountain big sagebrush
Ecological site number: 029XY026NV

### *Management*

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

## 3580--Kyler-Rock outcrop complex, 15 to 50 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,200 to 7,795 feet
Precipitation: 8 to 12 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Kyler very gravelly very fine sandy loam, 15 to 50 percent slopes--75 percent
Rock outcrop--15 percent
Eaglepass extremely stony loam, 15 to 50 percent slopes--8 percent
Logring extremely stony loam, 15 to 50 percent slopes--2 percent

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly very fine sandy loam

Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Eaglepass**
Composition: 0 to 8 percent
Landform: Mountains
Typical vegetation: Littleleaf mountain mahogany
Ecological site number: 029XY040NV

**Logring**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Bluegrass, bottlebrush squirreltail, black sagebrush, green ephedra, Stansbury cliffrose, muttongrass, singleleaf pinyon
Ecological site number: 029XY069NV

### *Management*

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

## 3581--Kyler, moist-Rock outcrop complex, 15 to 50 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,200 to 7,795 feet
Precipitation: 8 to 12 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Kyler very gravelly very fine sandy loam, 15 to 50 percent slopes--70 percent
Rock outcrop--20 percent
Eaglepass extremely stony loam, 30 to 50 percent slopes--5 percent
Hopeka very stony loam, 30 to 50 percent slopes--3 percent
Xeric Torrifluvents very gravelly loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Beardless wheatgrass, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly very fine sandy loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY028NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Eaglepass**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Littleleaf mountain mahogany
Ecological site number: 029XY040NV

**Hopeka**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, bluegrass, bottlebrush squirreltail, black sagebrush, bluebunch wheatgrass
Ecological site number: 028BY060NV

**Xeric Torrifluvents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3590--Allker-Portmount association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,495 to 6,695 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Allker gravelly sandy loam, 2 to 8 percent slopes--65 percent
Portmount gravelly sandy loam, 0 to 8 percent slopes--25 percent
Xerollic Camborthids gravelly sandy loam, 2 to 15 percent slopes--5 percent
Zadvar gravelly sandy loam, 2 to 8 percent slopes--2 percent
Stewval sandy loam, 8 to 40 percent slopes--2 percent
Easychair silt loam, 0 to 8 percent slopes--1 percent

### *Component Description*

**Allker and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 9 inches; gravelly sandy loam
Layer 2--9 to 24 inches; gravelly loam
Layer 3--24 to 32 inches; gravelly loam
Layer 4--32 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

### *Component Description*

**Portmount and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches; gravelly sandy loam
Layer 2--3 to 12 inches; sandy loam
Layer 3--12 to 60 inches; gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 8 percent
Runoff: Low
Available water capacity: About 6 inches

Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6s
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Xerollic Camborthids**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, needleandthread, spiny hopsage, Wyoming big sagebrush
Ecological site number: 028BY052NV

**Zadvar**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Stewval**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Easychair**
Composition: 0 to 1 percent
Landform: Inset fan
Typical vegetation: Basin wildrye, fourwing saltbush
Ecological site number: 029XY048NV

### *Management*

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

## 3600--Ardivey-Hollywell-Belted association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,000 to 6,500 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 54 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Ardivey very gravelly sandy loam, 2 to 8 percent slopes--45 percent
Hollywell very gravelly loamy sand, 4 to 8 percent slopes--25 percent
Belted very gravelly loam, 2 to 8 percent slopes--15 percent
Izo very gravelly sand, 0 to 8 percent slopes--5 percent
Lyx, 4 to 8 percent slopes--4 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--4 percent
Chuckridge very gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Ardivey and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly sandy loam
Layer 2--8 to 17 inches; very gravelly clay loam
Layer 3--17 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Hollywell and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly loamy sand
Layer 2--4 to 12 inches; gravelly fine sandy loam
Layer 3--12 to 60 inches; stratified very gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Belted and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly loam
Layer 2--4 to 11 inches; gravelly loam
Layer 3--11 to 17 inches; cemented
Layer 4--17 to 60 inches; very gravelly coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 6 to 14 inches
Salinity: Saline within 40 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Izo**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

**Lyx**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Veet**
Composition: 0 to 4 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Chuckridge**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

### *Management*

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

## 3601--Ardivey-Zadvar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 7,700 feet
Precipitation: 4 to 10 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Ardivey very gravelly sandy loam, 4 to 15 percent slopes--55 percent
Zadvar very gravelly sandy loam, 4 to 15 percent slopes--35 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--4 percent
Stewval very gravelly sandy loam, 4 to 15 percent slopes--3 percent
Unsel gravelly sandy loam, 2 to 8 percent slopes--3 percent

### *Component Description*

**Ardivey and similar soils**
Landform: Fan remnant

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

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly sandy loam
Layer 2--8 to 17 inches; very gravelly clay loam
Layer 3--17 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: High
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Stewval**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Unsel**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

### *Management*

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

## 3610--Tokoper-Garhill-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 4,995 to 7,200 feet
Precipitation: 5 to 8 inches
Air temperature: 51 to 54 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Tokoper very cobbly sandy loam, 4 to 15 percent slopes--55 percent
Garhill very gravelly sandy loam, 15 to 30 percent slopes--15 percent
Rock outcrop--15 percent
Typic Durargids extremely cobbly fine sandy loam, 15 to 30 percent slopes--6 percent
Downeyville very gravelly sandy loam, 30 to 50 percent slopes--4 percent
Gabbvally very stony sandy loam, 30 to 50 percent slopes--3 percent

Argalt very cobbly sandy loam, 8 to 15 percent slopes--2 percent

### *Component Description*

**Tokoper and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very cobbly sandy loam
Layer 2--2 to 5 inches; very gravelly sandy clay loam
Layer 3--5 to 9 inches; very gravelly sandy loam
Layer 4--9 to 15 inches; indurated
Layer 5--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Bedrock (lithic): 8 to 15 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Garhill and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly sandy loam
Layer 2--1 to 6 inches; fine sandy loam
Layer 3--6 to 10 inches; gravelly sandy loam
Layer 4--10 to 21 inches; indurated
Layer 5--21 to 25 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 7 to 14 inches
Bedrock (lithic): 12 to 30 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Rock outcrop**
Landform: Hill

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Typic Durargids**
Composition: 0 to 6 percent
Landform: Hill
Typical vegetation: Black sagebrush, bottlebrush squirreltail, Sandberg bluegrass, green ephedra, Indian ricegrass
Ecological site number: 029XY071NV

**Downeyville**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY022NV

**Gabbvally**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 029XY010NV

**Argalt**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

### *Management*

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

## 3620--Argalt-Stewval-Gabbvally association

### *Map Unit Setting*

MLRA: 29
Landscape: Plateau
Elevation: 5,495 to 7,700 feet
Precipitation: 8 to 12 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Argalt very stony fine sandy loam, 2 to 15 percent slopes--60 percent
Stewval very stony fine sandy loam, 15 to 50 percent slopes--15 percent
Gabbvally very stony loam, 30 to 50 percent slopes--10 percent
Rock outcrop--6 percent
Garhill very gravelly sandy loam, 15 to 30 percent slopes--5 percent
Veet gravelly sandy loam, 2 to 15 percent slopes--4 percent

### *Component Description*

**Argalt and similar soils**
Landform: Plateau
Parent material: Volcanic ash and/or colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony fine sandy loam
Layer 2--1 to 4 inches; very fine sandy loam
Layer 3--4 to 11 inches; loam
Layer 4--11 to 15 inches; indurated
Layer 5--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 2 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Bedrock (lithic): 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Stewval and similar soils**
Landform: Plateau
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Gabbvally and similar soils**
Landform: Plateau
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 2 inches; very stony loam
Layer 2--2 to 11 inches; very gravelly sandy clay loam
Layer 3--11 to 15 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent, northeast to north aspects

Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY010NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 6 percent
Landform: Plateau
Ecological site number: None

**Garhill**
Composition: 0 to 5 percent
Landform: Plateau
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY022NV

**Veet**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

## 3630--Lyx-Geer-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,500 feet
Precipitation: 4 to 8 inches
Air temperature: 54 to 57 degrees Fahrenheit
Frost-free period: 120 to 160 days

### *Composition*

Lyx very gravelly loamy sand, 2 to 4 percent slopes--35 percent
Geer fine sandy loam, 0 to 2 percent slopes--30 percent
Koyen gravelly sandy loam, 0 to 4 percent slopes--20 percent
Unsel very gravelly sandy loam, 2 to 4 percent slopes--8 percent
Veet very gravelly sandy loam, 2 to 4 percent slopes--4 percent
Leo very gravelly loamy sand, 4 to 8 percent slopes--3 percent

### *Component Description*

**Lyx and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

### *Component Description*

**Geer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam
Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Unsel**
Composition: 0 to 8 percent
Landform: Fan remnant
Ecological site number: None

**Veet**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Leo**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Fourwing saltbush, Indian ricegrass, spiny hopsage
Ecological site number: 029XY016NV

### *Management*

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

## 3640--Armespan-Zadvar-Veet association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,495 to 7,495 feet
Precipitation: 8 to 12 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Armespan very gravelly sandy loam, 4 to 30 percent slopes--40 percent
Zadvar very gravelly sandy loam, 4 to 15 percent slopes--35 percent
Veet very gravelly sandy loam, 4 to 8 percent slopes--10 percent
Candelaria very gravelly sandy loam, 4 to 8 percent slopes--4 percent
Cliffdown very gravelly fine sandy loam, 2 to 4 percent slopes--4 percent
Stewval very stony fine sandy loam, 4 to 50 percent slopes--4 percent
Leo very gravelly sandy loam, 4 to 8 percent slopes--3 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 sandy loam
Layer 4--18 to 28 inches; very gravelly sandy loam
Layer 5--28 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7e
Ecological site number: 029XY008NV

### *Component Description*

**Zadvar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 10 inches; gravelly clay loam
Layer 3--10 to 14 inches; cemented
Layer 4--14 to 60 inches; stratified very gravelly coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 14 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Candelaria and similar soils**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Spiny hopsage, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY016NV

**Cliffdown and similar soils**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Stewval and similar soils**
Composition: 0 to 4 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Leo and similar soils**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage
Ecological site number: 029XY016NV

### *Management*

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

"Engineering" and "Soil Properties" sections

## 3641--Armespan-Lyx-Candelaria association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 12 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Armespan very gravelly sandy loam, 2 to 8 percent slopes--40 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--30 percent
Candelaria very gravelly sandy loam, 2 to 8 percent slopes--20 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--5 percent
Leo very gravelly sandy loam, 4 to 8 percent slopes--5 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from interbedded sedimentary rock
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Lyx and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam
Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None

Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

**Leo**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

### *Management*

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

## 3642--Armespan very gravelly sandy loam, 8 to 30 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,600 to 7,000 feet
Precipitation: 8 to 12 inches
Air temperature: 52 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Armespan very gravelly sandy loam, 8 to 30 percent slopes--85 percent
Xeric Torriorthents very gravelly loamy sand, 15 to 50 percent slopes--6 percent
Xeric Torriorthents very gravelly loamy sand, 15 to 50 percent slopes--4 percent
Typic Torriorthents very gravelly loamy sand, 15 to 50 percent slopes--3 percent
Xeric Torrifluvents very gravelly loamy sand, 4 to 15 percent slopes--2 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7e
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush
Ecological site number: 029XY014NV

**Xeric Torriorthents**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Bluegrass, muttongrass, bottlebrush squirreltail, singleleaf pinyon, black sagebrush, green ephedra, Stansbury cliffrose
Ecological site number: 029XY069NV

**Typic Torriorthents**
Composition: 0 to 3 percent
Landform: Fan remnant

Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY022NV

**Xeric Torrifluvents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3643--Armespan-Morbench association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,600 to 7,095 feet
Precipitation: 8 to 14 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Armespan very gravelly sandy loam, 4 to 15 percent slopes--65 percent
Morbench gravelly sandy loam, 8 to 15 percent slopes--20 percent
Xeric Torriorthents very gravelly sandy loam, 15 to 50 percent slopes--8 percent
Stewval very cobbly sandy loam, 8 to 30 percent slopes--3 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--2 percent
Rock outcrop--2 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Morbench and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Muttongrass, singleleaf pinyon, Sandberg bluegrass, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 29 inches; very gravelly sandy loam
Layer 3--29 to 50 inches; very gravelly loamy sand
Layer 4--50 to 60 inches; stratified very gravelly sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 8 to 15 percent
Runoff: Medium
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY058NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Sandberg bluegrass, muttongrass, Stansbury cliffrose, singleleaf pinyon

Ecological site number: 029XY058NV

**Stewval**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Veet**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Rock outcrop**
Composition: 0 to 2 percent
Landform: Hill
Ecological site number: None

### *Management*

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

## 3644--Armespan-Cliffdown-Candelaria association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,995 to 7,000 feet
Precipitation: 4 to 12 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Armespan very gravelly sandy loam, 4 to 15 percent slopes--40 percent
Cliffdown very gravelly sandy loam, 4 to 15 percent slopes--25 percent
Candelaria very gravelly sandy loam, 4 to 15 percent slopes--25 percent
Watoopah sandy loam, 2 to 8 percent slopes--5 percent
Typic Calciorthids very gravelly sandy loam, 4 to 30 percent slopes--3 percent
Cath gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Cliffdown and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 60 inches; stratified gravelly sandy loam to very gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY042NV

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant

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

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam
Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Watoopah**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Typic Calciorthids**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale
Ecological site number: 029XY087NV

**Cath**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 029XY006NV

### *Management*

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

## 3645--Armespan-Clowfin-Peeko association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,995 to 6,500 feet
Precipitation: 6 to 12 inches
Air temperature: 47 to 54 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Armespan very gravelly sandy loam, 4 to 15 percent slopes--35 percent
Clowfin gravelly loam, 2 to 4 percent slopes--30 percent
Peeko gravelly loam, 2 to 8 percent slopes--20 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--7 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--5 percent
Univega gravelly loamy sand, 2 to 8 percent slopes--2 percent
Xeric Torriorthents very gravelly sandy loam, 2 to 4 percent slopes--1 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None

Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Clowfin and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, bottlebrush squirreltail

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 46 inches; stratified very gravelly sandy loam to very gravelly loam
Layer 3--46 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY013NV

### *Component Description*

**Peeko and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Needleandthread, Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 8 inches; gravelly loam
Layer 2--8 to 13 inches; gravelly silt loam
Layer 3--13 to 60 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Fan skirt
Typical vegetation: Spiny hopsage, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY016NV

**Univega**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Desert peach, big sagebrush, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3647--Armespan-Spager association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont

Elevation: 5,600 to 7,000 feet
Precipitation: 8 to 12 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Armespan very gravelly sandy loam, 2 to 8 percent slopes--50 percent
Spager gravelly loam, 2 to 30 percent slopes--35 percent
Durixerollic Calciorthids silt loam, 2 to 8 percent slopes--7 percent
Xerollic Paleorthids very gravelly sandy loam, 8 to 30 percent slopes--4 percent
Typic Calciorthids very gravelly sandy loam, 2 to 8 percent slopes--4 percent

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

### *Component Description*

**Spager and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, Fremont's mahonia, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loam
Layer 2--2 to 12 inches; very gravelly loam
Layer 3--12 to 16 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 30 percent
Runoff: High
Depth to restrictive feature: Petrocalcic: 10 to 20 inches
Sodicity: Sodic within 40 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY047NV

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

### *Contrasting Inclusions*

**Durixerollic Calciorthids**
Composition: 0 to 7 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 028BY010NV

**Xerollic Paleorthids**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Pigmy sagebrush
Ecological site number: 029XY092NV

**Typic Calciorthids**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY017NV

### *Management*

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

## 3651--Candelaria very gravelly sandy loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,395 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Candelaria very gravelly sandy loam, 2 to 8 percent slopes--85 percent
Wardenot very gravelly loamy sand, 2 to 8 percent slopes--9 percent
Hollywell very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam
Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Wardenot**
Composition: 0 to 9 percent
Landform: Inset fan
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY017NV

**Hollywell**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY017NV

**Lyx**
Composition: 0 to 1 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

### *Management*

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

## 3655--Candelaria-Armespan association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,600 to 7,000 feet
Precipitation: 4 to 12 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 100 to 140 days

### *Composition*

Candelaria very gravelly sandy loam, 4 to 15 percent slopes--50 percent
Armespan very gravelly sandy loam, 4 to 15 percent slopes--35 percent
Leo very gravelly sandy loam, 4 to 15 percent slopes--8 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--1 percent
Rock outcrop--1 percent

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant

Parent material: Alluvium derived from limestone
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam
Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Armespan and similar soils**
Landform: Fan remnant
Parent material: Alluvium
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
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 Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Leo**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

**Veet**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Desert peach, big sagebrush, rubber rabbitbrush
Ecological site number: 029XY009NV

**Rock outcrop**
Composition: 0 to 1 percent
Landform: Hill
Ecological site number: None

### *Management*

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

## 3660--Titiack-Garhill association

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 4,995 to 7,200 feet
Precipitation: 6 to 8 inches
Air temperature: 51 to 55 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Titiack very gravelly sandy loam, 8 to 50 percent slopes--75 percent
Garhill very stony loamy fine sand, 8 to 30 percent slopes--10 percent

Xeric Torriorthents gravelly sandy loam, 8 to 50 percent slopes--8 percent
Haploxerollic Durargids gravelly sandy loam, 2 to 8 percent slopes--4 percent
Rock outcrop--2 percent
Playas, 0 to 1 percent slopes--1 percent

### *Component Description*

**Titiack and similar soils**
Landform: Hill
Parent material: Colluvium derived from pyroclastic rock over residuum weathered from pyroclastic rock
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 10 inches; very gravelly sandy loam
Layer 2--10 to 15 inches; very cobbly sandy loam
Layer 3--15 to 60 inches; cinders

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Garhill and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 1 inches; very stony loamy fine sand
Layer 2--1 to 6 inches; fine sandy loam
Layer 3--6 to 10 inches; gravelly sandy loam
Layer 4--10 to 21 inches; indurated
Layer 5--21 to 25 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 7 to 14 inches
Bedrock (lithic): 12 to 30 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 8 percent
Landform: Hill
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY010NV

**Haploxerollic Durargids**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Rock outcrop**
Composition: 0 to 2 percent
Landform: Mountains
Ecological site number: None

**Playas**
Composition: 0 to 1 percent
Landform: Playa
Ecological site number: None

### *Management*

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

## 3670--Logring-Rock outcrop-Kyler association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 6,495 to 7,995 feet

Precipitation: 8 to 14 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Logring very cobbly fine sandy loam, 30 to 75 percent slopes--50 percent
Rock outcrop--20 percent
Kyler extremely cobbly loam, 8 to 30 percent slopes--15 percent
Ubehebe very cobbly sandy loam, 30 to 50 percent slopes--6 percent
Xerollic Haplargids very gravelly loam, 8 to 30 percent slopes--5 percent
Xeric Torriorthents stony sandy loam, 2 to 8 percent slopes--2 percent
Cryic Rendolls very cobbly loam, 30 to 75 percent slopes--2 percent

### *Component Description*

**Logring and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Muttongrass, singleleaf pinyon, bluegrass, bottlebrush squirreltail, black sagebrush, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 3 inches; very cobbly fine sandy loam
Layer 2--3 to 12 inches; very cobbly loam
Layer 3--12 to 16 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; extremely cobbly loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

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

### *Contrasting Inclusions*

**Ubehebe**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Muttongrass, singleleaf pinyon, bluegrass, bottlebrush squirreltail, black sagebrush, green ephedra, Stansbury cliffrose
Ecological site number: 029XY069NV

**Xerollic Haplargids**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY010NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

**Cryic Rendolls**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Letterman needlegrass, mountain big sagebrush, muttongrass
Ecological site number: 029XY051NV

### *Management*

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

## 3671--Logring-Eaglepass association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 6,495 to 8,000 feet
Precipitation: 8 to 14 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Logring very cobbly fine sandy loam, 15 to 50 percent slopes--65 percent
Eaglepass extremely stony loam, 30 to 75 percent slopes--20 percent
Rock outcrop--7 percent
Kyler very stony sandy loam, 30 to 75 percent slopes--7 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Logring and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Bluegrass, bottlebrush squirreltail, muttongrass, black sagebrush, singleleaf pinyon, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 3 inches; very cobbly fine sandy loam
Layer 2--3 to 12 inches; very cobbly loam
Layer 3--12 to 16 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountain mahogany

**Typical profile:**
Layer 1--0 to 1 inches; extremely stony loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 6 inches
Available water capacity: About 0.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 7 percent

Landform: Mountains
Ecological site number: None

**Kyler**
Composition: 0 to 7 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread
Ecological site number: 029XY014NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3672--Logring-Kyler-Eaglepass association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 6,495 to 8,000 feet
Precipitation: 8 to 14 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Logring very gravelly loam, 15 to 50 percent slopes--40 percent
Kyler extremely cobbly loam, 8 to 30 percent slopes--30 percent
Eaglepass extremely stony loam, 8 to 50 percent slopes--20 percent
Rock outcrop--8 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent

### *Component Description*

**Logring and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Bluegrass, bottlebrush squirreltail, muttongrass, black sagebrush, singleleaf pinyon, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loam
Layer 2--3 to 12 inches; very cobbly loam
Layer 3--12 to 16 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 7 to 14 inches
Available water capacity: About 1.0 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 5 inches; extremely cobbly loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Eaglepass and similar soils**
Landform: Mountains

Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Littleleaf mountain mahogany

**Typical profile:**
Layer 1--0 to 1 inches; extremely stony loam
Layer 2--1 to 4 inches; extremely stony loam
Layer 3--4 to 14 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 6 inches
Available water capacity: About 0.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY040NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 8 percent
Landform: Mountains
Ecological site number: None

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Desert peach, big sagebrush, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3700--Leo-Delamar association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,595 to 4,995 feet
Precipitation: 5 to 8 inches
Air temperature: 50 to 55 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Leo gravelly sandy loam, 2 to 8 percent slopes--55 percent
Delamar sandy loam, 2 to 8 percent slopes--30 percent
Veet very gravelly sandy loam, 2 to 8 percent slopes--6 percent
Unsel gravelly sandy loam, 2 to 8 percent slopes--6 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--3 percent

### *Component Description*

**Leo and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 8 inches; gravelly sandy loam
Layer 2--8 to 60 inches; stratified extremely gravelly coarse sand to gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

### *Component Description*

**Delamar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Spiny hopsage, Indian ricegrass, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 12 inches; sandy loam
Layer 3--12 to 20 inches; gravelly clay loam
Layer 4--20 to 25 inches; gravelly sandy loam
Layer 5--25 to 29 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Unsel**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY017NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3702--Leo-Hollywell association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,000 to 5,600 feet
Precipitation: 5 to 8 inches
Air temperature: 50 to 53 degrees Fahrenheit
Frost-free period: 110 to 130 days

### *Composition*

Leo very gravelly sandy loam, 2 to 8 percent slopes--50 percent
Hollywell gravelly loamy sand, 2 to 8 percent slopes--40 percent
Izo very gravelly loamy sand, 2 to 8 percent slopes--6 percent
Typic Camborthids gravelly sandy loam, 2 to 4 percent slopes--4 percent

### *Component Description*

**Leo and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly sandy loam
Layer 2--8 to 60 inches; stratified extremely gravelly coarse sand to gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

### *Component Description*

**Hollywell and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loamy sand
Layer 2--4 to 12 inches; gravelly fine sandy loam
Layer 3--12 to 60 inches; stratified very gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Izo**
Composition: 0 to 6 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

**Typic Camborthids**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Rubber rabbitbrush, Indian ricegrass
Ecological site number: 029XY041NV

### *Management*

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

## 3703--Leo-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,995 to 6,500 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Leo gravelly sandy loam, 2 to 8 percent slopes--45 percent
Koyen gravelly sandy loam, 2 to 8 percent slopes--40 percent
Duric Haplargids gravelly sandy loam, 2 to 8 percent slopes--10 percent
Durixerollic Haplargids gravelly sandy loam, 2 to 8 percent slopes--2 percent
Typic Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent
Typic Torripsamments gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Leo and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Spiny hopsage, Indian ricegrass, fourwing saltbush

**Typical profile:**
Layer 1--0 to 8 inches; gravelly sandy loam
Layer 2--8 to 60 inches; stratified extremely gravelly coarse sand to gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam

Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Duric Haplargids**
Composition: 0 to 10 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

**Durixerollic Haplargids**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 029XY006NV

**Typic Torriorthents**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, spiny hopsage, Indian ricegrass
Ecological site number: 029XY016NV

**Typic Torripsamments**
Composition: 0 to 1 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

### *Management*

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

## 3710--Beelem-Rock outcrop complex, 15 to 50 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Foothills
Elevation: 5,800 to 7,995 feet
Precipitation: 10 to 12 inches
Air temperature: 48 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Beelem gravelly sandy loam, 15 to 50 percent slopes--50 percent
Rock outcrop--35 percent
Stewval very stony fine sandy loam, 15 to 50 percent slopes--9 percent
Beelem very stony sandy loam, 50 to 75 percent slopes--5 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Beelem and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum
Typical vegetation: Indian ricegrass, black sagebrush, desert needlegrass, needleandthread

**Typical profile:**
Layer 1--0 to 2 inches; gravelly sandy loam
Layer 2--2 to 5 inches; gravelly sandy loam
Layer 3--5 to 9 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 9 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY081NV

### *Component Description*

**Rock outcrop**
Landform: Hill

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Stewval**
Composition: 0 to 9 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Beelem**
Composition: 0 to 5 percent
Landform: Hill
Typical vegetation: Desert needlegrass, needleandthread, Indian ricegrass, black sagebrush
Ecological site number: 029XY081NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3730--Penelas-Kyler-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 5,200 to 7,795 feet
Precipitation: 8 to 12 inches
Air temperature: 48 to 54 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Penelas very channery loam, 4 to 30 percent slopes--40 percent
Kyler very gravelly very fine sandy loam, 8 to 50 percent slopes--35 percent
Rock outcrop--15 percent
Kyler very stony loam, 50 to 75 percent slopes--6 percent
Xerollic Haplargids very gravelly loam, 15 to 50 percent slopes--3 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Penelas and similar soils**
Landform: Mountains
Parent material: Colluvium derived from interbedded sedimentary rock over residuum weathered from interbedded sedimentary rock
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very channery loam
Layer 2--2 to 10 inches; extremely channery clay loam
Layer 3--10 to 14 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 5 to 14 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly very fine sandy loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Kyler**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Needleandthread, Indian ricegrass, black sagebrush
Ecological site number: 029XY014NV

**Xerollic Haplargids**
Composition: 0 to 3 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 029XY010NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, desert peach, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3731--Penelas-Ubehebe-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Foothills
Elevation: 6,000 to 7,795 feet
Precipitation: 8 to 13 inches
Air temperature: 45 to 54 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Penelas very channery loam, 8 to 50 percent slopes--45 percent
Ubehebe very gravelly sandy loam, 30 to 50 percent slopes--30 percent
Rock outcrop--15 percent
Stewval very gravelly sandy loam, 8 to 50 percent slopes--5 percent
Xeric Torriorthents very gravelly sandy loam, 2 to 8 percent slopes--3 percent
Eaglepass very gravelly sandy loam, 30 to 75 percent slopes--2 percent

### *Component Description*

**Penelas and similar soils**
Landform: Hill
Parent material: Colluvium derived from mixed over residuum weathered from mixed
Typical vegetation: Needleandthread, Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very channery loam
Layer 2--2 to 10 inches; extremely channery clay loam
Layer 3--10 to 14 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 50 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 5 to 14 inches
Available water capacity: About 0.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY014NV

### *Component Description*

**Ubehebe and similar soils**
Landform: Hill
Parent material: Colluvium derived from mixed over residuum weathered from mixed
Typical vegetation: Bluegrass, bottlebrush squirreltail, muttongrass, black sagebrush, singleleaf pinyon, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly sandy loam
Layer 2--1 to 4 inches; very gravelly loam
Layer 3--4 to 15 inches; very gravelly loam
Layer 4--15 to 19 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 50 percent, northeast to north aspects
Runoff: High
Depth to restrictive feature: Bedrock (paralithic): 14 to 20 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Stewval**
Composition: 0 to 5 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, other shrubs, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

**Eaglepass**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Littleleaf mountain mahogany
Ecological site number: 029XY040NV

### *Management*

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

## 3740--Keefa-Unsel association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,395 to 6,500 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Keefa sandy loam, 2 to 8 percent slopes--50 percent
Unsel gravelly sandy loam, 2 to 8 percent slopes--35 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--7 percent
Lyx gravelly loamy sand, 2 to 8 percent slopes--5 percent
Typic Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--2 percent
Xeric Torriorthents very gravelly sandy loam, 0 to 4 percent slopes--1 percent

### *Component Description*

**Keefa and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; sandy loam
Layer 2--7 to 15 inches; sandy loam

Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale
Ecological site number: 029XY087NV

**Lyx**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3741--Keefa-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,600 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 160 days

### *Composition*

Keefa sandy loam, 2 to 4 percent slopes--45 percent
Koyen sandy loam, 2 to 4 percent slopes--40 percent
Geer fine sandy loam, 0 to 2 percent slopes--8 percent
Unsel gravelly fine sandy loam, 2 to 4 percent slopes--5 percent

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

### *Component Description*

**Keefa and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Geer**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Unsel**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY017NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3742--Keefa-Stargo association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,795 to 5,500 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Keefa sandy loam, 0 to 4 percent slopes--60 percent
Stargo gravelly loamy sand, 0 to 2 percent slopes--25 percent
Typic Camborthids gravelly sandy loam, 0 to 4 percent slopes--6 percent
Playas, 0 to 1 percent slopes--4 percent

Stumble loamy sand, 0 to 4 percent slopes--3 percent
Cirac loam, 0 to 4 percent slopes--2 percent

### *Component Description*

**Keefa and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 7 inches; sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Irrigated land capability: 3e
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Stargo and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bailey greasewood, Indian ricegrass, shadscale

**Typical profile:**
Layer 1--0 to 5 inches; gravelly loamy sand
Layer 2--5 to 15 inches; sandy clay loam
Layer 3--15 to 60 inches; stratified very gravelly sand to sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Irrigated land capability: 3s
Nonirrigated land capability: 7s
Ecological site number: 029XY087NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 6 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush
Ecological site number: 029XY046NV

**Playas**
Composition: 0 to 4 percent
Landform: Flood-plain playa
Ecological site number: None

**Stumble**
Composition: 0 to 3 percent
Landform: Sand sheet
Typical vegetation: Indian ricegrass, sand dropseed, fourwing saltbush
Ecological site number: 029XY012NV

**Cirac**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Shadscale, Indian ricegrass, black greasewood
Ecological site number: 029XY024NV

### *Management*

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

## 3744--Keefa-Garhill-Belted association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,900 to 6,695 feet

Precipitation: 4 to 8 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Keefa gravelly sandy loam, 2 to 8 percent slopes--40 percent
Garhill very stony loamy fine sand, 2 to 8 percent slopes--25 percent
Belted very cobbly sandy loam, 2 to 8 percent slopes--20 percent
Typic Calciorthids gravelly loam, 2 to 8 percent slopes--6 percent
Titiack very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Univega gravelly sandy loam, 2 to 8 percent slopes--4 percent

### *Component Description*

**Keefa and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

**Typical profile:**
Layer 1--0 to 3 inches; gravelly sandy loam
Layer 2--3 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Garhill and similar soils**
Landform: Pediment
Parent material: Colluvium derived from volcanic breccia and/or eolian deposits over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony loamy fine sand
Layer 2--1 to 6 inches; fine sandy loam
Layer 3--6 to 10 inches; gravelly sandy loam
Layer 4--10 to 21 inches; indurated
Layer 5--21 to 25 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 7 to 14 inches
Bedrock (lithic): 12 to 30 inches
Available water capacity: About 1.3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Belted and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; very cobbly sandy loam
Layer 2--4 to 11 inches; gravelly loam
Layer 3--11 to 17 inches; cemented
Layer 4--17 to 60 inches; very gravelly coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 6 to 14 inches
Salinity: Saline within 40 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Typic Calciorthids**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Titiack**
Composition: 0 to 5 percent
Landform: Hill
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY022NV

**Univega**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

### *Management*

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

## 3745--Keefa-Hollywell association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,000 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 50 to 57 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Keefa gravelly sandy loam, 0 to 4 percent slopes--55 percent
Hollywell gravelly loamy sand, 0 to 4 percent slopes--35 percent
Yomba gravelly sandy loam, 0 to 4 percent slopes--10 percent

### *Component Description*

**Keefa and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; gravelly sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Hollywell and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; gravelly loamy sand
Layer 2--4 to 12 inches; gravelly fine sandy loam
Layer 3--12 to 60 inches; stratified very gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 3 inches
Present flooding: Rare

Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Yomba**
Composition: 0 to 10 percent
Landform: Fan skirt
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale
Ecological site number: 029XY017NV

### *Management*

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

## 3747--Keefa-Lyx-Linoyer association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,495 feet
Precipitation: 4 to 10 inches
Air temperature: 45 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Keefa sandy loam, 2 to 8 percent slopes--40 percent
Lyx gravelly loamy sand, 2 to 8 percent slopes--30 percent
Linoyer very fine sandy loam, 0 to 2 percent slopes--15 percent
Duric Haplargids gravelly silt loam, 2 to 8 percent slopes--6 percent
Peeko very gravelly sandy loam, 2 to 4 percent slopes--5 percent
Entic Durorthids gravelly sandy loam, 0 to 4 percent slopes--4 percent

### *Component Description*

**Keefa and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale

**Typical profile:**
Layer 1--0 to 7 inches; sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Lyx and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

### *Component Description*

**Linoyer and similar soils**
Landform: Fan skirt

Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very fine sandy loam
Layer 2--3 to 46 inches; silt loam
Layer 3--46 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY013NV

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

### *Contrasting Inclusions*

**Duric Haplargids**
Composition: 0 to 6 percent
Landform: Fan skirt
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Peeko**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: thickspike wheatgrass, Indian ricegrass, needleandthread, big sagebrush
Ecological site number: 028BY005NV

**Entic Durorthids**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

### *Management*

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

## 3748--Keefa-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,395 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 120 to 160 days

### *Composition*

Keefa sandy loam, 2 to 4 percent slopes--35 percent
Koyen sandy loam, 2 to 4 percent slopes--30 percent
Keefa sandy loam, 2 to 4 percent slopes--20 percent
Geer fine sandy loam, 0 to 2 percent slopes--8 percent
Unsel gravelly fine sandy loam, 2 to 4 percent slopes--5 percent
Typic Torriorthents, 0 to 2 percent slopes--2 percent

### *Component Description*

**Keefa and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Koyen and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks

Typical vegetation: Winterfat, Indian ricegrass, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 40 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

### *Component Description*

**Keefa and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

**Typical profile:**
Layer 1--0 to 7 inches; sandy loam
Layer 2--7 to 15 inches; sandy loam
Layer 3--15 to 26 inches; gravelly sandy loam
Layer 4--26 to 60 inches; stratified very gravelly sand to gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Available water capacity: About 7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY087NV

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

### *Contrasting Inclusions*

**Geer**
Composition: 0 to 8 percent
Landform: Fan skirt
Typical vegetation: Winterfat, Indian ricegrass
Ecological site number: 029XY042NV

**Unsel**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Typic Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Black greasewood, Indian ricegrass, shadscale
Ecological site number: 029XY024NV

### *Management*

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

## 3750--Koyen-Cliffdown association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,200 feet
Precipitation: 4 to 8 inches
Air temperature: 52 to 57 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Koyen sandy loam, 2 to 8 percent slopes--45 percent
Cliffdown gravelly sandy loam, 2 to 4 percent slopes--45 percent
Lyx gravelly loamy sand, 2 to 8 percent slopes--5 percent
Unsel gravelly fine sandy loam, 2 to 8 percent slopes--5 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, Indian ricegrass, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

### *Component Description*

**Cliffdown and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; gravelly sandy loam
Layer 2--3 to 60 inches; stratified gravelly sandy loam to very gravelly fine sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Lyx**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Unsel**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

### *Management*

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

## 3751--Koyen-Unsel association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Koyen gravelly sandy loam, 0 to 4 percent slopes--40 percent
Unsel gravelly sandy loam, 0 to 4 percent slopes--30 percent
Koyen gravelly sandy loam, 0 to 4 percent slopes--20 percent
Veet gravelly sandy loam, 2 to 8 percent slopes--4 percent
Geer gravelly sandy loam, 0 to 4 percent slopes--4 percent
Xeric Torriorthents very gravelly sand, 0 to 4 percent slopes--2 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam

Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Medium
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Very low
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Veet**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Geer**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Desert peach, rubber rabbitbrush, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3752--Koyen sandy loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 54 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Koyen sandy loam, 2 to 8 percent slopes--85 percent
Izo very gravelly sand, 2 to 4 percent slopes--6 percent
Unsel gravelly sandy loam, 2 to 8 percent slopes--4 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--4 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Spiny hopsage, fourwing saltbush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

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

### *Contrasting Inclusions*

**Izo**
Composition: 0 to 6 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

**Unsel**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Typic Camborthids**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, desert peach, big sagebrush
Ecological site number: 029XY009NV

### *Management*

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

## 3754--Koyen-Watoopah-Geer association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,095 feet
Precipitation: 4 to 10 inches
Air temperature: 48 to 57 degrees Fahrenheit
Frost-free period: 100 to 150 days

### *Composition*

Koyen gravelly sandy loam, 2 to 4 percent slopes--50 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--20 percent
Geer fine sandy loam, 0 to 4 percent slopes--20 percent

Unsel very gravelly sandy loam, 2 to 4 percent slopes--5 percent
Veet very gravelly loamy sand, 2 to 8 percent slopes--5 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

### *Component Description*

**Watoopah and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Geer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, Indian ricegrass

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam
Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Unsel**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY017NV

**Veet**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

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

## 3755--Koyen-Watoopah association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,095 feet
Precipitation: 4 to 10 inches
Air temperature: 48 to 57 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Koyen gravelly sandy loam, 2 to 8 percent slopes--50 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--40 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--5 percent
Xeric Torriorthents very gravelly sandy loam, 2 to 4 percent slopes--3 percent
Duric Haplargids gravelly fine sandy loam, 2 to 4 percent slopes--2 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

### *Component Description*

Watoopah and similar soils
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; gravelly loamy sand
Layer 2--2 to 12 inches; sandy loam
Layer 3--12 to 18 inches; gravelly sandy loam
Layer 4--18 to 60 inches; stratified very gravelly coarse sand to coarse sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, big sagebrush, desert peach
Ecological site number: 029XY009NV

**Duric Haplargids**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass
Ecological site number: 029XY017NV

### *Management*

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

## 3756--Koyen-Lyx association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 54 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Koyen sandy loam, 2 to 8 percent slopes--50 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--35 percent
Duric Haplargids gravelly sandy loam, 2 to 8 percent slopes--5 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--4 percent
Duric Haplargids sandy loam, 2 to 8 percent slopes--3 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--3 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

### *Component Description*

**Lyx and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Duric Haplargids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Fourwing saltbush, spiny hopsage, Indian ricegrass
Ecological site number: 029XY016NV

**Typic Camborthids**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage
Ecological site number: 029XY016NV

**Duric Haplargids**
Composition: 0 to 3 percent
Landform: Fan remnant

Typical vegetation: Winterfat, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY046NV

**Watoopah**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

### *Management*

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

## 3757--Koyen-Veet-Penoyer association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 10 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Koyen gravelly sandy loam, 0 to 2 percent slopes--50 percent
Veet loam, 0 to 2 percent slopes--20 percent
Penoyer silt loam, 0 to 2 percent slopes--15 percent
Easychair silt loam, 0 to 2 percent slopes--6 percent
Geer fine sandy loam, 0 to 2 percent slopes--5 percent
Xeric Torriorthents silt loam, 0 to 2 percent slopes--4 percent

### *Component Description*

**Koyen and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY016NV

### *Component Description*

**Veet and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 8 inches; loam
Layer 2--8 to 20 inches; very gravelly sandy loam
Layer 3--20 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Occasional
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7w
Ecological site number: 029XY049NV

### *Component Description*

**Penoyer and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 4 inches; silt loam
Layer 2--4 to 60 inches; silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 12 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY020NV

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

### *Contrasting Inclusions*

**Easychair**
Composition: 0 to 6 percent
Landform: Alluvial flat
Typical vegetation: Fourwing saltbush, basin wildrye
Ecological site number: 029XY048NV

**Geer**
Composition: 0 to 5 percent
Landform: Fan skirt
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Xeric Torriorthents**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

### *Management*

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

## 3758--Koyen sand, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 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
Typic Torriorthents gravelly loam sand, 2 to 8 percent slopes--4 percent
Typic Torriorthents loamy sand, 2 to 8 percent slopes--3 percent
Unsel gravelly loamy sand, 2 to 8 percent slopes--2 percent
Xeric Torriorthents gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; sand
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Typic Torriorthents**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

**Typic Torriorthents**
Composition: 0 to 3 percent

Landform: Inset fan
Typical vegetation: Sand dropseed, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY012NV

**Unsel**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3760--Vindicator very gravelly sandy loam, 8 to 30 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Hills
Elevation: 5,495 to 7,000 feet
Precipitation: 6 to 8 inches
Air temperature: 51 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Vindicator very gravelly sandy loam, 8 to 30 percent slopes--85 percent
Gabbvally very gravelly sandy loam, 8 to 30 percent slopes--5 percent
Stewval very gravelly sandy loam, 8 to 30 percent slopes--5 percent
Leo very gravelly sandy loam, 2 to 8 percent slopes--3 percent
Rock outcrop--2 percent

### *Component Description*

**Vindicator and similar soils**
Landform: Hill
Parent material: Colluvium derived from pyroclastic rock over residuum weathered from pyroclastic rock
Typical vegetation: Indian ricegrass, spiny hopsage, galleta, Anderson's wolfberry

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 13 inches; very gravelly loam
Layer 3--13 to 17 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 4 to 14 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY021NV

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

### *Contrasting Inclusions*

**Gabbvally**
Composition: 0 to 5 percent
Landform: Hill
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY010NV

**Stewval**
Composition: 0 to 5 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Leo**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Spiny hopsage, Indian ricegrass, fourwing saltbush
Ecological site number: 029XY016NV

**Rock outcrop**
Composition: 0 to 2 percent
Landform: Mountains

Ecological site number: None

### *Management*

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

## 3770--Yody-Cath-Abgese association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,295 to 7,000 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 55 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Yody gravelly sandy loam, 2 to 8 percent slopes--45 percent
Cath gravelly loam, 4 to 15 percent slopes--35 percent
Abgese sandy loam, 0 to 4 percent slopes--10 percent
Zadvar very gravelly sandy loam, 4 to 15 percent slopes--6 percent
Handpah gravelly sandy loam, 4 to 15 percent slopes--2 percent
Rebel very gravelly sandy loam, 0 to 4 percent slopes--2 percent

### *Component Description*

**Yody and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass

**Typical profile:**
Layer 1--0 to 3 inches; gravelly sandy loam
Layer 2--3 to 16 inches; gravelly sandy clay loam
Layer 3--16 to 38 inches; gravelly sandy loam
Layer 4--38 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 30 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6s
Ecological site number: 028BY010NV

### *Component Description*

**Cath and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 20 inches; clay loam
Layer 3--20 to 28 inches; very gravelly sandy clay loam
Layer 4--28 to 60 inches; stratified very gravelly loamy coarse sand to very gravelly loam

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 029XY006NV

### *Component Description*

**Abgese and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 5 inches; sandy loam
Layer 2--5 to 20 inches; gravelly sandy clay loam
Layer 3--20 to 35 inches; very gravelly sandy loam
Layer 4--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low

Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Zadvar and similar soils**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Handpah and similar soils**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass
Ecological site number: 029XY006NV

**Rebel and similar soils**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Needleandthread, Indian ricegrass, Wyoming big sagebrush
Ecological site number: 028BY010NV

### *Management*

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

## 3780--Molion very gravelly sandy loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,000 to 7,000 feet
Precipitation: 8 to 12 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 70 to 100 days

### *Composition*

Molion very gravelly sandy loam, 2 to 8 percent slopes--90 percent
Xerollic Durargids very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Durixerollic Haplargids very gravelly sandy loam, 2 to 8 percent slopes--3 percent
Xerollic Camborthids very gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Molion and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly sandy loam
Layer 2--3 to 14 inches; very gravelly sandy loam
Layer 3--14 to 26 inches; cemented
Layer 4--26 to 60 inches; stratified very gravelly loamy sand to extremely gravelly loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Xerollic Durargids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread
Ecological site number: 028BY011NV

**Durixerollic Haplargids**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 028BY010NV

**Xerollic Camborthids**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, spiny hopsage, needleandthread
Ecological site number: 028BY052NV

### *Management*

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

## 3800--Lyda-Delamar-Lyx association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,595 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 51 to 57 degrees Fahrenheit
Frost-free period: 100 to 150 days

### *Composition*

Lyda very gravelly fine sandy loam, 2 to 8 percent slopes--45 percent
Delamar gravelly sandy loam, 2 to 8 percent slopes--20 percent
Lyx very gravelly loamy sand, 4 to 8 percent slopes--20 percent
Univega very gravelly sandy loam, 2 to 8 percent slopes--8 percent
Typic Durargids very gravelly sandy loam, 4 to 8 percent slopes--4 percent
Ardivey very gravelly sandy loam, 4 to 8 percent slopes--3 percent

### *Component Description*

**Lyda and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly fine sandy loam
Layer 2--5 to 14 inches; very gravelly clay loam
Layer 3--14 to 20 inches; indurated
Layer 4--20 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Delamar and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Spiny hopsage, fourwing saltbush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 12 inches; sandy loam
Layer 3--12 to 20 inches; gravelly clay loam
Layer 4--20 to 25 inches; gravelly sandy loam
Layer 5--25 to 29 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Depth to restrictive feature: Duripan: 20 to 40 inches
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY016NV

### *Component Description*

**Lyx and similar soils**
Landform: Drainageway
Parent material: Alluvium
Typical vegetation: Winterfat, Indian ricegrass, fourwing saltbush

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loamy sand

Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Univega**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Typic Durargids**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush
Ecological site number: 029XY017NV

**Ardivey**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale
Ecological site number: 029XY017NV

### *Management*

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

## 3801--Lyda-Belted-Ardivey association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,995 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Lyda very gravelly fine sandy loam, 2 to 8 percent slopes--40 percent
Belted very gravelly loam, 2 to 8 percent slopes--30 percent
Ardivey very gravelly sandy loam, 2 to 8 percent slopes--15 percent
Leo very gravelly sandy loam, 2 to 8 percent slopes--8 percent
Tokoper very cobbly sandy loam, 4 to 15 percent slopes--5 percent
Izo very stony loamy sand, 2 to 4 percent slopes--1 percent
Typic Haplargids very gravelly loam, 2 to 8 percent slopes--1 percent

### *Component Description*

**Lyda and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly fine sandy loam
Layer 2--5 to 14 inches; very gravelly clay loam
Layer 3--14 to 20 inches; indurated
Layer 4--20 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Belted and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly loam
Layer 2--4 to 11 inches; gravelly loam
Layer 3--11 to 17 inches; cemented
Layer 4--17 to 60 inches; very gravelly coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 6 to 14 inches
Salinity: Saline within 40 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Ardivey and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly sandy loam
Layer 2--8 to 17 inches; very gravelly clay loam
Layer 3--17 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Leo**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, Indian ricegrass, spiny hopsage
Ecological site number: 029XY016NV

**Tokoper**
Composition: 0 to 5 percent
Landform: Pediment
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale
Ecological site number: 029XY022NV

**Izo**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, Indian ricegrass
Ecological site number: 029XY041NV

**Typic Haplargids**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Bailey greasewood, shadscale, Indian ricegrass
Ecological site number: 029XY087NV

### *Management*

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

## 3803--Lyda-Ardivey-Veet association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,995 to 6,495 feet
Precipitation: 4 to 10 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 100 to 140 days

### *Composition*

Lyda very gravelly fine sandy loam, 2 to 8 percent slopes--50 percent
Ardivey very gravelly sandy loam, 4 to 15 percent slopes--20 percent
Veet very gravelly sandy loam, 4 to 15 percent slopes--15 percent
Zadvar very cobbly sandy loam, 2 to 8 percent slopes--4 percent
Watoopah gravelly loamy sand, 2 to 8 percent slopes--4 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--4 percent
Typic Camborthids gravelly loamy sand, 4 to 8 percent slopes--3 percent

### *Component Description*

**Lyda and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly fine sandy loam
Layer 2--5 to 14 inches; very gravelly clay loam
Layer 3--14 to 20 inches; indurated
Layer 4--20 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Ardivey and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly sandy loam
Layer 2--8 to 17 inches; very gravelly clay loam
Layer 3--17 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: High
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Zadvar**
Composition: 0 to 4 percent
Landform: Fan remnant

Typical vegetation: Black sagebrush, Indian ricegrass
Ecological site number: 029XY008NV

**Watoopah**
Composition: 0 to 4 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass
Ecological site number: 029XY049NV

**Lyx**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Typic Camborthids**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, spiny hopsage, Indian ricegrass
Ecological site number: 029XY016NV

### *Management*

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

## 3804--Lyda-Ardivey-Lyx association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 51 to 57 degrees Fahrenheit
Frost-free period: 110 to 150 days

### *Composition*

Lyda very gravelly fine sandy loam, 2 to 8 percent slopes--40 percent
Ardivey very gravelly sandy loam, 2 to 8 percent slopes--30 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--15 percent
Zadvar very cobbly sandy loam, 2 to 8 percent slopes--5 percent
Leo stony sandy loam, 2 to 8 percent slopes--5 percent
Izo stony loamy sand, 2 to 8 percent slopes--5 percent

### *Component Description*

**Lyda and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly fine sandy loam
Layer 2--5 to 14 inches; very gravelly clay loam
Layer 3--14 to 20 inches; indurated
Layer 4--20 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Ardivey and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 8 inches; very gravelly sandy loam
Layer 2--8 to 17 inches; very gravelly clay loam
Layer 3--17 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: High
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Lyx and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Zadvar**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Leo**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Spiny hopsage, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY016NV

**Izo**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, Indian ricegrass
Ecological site number: 029XY041NV

### *Management*

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

## 3805--Lyda-Hardhat association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,900 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature: 47 to 57 degrees Fahrenheit
Frost-free period: 110 to 130 days

### *Composition*

Lyda very gravelly fine sandy loam, 2 to 8 percent slopes--45 percent
Hardhat gravelly sandy loam, 2 to 8 percent slopes--40 percent
Candelaria gravelly sandy loam, 2 to 8 percent slopes--7 percent
Xerollic Durorthids very gravelly sandy loam, 2 to 8 percent slopes--4 percent
Cliffdown gravelly sandy loam, 2 to 8 percent slopes--2 percent
Leo gravelly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Lyda and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, Bailey greasewood

**Typical profile:**
Layer 1--0 to 5 inches; very gravelly fine sandy loam
Layer 2--5 to 14 inches; very gravelly clay loam
Layer 3--14 to 20 inches; indurated
Layer 4--20 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches

Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY087NV

### *Component Description*

**Hardhat and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, Indian ricegrass, Bailey greasewood

**Typical profile:**
Layer 1--0 to 8 inches; gravelly sandy loam
Layer 2--8 to 17 inches; gravelly fine sandy loam
Layer 3--17 to 23 inches; gravelly sandy loam
Layer 4--23 to 60 inches; gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Sodicity: Sodic within 40 inches
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY087NV

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

### *Contrasting Inclusions*

**Candelaria**
Composition: 0 to 7 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Xerollic Durorthids**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Black sagebrush, Indian ricegrass
Ecological site number: 029XY008NV

**Cliffdown**
Composition: 0 to 2 percent
Landform: Fan apron
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Leo**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage
Ecological site number: 029XY016NV

### *Management*

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

## 3810–Belted-Univega-Koyen association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 110 to 150 days

### *Composition*

Belted very gravelly loam, 2 to 8 percent slopes--35 percent
Univega gravelly fine sand, 4 to 8 percent slopes--30 percent
Koyen gravelly sandy loam, 4 to 8 percent slopes--20 percent
Entic Durorthids very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Lyx very gravelly loamy sand, 4 to 8 percent slopes--5 percent
Cliffdown gravelly fine sandy loam, 2 to 8 percent slopes--3 percent
Typic Torriorthents very gravelly loamy sand, 4 to 8 percent slopes--2 percent

### *Component Description*

**Belted and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly loam
Layer 2--4 to 11 inches; gravelly loam
Layer 3--11 to 17 inches; cemented
Layer 4--17 to 60 inches; very gravelly coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 6 to 14 inches
Salinity: Saline within 40 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Univega and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, winterfat, Indian ricegrass

**Typical profile:**
Layer 1--0 to 5 inches; gravelly fine sand
Layer 2--5 to 10 inches; sandy loam
Layer 3--10 to 31 inches; indurated
Layer 4--31 to 60 inches; gravelly sand

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 20 inches
Available water capacity: About 0.9 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 4 to 8 percent
Runoff: Low
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Entic Durorthids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass
Ecological site number: 029XY017NV

**Lyx**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Cliffdown**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Typic Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

### *Management*

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

## 3811--Belted-Unsel-Lyx association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 110 to 150 days

### *Composition*

Belted very gravelly loam, 0 to 4 percent slopes--45 percent
Unsel gravelly sandy loam, 0 to 4 percent slopes--20 percent
Lyx very gravelly loamy sand, 2 to 8 percent slopes--20 percent
Handpah very gravelly sandy loam, 0 to 2 percent slopes--7 percent
Veet very gravelly sandy loam, 2 to 4 percent slopes--5 percent
Geer gravelly sandy loam, 0 to 2 percent slopes--3 percent

### *Component Description*

**Belted and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly loam
Layer 2--4 to 11 inches; gravelly loam
Layer 3--11 to 17 inches; cemented
Layer 4--17 to 60 inches; very gravelly coarse sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: High
Depth to restrictive feature: Duripan: 6 to 14 inches
Salinity: Saline within 40 inches
Available water capacity: About 1.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Unsel and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 11 inches; gravelly clay loam
Layer 3--11 to 34 inches; gravelly sandy loam
Layer 4--34 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Medium
Sodicity: Sodic within 40 inches
Available water capacity: About 5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY017NV

### *Component Description*

**Lyx and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Fourwing saltbush, winterfat, Indian ricegrass

**Typical profile:**
Layer 1--0 to 3 inches; very gravelly loamy sand
Layer 2--3 to 11 inches; gravelly sandy loam
Layer 3--11 to 60 inches; stratified extremely gravelly coarse sand to very gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

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

### *Contrasting Inclusions*

**Handpah and similar soils**
Composition: 0 to 7 percent
Landform: Fan remnant
Ecological site number: None

**Veet and similar soils**
Composition: 0 to 5 percent
Landform: Drainageway
Ecological site number: None

**Geer and similar soils**
Composition: 0 to 3 percent
Landform: Inset fan
Ecological site number: None

### *Management*

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

## 3830--Downeyville-Rock outcrop complex, 15 to 50 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Foothills
Elevation: 4,995 to 6,495 feet
Precipitation: 4 to 7 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Downeyville very cobbly fine sandy loam, 15 to 50 percent slopes--65 percent
Rock outcrop--20 percent
Lithic Torriorthents very stony loam, 15 to 50 percent slopes--7 percent
Typic Torriorthents gravelly sandy loam, 30 to 75 percent slopes--3 percent
Lyx very gravelly loamy sand, 4 to 15 percent slopes--3 percent
Stewval very cobbly fine sandy loam, 15 to 50 percent slopes--2 percent

### *Component Description*

**Downeyville and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 5 inches; very cobbly fine sandy loam
Layer 2--5 to 13 inches; very gravelly loam
Layer 3--13 to 17 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Rock outcrop**
Landform: Hill

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Lithic Torriorthents**
Composition: 0 to 7 percent
Landform: Hill

Typical vegetation: Indian ricegrass, bud sagebrush, shadscale
Ecological site number: 029XY022NV

**Typic Torriorthents**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Indian ricegrass, galleta, Anderson's wolfberry, spiny hopsage
Ecological site number: 029XY021NV

**Lyx**
Composition: 0 to 3 percent
Landform: Alluvial fan
Typical vegetation: Winterfat, fourwing saltbush, Indian ricegrass
Ecological site number: 029XY046NV

**Stewval**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

### *Management*

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

## 3831--Downeyville-Stewval association

### *Map Unit Setting*

MLRA: 29
Landscape: Foothills
Elevation: 5,400 to 6,700 feet
Precipitation: 4 to 12 inches
Air temperature: 47 to 55 degrees Fahrenheit
Frost-free period: 90 to 130 days

### *Composition*

Downeyville very stony fine sandy loam, 15 to 50 percent slopes--60 percent
Stewval very gravelly fine sandy loam, 15 to 50 percent slopes--25 percent
Rock outcrop--7 percent
Lithic Haplargids gravelly sandy loam, 15 to 50 percent slopes--7 percent
Xeric Torriorthents very gravelly loamy sand, 2 to 8 percent slopes--1 percent

### *Component Description*

**Downeyville and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

**Typical profile:**
Layer 1--0 to 5 inches: very stony fine sandy loam
Layer 2--5 to 13 inches; very gravelly loam
Layer 3--13 to 17 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Stewval and similar soils**
Landform: Hill
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very gravelly fine sandy loam
Layer 2--1 to 7 inches; very gravelly clay loam
Layer 3--7 to 11 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 15 to 50 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.5 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 7 percent
Landform: Hill
Ecological site number: None

**Lithic Haplargids**
Composition: 0 to 7 percent
Landform: Hill
Typical vegetation: Indian ricegrass, galleta, spiny hopsage, Anderson's wolfberry
Ecological site number: 029XY021NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3832--Downeyville-Tokoper association

### *Map Unit Setting*

MLRA: 29
Landscape: Plateau
Elevation: 4,500 to 6,500 feet
Precipitation: 4 to 8 inches
Air temperature: 49 to 55 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Downeyville very cobbly fine sandy loam, 4 to 15 percent slopes--55 percent
Tokoper very cobbly sandy loam, 4 to 15 percent slopes--30 percent
Typic Camborthids gravelly sandy loam, 2 to 8 percent slopes--6 percent
Lithic Torriorthents gravelly sandy loam, 2 to 8 percent slopes--4 percent
Rock outcrop--3 percent
Gabbvally very cobbly sandy loam, 2 to 8 percent slopes--2 percent

### *Component Description*

**Downeyville and similar soils**
Landform: Plateau
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, bud sagebrush, shadscale

**Typical profile:**
Layer 1--0 to 5 inches; very cobbly fine sandy loam
Layer 2--5 to 13 inches; very gravelly loam
Layer 3--13 to 17 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 4 to 15 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 4 to 14 inches
Available water capacity: About 0.7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Tokoper and similar soils**
Landform: Plateau
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 2 inches; very cobbly sandy loam
Layer 2--2 to 5 inches; very gravelly sandy clay loam
Layer 3--5 to 9 inches; very gravelly sandy loam
Layer 4--9 to 15 inches; indurated
Layer 5--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 4 to 15 percent

Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Bedrock (lithic): 8 to 15 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

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

### *Contrasting Inclusions*

**Typic Camborthids**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Lithic Torriorthents**
Composition: 0 to 4 percent
Landform: Plateau
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Rock outcrop**
Composition: 0 to 3 percent
Landform: Plateau
Ecological site number: None

**Gabbvally**
Composition: 0 to 2 percent
Landform: Plateau
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 029XY010NV

### *Management*

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

## 3841--Veet very gravelly sandy loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 5,200 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 49 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Veet very gravelly sandy loam, 2 to 8 percent slopes--85 percent
Watoopah gravelly sandy loam, 0 to 4 percent slopes--6 percent
Xerollic Camborthids very gravelly sandy loam, 4 to 15 percent slopes--5 percent
Zadvar very gravelly sandy loam, 2 to 8 percent slopes--4 percent

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; very gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

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

### *Contrasting Inclusions*

**Watoopah**
Composition: 0 to 6 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Xerollic Camborthids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

**Zadvar**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

### *Management*

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

## 3842--Veet-Koyen-Geer association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,795 to 7,000 feet
Precipitation: 4 to 10 inches
Air temperature: 49 to 57 degrees Fahrenheit
Frost-free period: 100 to 140 days

### *Composition*

Veet gravelly sandy loam, 0 to 2 percent slopes--40 percent
Koyen sand, 2 to 4 percent slopes--25 percent
Geer fine sandy loam, 0 to 2 percent slopes--20 percent
Xeric Torrifluvents fine sandy loam, 0 to 2 percent slopes--7 percent
Penoyer silt loam, 0 to 2 percent slopes--3 percent
Lyx very gravelly loamy sand, 2 to 4 percent slopes--3 percent
Xeric Torrifluvents sandy loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Veet and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly sandy loam
Layer 2--4 to 12 inches; very gravelly sandy loam
Layer 3--12 to 60 inches; stratified very gravelly loamy coarse sand to extremely gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 3 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY049NV

### *Component Description*

**Koyen and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, fourwing saltbush

**Typical profile:**
Layer 1--0 to 4 inches; sand
Layer 2--4 to 35 inches; stratified gravelly loamy sand to loam
Layer 3--35 to 60 inches; very gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Very low
Available water capacity: About 5 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY046NV

### *Component Description*

**Geer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, Indian ricegrass

**Typical profile:**
Layer 1--0 to 6 inches; fine sandy loam

Layer 2--6 to 60 inches; stratified fine sandy loam to silt loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 10 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY042NV

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

### *Contrasting Inclusions*

**Xeric Torrifluvents**
Composition: 0 to 7 percent
Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, desert peach, big sagebrush
Ecological site number: 029XY009NV

**Penoyer**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Winterfat, Indian ricegrass
Ecological site number: 029XY020NV

**Lyx**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, winterfat
Ecological site number: 029XY046NV

**Xeric Torrifluvents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3850--Garhill-Tokoper-Argalt association

### *Map Unit Setting*

MLRA: 29
Landscape: Plateau
Elevation: 4,995 to 7,200 feet
Precipitation: 5 to 10 inches
Air temperature: 50 to 54 degrees Fahrenheit
Frost-free period: 120 to 150 days

### *Composition*

Garhill very stony loamy fine sand, 2 to 15 percent slopes--50 percent
Tokoper very cobbly sandy loam, 2 to 8 percent slopes--30 percent
Argalt very stony fine sandy loam, 8 to 15 percent slopes--10 percent
Rock outcrop--8 percent
Xeric Torriorthents very stony sandy loam, 2 to 4 percent slopes--2 percent

### *Component Description*

**Garhill and similar soils**
Landform: Plateau
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Shadscale, Indian ricegrass, bud sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony loamy fine sand
Layer 2--1 to 6 inches; fine sandy loam
Layer 3--6 to 10 inches; gravelly sandy loam
Layer 4--10 to 21 inches; indurated
Layer 5--21 to 25 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 2 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 7 to 14 inches
Bedrock (lithic): 12 to 30 inches
Available water capacity: About 1.3 inches
Present flooding: None

Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Tokoper and similar soils**
Landform: Plateau
Parent material: Colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass

**Typical profile:**
Layer 1--0 to 2 inches; very cobbly sandy loam
Layer 2--2 to 5 inches; very gravelly sandy clay loam
Layer 3--5 to 9 inches; very gravelly sandy loam
Layer 4--9 to 15 inches; indurated
Layer 5--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Bedrock (lithic): 8 to 15 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY022NV

### *Component Description*

**Argalt and similar soils**
Landform: Plateau
Parent material: Volcanic ash and/or colluvium derived from volcanic breccia over residuum weathered from volcanic breccia
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 1 inches; very stony fine sandy loam
Layer 2--1 to 4 inches; very fine sandy loam
Layer 3--4 to 11 inches; loam
Layer 4--11 to 15 inches; indurated
Layer 5--15 to 19 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 8 to 15 percent, northeast to north aspects
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Bedrock (lithic): 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY008NV

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

### *Contrasting Inclusions*

**Rock outcrop**
Composition: 0 to 8 percent
Landform: Plateau
Ecological site number: None

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Wyoming big sagebrush
Ecological site number: 029XY049NV

### *Management*

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

## 3860--Hyzen-Kyler-Rock outcrop association

### *Map Unit Setting*

MLRA: 29
Landscape: Mountains
Elevation: 6,200 to 8,500 feet
Precipitation: 8 to 16 inches
Air temperature: 39 to 54 degrees Fahrenheit
Frost-free period: 70 to 120 days

### *Composition*

Hyzen extremely stony loam, 30 to 75 percent slopes--35 percent
Kyler very gravelly very fine sandy loam, 30 to 75 percent slopes--30 percent
Rock outcrop--20 percent

Lithic Argixerolls extremely stony loam, 30 to 75 percent slopes--6 percent
Haunchee very gravelly loam, 15 to 50 percent slopes--6 percent
Eaglepass very stony sandy loam, 30 to 75 percent slopes--2 percent
Xeric Torrifluvents very stony sandy loam, 2 to 8 percent slopes--1 percent

### *Component Description*

**Hyzen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, bluebunch wheatgrass, black sagebrush, bluegrass

**Typical profile:**
Layer 1--0 to 3 inches; extremely stony loam
Layer 2--3 to 12 inches; extremely stony loam
Layer 3--12 to 16 inches: unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY060NV

### *Component Description*

**Kyler and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Beardless wheatgrass, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches, very gravelly very fine sandy loam
Layer 2--5 to 14 inches; very gravelly loam
Layer 3--14 to 18 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent, southwest to south aspects
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY028NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Lithic Argixerolls**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Scribner needlegrass, littleleaf mountain mahogany
Ecological site number: 028BY066NV

**Haunchee**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Columbia needlegrass, bluebunch wheatgrass, mountain big sagebrush, curlleaf mountainmahogany
Ecological site number: 028BY043NV

**Eaglepass**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Littleleaf mountain mahogany
Ecological site number: 029XY040NV

**Xeric Torrifluvents**
Composition: 0 to 1 percent
Landform: Drainageway

Typical vegetation: Desert peach, big sagebrush, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3861--Hyzen-Eganroc-Rock outcrop association

### *Map Unit Setting*

MLRA: 28B
Landscape: Mountains
Elevation: 6,200 to 10,200 feet
Precipitation: 12 to 35 inches
Air temperature: 39 to 43 degrees Fahrenheit
Frost-free period: 50 to 100 days

### *Composition*

Hyzen extremely stony loam, 30 to 75 percent slopes--35 percent
Eganroc very stony loam, 30 to 75 percent slopes--30 percent
Rock outcrop--20 percent
Haunchee very cobbly loam, 15 to 50 percent slopes--6 percent
Lithic Haploxerolls very stony loam, 15 to 50 percent slopes--5 percent
Typic Palexerolls gravelly silt loam, 4 to 30 percent slopes--2 percent
Typic Palexerolls gravelly sand, 4 to 30 percent slopes--2 percent

### *Component Description*

**Hyzen and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone over residuum weathered from limestone
Typical vegetation: Bottlebrush squirreltail, black sagebrush, bluegrass, Indian ricegrass, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 3 inches; extremely stony loam
Layer 2--3 to 12 inches; extremely stony loam
Layer 3--12 to 16 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (lithic): 6 to 14 inches
Available water capacity: About 0.7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY060NV

### *Component Description*

**Eganroc and similar soils**
Landform: Mountains
Parent material: Colluvium derived from limestone
Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass, Oregongrape, white fir, muttongrass

**Typical profile:**
Layer 1--0 to 10 inches; very stony loam
Layer 2--10 to 15 inches; very gravelly loam
Layer 3--15 to 30 inches; extremely gravelly loam
Layer 4--30 to 34 inches; unweathered bedrock

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

**Component Properties and Qualities**
Slope: 30 to 75 percent, northeast to north aspects
Runoff: High
Depth to restrictive feature: Bedrock (lithic): 30 to 40 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY049NV

### *Component Description*

**Rock outcrop**
Landform: Mountains

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

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

### *Contrasting Inclusions*

**Haunchee**
Composition: 0 to 6 percent
Landform: Mountains
Typical vegetation: Bluebunch wheatgrass, Columbia needlegrass, curlleaf mountainmahogany, mountain big sagebrush
Ecological site number: 028BY043NV

**Lithic Haploxerolls**
Composition: 0 to 5 percent
Landform: Mountains
Typical vegetation: Scribner needlegrass, littleleaf mountain mahogany
Ecological site number: 028BY066NV

**Typic Palexerolls**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Mountain big sagebrush, bluebunch wheatgrass
Ecological site number: 028BY015NV

**Typic Palexerolls**
Composition: 0 to 2 percent
Landform: Mountains
Typical vegetation: Indian ricegrass, Wyoming big sagebrush, needleandthread
Ecological site number: 028BY080NV

### *Management*

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

## 3870--Lien-Rebel association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,000 to 7,495 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 80 to 120 days

### *Composition*

Lien very gravelly loam, 4 to 30 percent slopes--65 percent
Rebel sandy loam, 2 to 8 percent slopes--20 percent
Zadvar gravelly fine sandy loam, 2 to 8 percent slopes--5 percent
Peeko gravelly loam, 2 to 8 percent slopes--5 percent
Puett gravelly sandy loam, 8 to 30 percent slopes--4 percent
Xeric Torrifluvents very gravelly sandy loam, 2 to 8 percent slopes--1 percent

### *Component Description*

**Lien and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, pigmy sagebrush, singleleaf pinyon, needleandthread

**Typical profile:**
Layer 1--0 to 2 inches; very gravelly loam
Layer 2--2 to 8 inches; very gravelly sandy loam
Layer 3--8 to 21 inches; indurated
Layer 4--21 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 6 to 14 inches
Available water capacity: About 0.7 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028AY021NV

### *Component Description*

**Rebel and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass

**Typical profile:**
Layer 1--0 to 16 inches; sandy loam
Layer 2--16 to 60 inches; loam
See "Chemical Properties of Soils" table and the "Physical Properties of Soils" table for more information.

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 20 inches
Present flooding: Rare

Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability. 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Zadvar**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 029XY008NV

**Peeko**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread
Ecological site number: 028BY011NV

**Puett**
Composition: 0 to 4 percent
Landform: Pediment
Typical vegetation: Indian ricegrass, black sagebrush
Ecological site number: 028BY059NV

**Xeric Torrifluvents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Basin big sagebrush, basin wildrye
Ecological site number: 028BY041NV

### *Management*

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

## 3880--Hardhat-Candelaria association

### *Map Unit Setting*

MLRA: 29
Landscape: Fan piedmont
Elevation: 4,395 to 6,495 feet
Precipitation: 4 to 8 inches
Air temperature. 47 to 57 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Hardhat gravelly sandy loam, 2 to 8 percent slopes--45 percent
Candelaria very gravelly sandy loam, 2 to 8 percent slopes--40 percent
Typic Durargids very gravelly sandy loam, 2 to 8 percent slopes--8 percent
Leo gravelly sandy loam, 2 to 8 percent slopes--3 percent
Unsel gravelly sandy loam, 2 to 8 percent slopes--3 percent
Xeric Torriorthents very gravelly sandy loam, 2 to 4 percent slopes--1 percent

### *Component Description*

**Hardhat and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

**Typical profile:**
Layer 1--0 to 8 inches; gravelly sandy loam
Layer 2--8 to 17 inches; gravelly fine sandy loam
Layer 3--17 to 23 inches; gravelly sandy loam
Layer 4--23 to 60 inches; gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Sodicity: Sodic within 40 inches
Available water capacity: About 6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY087NV

### *Component Description*

**Candelaria and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from interbedded sedimentary rock
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 7 inches; very gravelly sandy loam
Layer 2--7 to 16 inches; gravelly fine sandy loam

Layer 3--16 to 24 inches; extremely gravelly sandy loam
Layer 4--24 to 60 inches; stratified extremely gravelly sand to very gravelly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Medium
Salinity: Saline within 40 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Typic Durargids**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Shadscale, Bailey greasewood, Indian ricegrass
Ecological site number: 029XY087NV

**Leo**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, fourwing saltbush, spiny hopsage
Ecological site number: 029XY016NV

**Unsel**
Composition: 0 to 3 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Xeric Torriorthents**
Composition: 0 to 1 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, rubber rabbitbrush, desert peach
Ecological site number: 029XY009NV

### *Management*

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

## 3881--Hardhat-Stargo-Yomba-association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,795 to 6,000 feet
Precipitation: 4 to 8 inches
Air temperature: 47 to 57 degrees Fahrenheit
Frost-free period: 120 to 140 days

### *Composition*

Hardhat gravelly sandy loam, 0 to 2 percent slopes--40 percent
Stargo loam, 0 to 2 percent slopes--25 percent
Yomba gravelly fine sandy loam, 0 to 2 percent slopes--25 percent
Geer fine sandy loam, 0 to 2 percent slopes--4 percent
Cliffdown gravelly sandy loam, 0 to 4 percent slopes--2 percent
Typic Torrifluvents loam, 0 to 0 percent slopes--2 percent
Xeric Torrifluvents loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Hardhat and similar soils**
Landform: Fan skirt
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale

**Typical profile:**
Layer 1--0 to 8 inches; gravelly sandy loam
Layer 2--8 to 17 inches; gravelly fine sandy loam
Layer 3--17 to 23 inches; gravelly sandy loam
Layer 4--23 to 60 inches; gravelly sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Sodicity: Sodic within 40 inches

Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY087NV

### *Component Description*

**Stargo and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale

**Typical profile:**
Layer 1--0 to 5 inches; loam
Layer 2--5 to 15 inches; clay loam
Layer 3--15 to 60 inches; stratified very gravelly sand to sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Medium
Available water capacity: About 7 inches
Present flooding: Rare
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Yomba and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 12 inches; sandy loam
Layer 3--12 to 19 inches; gravelly coarse sandy loam
Layer 4--19 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

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

### *Contrasting Inclusions*

**Geer**
Composition: 0 to 4 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Cliffdown**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, winterfat
Ecological site number: 029XY042NV

**Typic Torrifluvents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Shadscale, Indian ricegrass, black greasewood
Ecological site number: 029XY024NV

**Xeric Torrifluvents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

### *Management*

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

## 3890--Jarab-Drewing-Pharo association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,200 to 7,000 feet
Precipitation: 10 to 14 inches

Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Jarab gravelly loam, 8 to 15 percent slopes--35 percent
Drewing gravelly loam, 2 to 8 percent slopes--30 percent
Pharo gravelly loam, 4 to 30 percent slopes--20 percent
Aridic Haploxerolls gravelly loam, 2 to 8 percent slopes--7 percent
Calciorthidic Haploxerolls gravelly loam, 2 to 8 percent slopes--3 percent
Cropper very stony loam, 8 to 30 percent slopes--3 percent
Hyzen very stony loam, 8 to 30 percent slopes--2 percent

### *Component Description*

**Jarab and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bluegrass, muttongrass, bottlebrush squirreltail, singleleaf pinyon, black sagebrush, green ephedra, Stansbury cliffrose

**Typical profile:**
Layer 1--0 to 9 inches; gravelly loam
Layer 2--9 to 17 inches; very gravelly clay loam
Layer 3--17 to 60 inches; cemented

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

**Component Properties and Qualities**
Slope: 8 to 15 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Drewing and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bottlebrush squirreltail, black sagebrush, Stansbury cliffrose, singleleaf pinyon, green ephedra, muttongrass, bluegrass

**Typical profile:**
Layer 1--0 to 3 inches; gravelly loam
Layer 2--3 to 8 inches; very gravelly clay loam
Layer 3--8 to 11 inches; extremely gravelly clay loam
Layer 4--11 to 18 inches; extremely gravelly sandy loam
Layer 5--18 to 46 inches; indurated
Layer 6--46 to 60 inches; gravel

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 14 to 20 inches
Available water capacity: About 1.6 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY069NV

### *Component Description*

**Pharo and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from limestone
Typical vegetation: Black sagebrush, Indian ricegrass, bottlebrush squirreltail, bluegrass, bluebunch wheatgrass

**Typical profile:**
Layer 1--0 to 9 inches; gravelly loam
Layer 2--9 to 60 inches; extremely gravelly loam

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Low
Available water capacity: About 7 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 6e
Ecological site number: 028BY060NV

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

### *Contrasting Inclusions*

**Aridic Haploxerolls**
Composition: 0 to 7 percent

Landform: Drainageway
Typical vegetation: Rubber rabbitbrush, big sagebrush, desert peach
Ecological site number: 029XY009NV

**Calciorthidic Haploxerolls**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Big sagebrush, desert peach, rubber rabbitbrush
Ecological site number: 029XY009NV

**Cropper**
Composition: 0 to 3 percent
Landform: Hill
Typical vegetation: Basin wildrye, mountain big sagebrush, curlleaf mountainmahogany, serviceberry, antelope bitterbrush, snowberry, bluebunch wheatgrass, muttongrass
Ecological site number: 028BY058NV

**Hyzen**
Composition: 0 to 2 percent
Landform: Hill
Typical vegetation: Bluebunch wheatgrass, Indian ricegrass, bluegrass, bottlebrush squirreltail, black sagebrush
Ecological site number: 028BY060NV

### *Management*

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

## 3900--Playas

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,500 to 7,200 feet

### *Composition*

Playas silty clay, 0 to 1 percent slopes--100 percent

### *Component Description*

**Playas**
Landform: Playa

**Component Properties and Qualities**
Slope: 0 to 1 percent
Runoff: Very high
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches

**Interpretive Groups**
Nonirrigated land capability: 8w
Ecological site number: None

### *Management*

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

## 3901--Lava flows

### *Map Unit Setting*

MLRA: 29
Landscape: Lava plateau
Elevation: 4,600 to 5,500 feet

### *Composition*

Lava Flows--100 percent

### *Component Description*

**Lava Flows**
Landform: Lava flow

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

### *Management*

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

## 3910--Yomba association

### *Map Unit Setting*

MLRA: 29
Landscape: Intermontane basin
Elevation: 4,395 to 5,495 feet
Precipitation: 3 to 6 inches
Air temperature: 51 to 57 degrees Fahrenheit
Frost-free period: 130 to 170 days

### *Composition*

Yomba gravelly fine sandy loam, 0 to 2 percent slopes--65 percent
Yomba gravelly fine sandy loam, 0 to 2 percent slopes--20 percent
Cirac sandy loam, 0 to 2 percent slopes--7 percent

Stargo gravelly sandy loam, 0 to 2 percent slopes--5 percent
Izo very gravelly loamy sand, 2 to 4 percent slopes--3 percent

### *Component Description*

**Yomba and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 12 inches; sandy loam
Layer 3--12 to 19 inches; gravelly coarse sandy loam
Layer 4--19 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Yomba and similar soils**
Landform: Alluvial flat
Parent material: Alluvium
Typical vegetation: Shadscale, Indian ricegrass, black greasewood

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 12 inches; sandy loam
Layer 3--12 to 19 inches; gravelly coarse sandy loam
Layer 4--19 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY024NV

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

### *Contrasting Inclusions*

**Cirac and similar soils**
Composition: 0 to 7 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, shadscale, black greasewood
Ecological site number: 029XY024NV

**Stargo**
Composition: 0 to 5 percent
Landform: Alluvial flat
Typical vegetation: Bud sagebrush, Indian ricegrass, shadscale
Ecological site number: 029XY017NV

**Izo**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, rubber rabbitbrush
Ecological site number: 029XY041NV

### *Management*

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

## 3911--Yomba-Playas complex, 0 to 2 percent slopes

### *Map Unit Setting*

MLRA: 29
Landscape: Bolson, intermontane basin
Elevation: 4,795 to 5,495 feet
Precipitation: 4 to 6 inches
Air temperature: 51 to 57 degrees Fahrenheit
Frost-free period: 130 to 150 days

### *Composition*

Yomba gravelly fine sandy loam, 0 to 2 percent slopes--50 percent
Playas silty clay loam, 0 to 1 percent slopes--40 percent

Keefa gravelly sandy loam, 0 to 2 percent slopes--5 percent
Typic Torriorthents very gravelly sandy loam, 0 to 2 percent slopes--3 percent
Cirac sandy loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Yomba and similar soils**
Landform: Alluvial flat
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Shadscale, bud sagebrush, Indian ricegrass

**Typical profile:**
Layer 1--0 to 4 inches; gravelly fine sandy loam
Layer 2--4 to 12 inches; sandy loam
Layer 3--12 to 19 inches; gravelly coarse sandy loam
Layer 4--19 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 4 inches
Present flooding: None
Natural drainage class: Somewhat excessively drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 029XY017NV

### *Component Description*

**Playas**
Landform: Playa

**Component Properties and Qualities**
Slope: 0 to 1 percent
Runoff: Very high
Salinity: Saline within 40 inches
Sodicity: Sodic within 40 inches

**Interpretive Groups**
Nonirrigated land capability: 8w
Ecological site number: None

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

### *Contrasting Inclusions*

**Keefa**
Composition: 0 to 5 percent
Landform: Alluvial flat
Typical vegetation: Bud sagebrush, shadscale, Indian ricegrass
Ecological site number: 029XY017NV

**Typic Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, Bailey greasewood, shadscale
Ecological site number: 029XY087NV

**Cirac**
Composition: 0 to 2 percent
Landform: Alluvial flat
Typical vegetation: Indian ricegrass, shadscale, black greasewood
Ecological site number: 029XY024NV

### *Management*

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

## 3920--Puett-Grassval-Rebel association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,995 to 6,800 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 90 to 120 days

### *Composition*

Puett gravelly sandy loam, 4 to 30 percent slopes--35 percent
Grassval gravelly loam, 2 to 8 percent slopes--30 percent
Rebel sandy loam, 2 to 8 percent slopes--20 percent
Xerollic Durargids gravelly loam, 4 to 30 percent slopes--9 percent
Xeric Torrifluvents loam, 2 to 8 percent slopes--3 percent
Xeric Torriorthents gravelly sandy loam, 2 to 30 percent slopes--3 percent

### *Component Description*

**Puett and similar soils**
Landform: Pediment
Parent material: Colluvium derived from tuff over residuum weathered from tuff
Typical vegetation: Indian ricegrass, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; gravelly sandy loam
Layer 2--5 to 11 inches; gravelly loam
Layer 3--11 to 15 inches; weathered bedrock

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

**Component Properties and Qualities**
Slope: 4 to 30 percent
Runoff: Very high
Depth to restrictive feature: Bedrock (paralithic): 10 to 20 inches
Available water capacity: About 1.2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7e
Ecological site number: 028BY059NV

### *Component Description*

**Grassval and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 5 inches; gravelly loam
Layer 2--5 to 13 inches; gravelly loam
Layer 3--13 to 60 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 8 to 14 inches
Available water capacity: About 1.4 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

### *Component Description*

**Rebel and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 16 inches; sandy loam
Layer 2--16 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Low
Available water capacity: About 20 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Xerollic Durargids**
Composition: 0 to 9 percent
Landform: Fan remnant
Typical vegetation: Black sagebrush, bluebunch wheatgrass, Indian ricegrass
Ecological site number: 028BY008NV

**Xeric Torrifluvents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Basin wildrye, basin big sagebrush
Ecological site number: 028BY041NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Pediment
Typical vegetation: Needleandthread, black sagebrush, desert needlegrass, Indian ricegrass

Ecological site number: 029XY081NV

### *Management*

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

## 3940--Peeko-Clowfin association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,995 to 6,000 feet
Precipitation: 6 to 10 inches
Air temperature: 46 to 50 degrees Fahrenheit
Frost-free period: 80 to 110 days

### *Composition*

Peeko gravelly loam, 2 to 8 percent slopes--70 percent
Clowfin gravelly loam, 2 to 4 percent slopes--20 percent
Xeric Torriorthents very gravelly sandy loam, 2 to 8 percent slopes--5 percent
Haploxerollic Durorthids gravelly loam, 2 to 8 percent slopes--5 percent

### *Component Description*

**Peeko and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 8 inches; gravelly loam
Layer 2--8 to 13 inches; gravelly silt loam
Layer 3--13 to 60 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

### *Component Description*

**Clowfin and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, bottlebrush squirreltail

**Typical profile:**
Layer 1--0 to 6 inches; gravelly loam
Layer 2--6 to 46 inches; stratified very gravelly sandy loam to very gravelly loam
Layer 3--46 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY013NV

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

### *Contrasting Inclusions*

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Needleandthread, Wyoming big sagebrush, Indian ricegrass
Ecological site number: 028BY010NV

**Haploxerollic Durorthids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread
Ecological site number: 028BY011NV

### *Management*

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

"Engineering" and "Soil Properties" sections

## 3941--Peeko gravelly loam, 2 to 8 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 5,400 to 6,000 feet
Precipitation: 8 to 10 inches
Air temperature: 47 to 49 degrees Fahrenheit
Frost-free period: 90 to 110 days

### *Composition*

Peeko gravelly loam, 2 to 8 percent slopes--85 percent
Xerollic Camborthids gravelly loamy sand, 0 to 4 percent slopes--5 percent
Leo gravelly loamy sand, 2 to 8 percent slopes--5 percent
Duric Haplargids gravelly sandy loam, 2 to 8 percent slopes--5 percent

### *Component Description*

**Peeko and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, needleandthread, black sagebrush

**Typical profile:**
Layer 1--0 to 8 inches; gravelly loam
Layer 2--8 to 13 inches; gravelly silt loam
Layer 3--13 to 60 inches; indurated

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

**Component Properties and Qualities**
Slope: 2 to 8 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 10 to 20 inches
Available water capacity: About 2 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY011NV

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

### *Contrasting Inclusions*

**Xerollic Camborthids**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, spiny hopsage, Indian ricegrass, needleandthread
Ecological site number: 028BY052NV

**Leo**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, spiny hopsage, fourwing saltbush
Ecological site number: 029XY016NV

**Duric Haplargids**
Composition: 0 to 5 percent
Landform: Fan remnant
Typical vegetation: Fourwing saltbush, Indian ricegrass, spiny hopsage
Ecological site number: 029XY016NV

### *Management*

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

## 3960--Hodedo stony loam, 15 to 30 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 6,200 to 7,400 feet
Precipitation: 12 to 14 inches
Air temperature: 43 to 45 degrees Fahrenheit
Frost-free period: 80 to 100 days

### *Composition*

Hodedo stony loam, 15 to 30 percent slopes--85 percent
Hodedo stony loam, 2 to 8 percent slopes--8 percent
Xeric Torriorthents stony loam, 0 to 2 percent slopes--5 percent
Haploxerollic Durargids stony loam, 0 to 8 percent slopes--2 percent

### *Component Description*

**Hodedo and similar soils**
Landform: Fan remnant
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bluebunch wheatgrass, antelope bitterbrush, Wyoming big sagebrush

**Typical profile:**
Layer 1--0 to 6 inches; stony loam
Layer 2--6 to 23 inches; gravelly clay loam
Layer 3--23 to 32 inches; indurated
Layer 4--32 to 60 inches; extremely cobbly loamy coarse sand

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

**Component Properties and Qualities**
Slope: 15 to 30 percent
Runoff: Very high
Depth to restrictive feature: Duripan: 20 to 26 inches
Available water capacity: About 3 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY061NV

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

### *Contrasting Inclusions*

**Hodedo**
Composition: 0 to 8 percent
Landform: Fan remnant
Typical vegetation: Bluebunch wheatgrass, antelope bitterbrush, Wyoming big sagebrush
Ecological site number: 028BY061NV

**Xeric Torriorthents**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Thurber needlegrass, bluebunch wheatgrass, big sagebrush
Ecological site number: 028BY007NV

**Haploxerollic Durargids**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, black sagebrush, needleandthread
Ecological site number: 028BY011NV

### *Management*

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

## 3970--Linoyer-Rebel association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,795 to 6,500 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 120 days

### *Composition*

Linoyer very fine sandy loam, 0 to 2 percent slopes--60 percent
Rebel sandy loam, 0 to 2 percent slopes--25 percent
Mosida loam, 0 to 2 percent slopes--5 percent
Easychair silt loam, 0 to 2 percent slopes--5 percent
Slaw silt loam, 0 to 2 percent slopes--5 percent

### *Component Description*

**Linoyer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Bottlebrush squirreltail, Indian ricegrass, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very fine sandy loam
Layer 2--3 to 46 inches; silt loam
Layer 3--46 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY013NV

### *Component Description*

**Rebel and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, needleandthread, Indian ricegrass

**Typical profile:**
Layer 1--0 to 16 inches; sandy loam
Layer 2--16 to 60 inches; loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Very low
Available water capacity: About 20 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Mosida**
Composition: 0 to 5 percent
Landform: Drainageway
Typical vegetation: Basin wildrye, basin big sagebrush
Ecological site number: 028BY003NV

**Easychair**
Composition: 0 to 5 percent
Landform: Inset fan
Typical vegetation: Fourwing saltbush, basin wildrye
Ecological site number: 029XY048NV

**Slaw**
Composition: 0 to 5 percent
Landform: Alluvial flat
Typical vegetation: Black greasewood, inland saltgrass
Ecological site number: 029XY076NV

### *Management*

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

## 3971--Linoyer-Easychair association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,700 to 6,400 feet
Precipitation: 5 to 10 inches
Air temperature: 45 to 57 degrees Fahrenheit
Frost-free period: 110 to 140 days

### *Composition*

Linoyer very fine sandy loam, 0 to 2 percent slopes--50 percent
Easychair silt loam, 0 to 2 percent slopes--35 percent
Rebel sandy loam, 0 to 2 percent slopes--8 percent
Mosida loam, 0 to 2 percent slopes--4 percent
Slaw silt loam, 0 to 2 percent slopes--3 percent

### *Component Description*

**Linoyer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very fine sandy loam
Layer 2--3 to 46 inches; silt loam
Layer 3--46 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY013NV

### *Component Description*

**Easychair and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Basin wildrye, fourwing saltbush

**Typical profile:**
Layer 1--0 to 9 inches; silt loam
Layer 2--9 to 46 inches; silt loam
Layer 3--46 to 60 inches; sandy loam

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 11 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7c
Ecological site number: 029XY048NV

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

### *Contrasting Inclusions*

**Rebel**
Composition: 0 to 8 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 028BY010NV

**Mosida**
Composition: 0 to 4 percent
Landform: Drainageway
Typical vegetation: Basin wildrye, basin big sagebrush
Ecological site number: 028BY003NV

**Slaw**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Inland saltgrass, black greasewood
Ecological site number: 029XY076NV

### *Management*

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

## 3972--Linoyer very fine sandy loam, 0 to 4 percent slopes

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,995 to 6,400 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Linoyer very fine sandy loam, 0 to 4 percent slopes--90 percent
Univega gravelly sandy loam, 0 to 4 percent slopes--4 percent
Xeric Torriorthents gravelly sandy loam, 0 to 2 percent slopes--3 percent
Clowfin gravelly sandy loam, 0 to 4 percent slopes--3 percent

### *Component Description*

**Linoyer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, bottlebrush squirreltail, winterfat

**Typical profile:**
Layer 1--0 to 3 inches; very fine sandy loam
Layer 2--3 to 46 inches; silt loam
Layer 3--46 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY013NV

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

### *Contrasting Inclusions*

**Univega**
Composition: 0 to 4 percent
Landform: Fan remnant
Typical vegetation: Fourwing saltbush, Indian ricegrass, winterfat
Ecological site number: 029XY046NV

**Xeric Torriorthents**
Composition: 0 to 3 percent
Landform: Drainageway
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread
Ecological site number: 028BY010NV

**Clowfin**
Composition: 0 to 3 percent
Landform: Inset fan
Typical vegetation: Winterfat, bottlebrush squirreltail, Indian ricegrass
Ecological site number: 028BY013NV

### *Management*

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

## 3973--Linoyer-Clowfin association

### *Map Unit Setting*

MLRA: 28B
Landscape: Fan piedmont
Elevation: 4,995 to 6,400 feet
Precipitation: 6 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 80 to 120 days

### *Composition*

Linoyer very fine sandy loam, 0 to 2 percent slopes--50 percent
Clowfin sandy loam, 2 to 4 percent slopes--40 percent
Xerollic Durorthids gravelly sandy loam, 2 to 8 percent slopes--8 percent
Xeric Torriorthents sandy loam, 0 to 2 percent slopes--2 percent

### *Component Description*

**Linoyer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, bottlebrush squirreltail

**Typical profile:**
Layer 1--0 to 3 inches; very fine sandy loam
Layer 2--3 to 46 inches; silt loam
Layer 3--46 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 2 percent
Runoff: Low
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY013NV

### *Component Description*

**Clowfin and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Indian ricegrass, winterfat, bottlebrush squirreltail

**Typical profile:**
Layer 1--0 to 6 inches; sandy loam
Layer 2--6 to 46 inches; stratified very gravelly sandy loam to very gravelly loam
Layer 3--46 to 60 inches; extremely gravelly sand

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

**Component Properties and Qualities**
Slope: 2 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 4 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 7s
Ecological site number: 028BY013NV

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

### *Contrasting Inclusions*

**Xerollic Durorthids**
Composition: 0 to 8 percent

Landform: Fan remnant
Typical vegetation: Needleandthread, Indian ricegrass, black sagebrush
Ecological site number: 028BY011NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Drainageway
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 028BY010NV

### *Management*

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

## 3974--Linoyer-Kunzler association

### *Map Unit Setting*

MLRA: 28B
Landscape: Intermontane basin
Elevation: 4,800 to 6,500 feet
Precipitation: 8 to 10 inches
Air temperature: 45 to 52 degrees Fahrenheit
Frost-free period: 100 to 130 days

### *Composition*

Linoyer very fine sandy loam, 0 to 4 percent slopes--60 percent
Kunzler loam, 0 to 4 percent slopes--25 percent
Durorthidic Torriorthents gravelly sandy loam, 0 to 4 percent slopes--10 percent
Durorthidic Xeric Torriorthents gravelly sandy loam, 0 to 4 percent slopes--2 percent
Xeric Torriorthents gravelly sandy loam, 0 to 4 percent slopes--2 percent
Palinor very gravelly loam, 0 to 4 percent slopes--1 percent

### *Component Description*

**Linoyer and similar soils**
Landform: Inset fan
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Winterfat, bottlebrush squirreltail, Indian ricegrass

**Typical profile:**
Layer 1--0 to 3 inches; very fine sandy loam
Layer 2--3 to 46 inches; silt loam
Layer 3--46 to 60 inches; extremely gravelly loamy sand

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Available water capacity: About 6 inches
Present flooding: Rare
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY013NV

### *Component Description*

**Kunzler and similar soils**
Landform: Stream terrace
Parent material: Alluvium derived from mixed rocks
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, needleandthread

**Typical profile:**
Layer 1--0 to 3 inches; loam
Layer 2--3 to 40 inches; loam
Layer 3--40 to 60 inches; very gravelly loam

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

**Component Properties and Qualities**
Slope: 0 to 4 percent
Runoff: Low
Sodicity: Sodic within 40 inches
Available water capacity: About 8 inches
Present flooding: None
Natural drainage class: Well drained

**Interpretive Groups**
Nonirrigated land capability: 6c
Ecological site number: 028BY010NV

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

### *Contrasting Inclusions*

**Durorthidic Torriorthents**
Composition: 0 to 10 percent
Landform: Inset fan
Typical vegetation: Indian ricegrass, shadscale, bud sagebrush
Ecological site number: 029XY017NV

**Durorthidic Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Fan remnant
Typical vegetation: Indian ricegrass, needleandthread, Wyoming big sagebrush
Ecological site number: 029XY006NV

**Xeric Torriorthents**
Composition: 0 to 2 percent
Landform: Inset fan
Typical vegetation: Wyoming big sagebrush, Indian ricegrass, spiny hopsage, needleandthread
Ecological site number: 028BY052NV

**Palinor**
Composition: 0 to 1 percent
Landform: Fan remnant
Typical vegetation: Needleandthread, Indian ricegrass, black sagebrush
Ecological site number: 028BY011NV

### *Management*

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

## W--Water

### *Map Unit Setting*

MLRA: 29
Landscape: None assigned

### *Composition*

Water--100 percent

**Interpretive Groups**
Nonirrigated land capability: Not determined
Ecological site number: None

### *Management*

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

# Prime Farmland

## Prime Farmland and Other Important Farmland

In this section, prime farmland and other important farmland are defined. The map units in the survey area that are considered prime farmland are listed under "Prime Farmland Map Units" at the end of this section.

### Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, seed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment

Prime farmland soils may presently be used as cropland, pasture, woodland or for other purposes. They are used for food and fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage measures, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

About 316,033 acres, or nearly 9 percent of the survey area, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available.

The map units in the survey area that meet the requirements for prime farmland are listed under "Prime Farmland Map Units." On some soils included in the list, measures that overcome limitations are needed. The location of each map unit is shown on the detailed soil maps at the back of this publication. This list does not constitute a recommendation for a particular land use.

### Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil qualities, location, growing season, and moisture supply needed for the economic production of sustained high yields of a specific high-quality crop when treated and managed by acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, and vegetables.

Unique farmland is used for a specific high-value food or fiber crop; has an adequate supply of available moisture for the specific crop because of stored moisture, precipitation, or irrigation; and has a combination of soil qualities, growing season, temperature, humidity, air drainage, elevation, aspect, and other factors, such as nearness to markets, that favor the production of a specific food or fiber crop.

Lists of unique farmland are developed as needed in cooperation with conservation districts and other entities. There are presently no soils recognized as unique farmland in Nevada.

## Additional Farmland of Statewide Importance

Some areas other than areas of prime and unique farmland are of statewide importance in the production of food, feed, fiber, forage, and oilseed crops. The appropriate State agency or agencies determine the criteria used in defining and delineating these areas. Generally, additional farmland of statewide importance includes areas that nearly meet the criteria for prime farmland and that economically produce high yields of crops when treated and managed by acceptable farming methods. Some areas can produce as high a yield as areas of prime farmland if conditions are favorable. In some states additional farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Nevada has designated any farmland that is irrigated to be of statewide importance.

## Prime Farmland Map Units

The following map units are prime farmland where irrigated with an adequate and dependable water supply:

3041 Mosida loam, 0 to 4 percent slopes
3111 Cath gravelly loam, 2 to 8 percent slopes

The following map units are prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60):

3020 Easychair silt loam, 0 to 2 percent slopes
3130 Unsel gravelly sandy loam, 2 to 8 percent slopes
3132 Unsel-Koyen-Keefa association
3190 Penoyer-Geer association
3191 Penoyer-Watoopah-Easychair association
3233 Geer-Koyen association
3414 Watoopah-Cath association
3530 Rebel sandy loam, 0 to 2 percent slopes
3531 Rebel gravelly loamy coarse sand, 0 to 4 percent slopes
3740 Keefa-Unsel association
3752 Koyen sandy loam, 2 to 8 percent slopes
3754 Koyen-Watoopah-Geer association
3755 Koyen-Watoopah association
3970 Linoyer-Rebel association
3971 Linoyer-Easychair association
3972 Linoyer very fine sandy loam, 0 to 4 percent slopes
3973 Linoyer-Clowfin association
3974 Linoyer-Kunzler association

# Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 17, "Classification of the Soils," in Part II of this Publication shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

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

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll *(Xer, meaning xeric, plus oll, from Mollisol)*.

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixeroll. *(Argi, meaning presence of argillic horizon, plus xeroll, the suborder of the Mollisols that hava a xeric moisture regime)*.

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

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, frigid, Typic Argixerolls.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

## Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follow standards in the "Soil Survey Manual"(17). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy"(19). Unless otherwise stated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units".

### Abgese series

The Abgese series consists of very deep, well drained soils that formed in alluvium from volcanic and sedimentary rocks. The Abgese soils are on fan piedmonts. Slopes are 0 to 8 percent. The mean annual precipitation is 9 inches and the mean annual temperature is 47 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Xerollic Haplargids

**Typical pedon:** Abgese sandy loam, in map unit 3112, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 15 percent pebbles.

A--0 to 5 inches; light gray (10YR 7/2) sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common fine, medium and coarse roots; common fine and very fine vesicular pores; 10 percent fine pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt1--5 to 14 inches; pale brown (10YR 6/3) sandy clay loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, friable, sticky and plastic; common fine, medium and coarse roots; common fine interstitial and tubular pores; few thin clay films lining pores and on some faces of peds and pebbles; 10 percent thin pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bt2--14 to 20 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine, medium and coarse roots; common fine interstitial and tubular pores; few thin clay films lining pores; 15 percent fine and medium pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

2Btk--20 to 35 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common fine interstitial and tubular pores; few thin clay films bridging sand grains; 40 percent fine pebbles; common seams and coatings of lime on pebbles; violently effervescent; moderately alkaline (pH 8.2); clear irregular boundary.

3Ck--35 to 60 inches; light gray (10YR 7/2) very gravelly loamy sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; 35 percent pebbles; few soft lime masses; violently effervescent; strongly alkaline (pH 8.6).

**Type location:** 2,500 feet southeast of the northwest corner of section 25, T.10 N., R.53 E.; (38 degrees, 42 minutes, 03 seconds north latitude and 115 degrees, 57 minutes, 37 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, but moist in the winter and spring, dry summer and fall.

*Soil temperature:* 47 to 52 degrees F.

*Depth to carbonates:* 14 to 24 inches.

*Control section:*

Clay content--18 to 25 percent.

Rock fragments--Average 15 to 35 percent, mainly pebbles.

Sand content--More than 35 percent medium and coarse sand.

**A horizon:**

Value--5 to 7 dry.

Chroma--2 or 3.

**Bt horizons:**

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4.

Texture--Averages gravelly sandy loam or gravelly sandy clay loam.

Structure--Subangular blocky, prismatic, or massive in the lower part of some pedons.

Consistence--Slightly hard or hard dry, slightly sticky and sticky moist, slightly plastic or plastic wet.

Clay content--Averages 18 to 30 percent.

Rock fragments--Averages 15 to 35 percent, mainly pebbles.

**Ck horizon:**

Value--6 or 7 dry.

Chroma--3 or 4 moist.

Texture--Very gravelly loamy sand or very gravelly sandy loam.

Gravel content--Average 35 to 60 percent, mainly pebbles.

Other features--Few silica cemented masses are in some pedons.

## Allker series

The Allker series consists of very deep, well drained soils that formed in alluvium from mixed rock sources. Allker soils are on fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Fine-loamy over sandy or sandy-skeletal, mixed, mesic Durixerollic Haplargids

**Typical pedon:** Allker gravelly sandy loam, in map unit 3468, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 35 percent pebbles.

A1--0 to 4 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; moderate thick platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine pores; 15 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

A2--4 to 9 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; moderately alkaline (pH 8.4); clear smooth boundary.

Bt1--9 to 14 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; common moderately thick clay films lining tubular pores; 15 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bt2--14 to 24 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; few moderately thick clay films lining pores and on faces of peds; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk1--24 to 32 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; thin discontinuous silica and lime coatings on pebbles; continuous brittle matrix; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bqk2--32 to 60 inches; pale brown (10YR 6/3) very gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose; nonsticky and nonplastic; many very fine and fine interstitial pores; few thin discontinuous silica laminae; thin discontinuous silica and lime coatings on pebbles; 55 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 850 feet north and 2,000 feet west of the southeast corner of section 31, T.15 N., R.53 E.; (39 degrees, 07 minutes, 26 seconds and 116 degrees, 02 minutes, 41 seconds.)

**Range in characteristics:**

*Soil moisture:* Moist in winter and spring, dry June through October.

*Soil temperature:* 47 to 51 degrees F.

*Depth to continuous brittle matrix:* 22 to 35 inches.

*Depth to carbonates:* 16 to 24 inches.

*Depth to sandy or sandy-skeletal layers:* 24 to 38 inches.

*Other features:* Non-saline or slightly saline below a depth of 22 inches.

**A horizons:**

Value--5 or 6 dry, 3 through 5 moist (greater than 5.5 dry and 3.5 moist when the surface 7 inches are mixed.)

Chroma--2 or 3.

Reaction--Neutral to moderately alkaline.

**Bt horizons:**

Value--5 or 6 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture--Dominantly gravelly loam or gravelly clay loam, but ranges from gravelly loam to gravelly sandy clay loam.

Clay--20 to 30 percent.

Rock fragments--15 to 30 percent, mainly pebbles.

Structure--Weak through strong, fine through coarse subangular or angular blocky.

Consistence--Slightly hard or hard dry, friable or firm moist, slightly sticky or sticky, slightly plastic or plastic wet.

Reaction--Mildly alkaline or moderately alkaline.

Other features--Lime segregations are common in lower subhorizons of some pedons. Most pedons have durinodes in some subhorizon.

**Bqk horizons:**

Value--6 through 8 dry, 4 through 6 moist.

Chroma--1 through 4.

Rock fragments--15 to 30 percent, mainly pebbles.

Consistence--Hard or very hard dry, friable or firm moist.

Reaction--Moderately alkaline or strongly alkaline.

Other features--Few thin or very thin discontinuous silica laminae are present in some pedons; some pedons have durinodes in a friable matrix below the weakly cemented horizon.

**2Bqk horizon:**

Value--5 or 6 dry.

Chroma--3 through 6.

Texture--Very gravelly loamy sand or very gravelly sand.

Rock fragments--35 to 60 percent, mainly pebbles.

Reaction--Moderately alkaline or strongly alkaline.

Other features--Commonly contains thin discontinuous silica laminae or durinodes in a loose or friable matrix.

## Amelar series

The Amelar series consists of very deep, well drained soils that formed in colluvium from limestone and sandstone. Amelar soils are on mountains. Slopes are 15 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, frigid Calcic Argixerolls

**Typical pedon:** Amelar gravelly silt loam, in map unit 3340, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) gravelly silt loam, very dark brown (10YR 2/2) moist, weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; few thin lime films on undersides of pebbles; 20 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

A2--2 to 6 inches; grayish brown (10YR 5/2) gravelly silt loam, very dark brown (10YR 2/2) moist, weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; common fine tubular pores; few thin lime films on undersides of rock fragments; 25 percent pebbles, 5 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary.

Bt--6 to 10 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist, moderate medium subangular blocky structure; soft, very friable, sticky and plastic; many very fine and medium roots; common fine tubular pores; common moderately thick clay films on faces of peds and lining pores; few thin lime films on undersides of rock fragments; 25 percent pebbles, 20 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Btk--10 to 15 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine, fine and medium roots; common fine tubular pores; common moderately thick clay films on faces of peds and coating pores 25 percent pebbles; 20 percent cobbles; thick lime pendants on undersides of rock fragments; strongly effervescent, moderately alkaline (pH 8.0); clear smooth boundary.

Bk1--15 to 19 inches; very pale brown (10YR 7/3) very gravelly silt loam, pale brown (10YR 6/3) moist; strong fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; soft lime masses and thick lime pendants on undersides of rock fragments; 35 percent pebbles, 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2--19 to 28 inches; light gray (10YR 7/2) very gravelly silt loam, light brownish gray (10YR 6/2) moist; massive, hard, friable, slightly sticky and slightly plastic; thick lime pendants on undersides of rock fragments; 40 percent pebbles, 15 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk3--28 to 60 inches; very pale brown (10YR 7/3) very gravelly loam, pale brown (10YR 6/3) moist, massive; slightly hard, very friable, slightly sticky and slightly plastic; thick lime pendants on undersides of rock fragments; 40 percent pebbles, 10 percent cobbles; violently effervescent, moderately alkaline (pH 8.0).

**Type location:** 1,050 feet north and 1,100 feet east of the southeast corner section 3, T.9 N., R.62 E.; (38 degrees, 40 minutes, 40 seconds north latitude and 115 degrees, 00 minutes, 08 seconds west longitude.)

### Range in characteristics:

*Soil moisture:* Usually moist, dry from June to October, moist in late fall through early summer.
*Soil temperature:* 42 to 47 degrees F.
*Mollic epipedon thickness:* 10 to 15 inches, includes part or all of the argillic horizon.
*Depth to base of argillic horizon:* 15 to 20 inches.
*Depth to secondary carbonates:* 10 to 15 inches.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.
Reaction--Mildly alkaline or moderately alkaline.
Effervescence--Noneffervescent to strongly effervescent.

**Bt and Btk horizons:**
Value--4 through 6 dry.
Chroma--2 or 3.
Texture--Very cobbly silty clay loam or very cobbly clay loam.
Clay content--27 to 35 percent.
Rock fragments--20 to 35 percent pebbles, 15 to 25 percent cobbles.
Consistence--Soft to slightly hard, dry.
Effervescence--Noneffervescent to violently effervescent.

**Bk horizons:**
Value--6 through 8 dry.
Chroma--2 through 4.
Texture--Very gravelly silt loam or very gravelly loam.
Structure--Subangular blocky or massive.
Consistence--Slightly hard or hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic moist.
Reaction--Moderately alkaline or strongly alkaline.

## Ardivey series

The Ardivey series consists of very deep, well drained soils that formed in alluvium from mixed sources. Ardivey soils are on fan piedmonts. Slopes are 2 to 15 percent. Mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Duric Haplargids

**Typical pedon:** Ardivey very gravelly sandy loam, in map unit 3803, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 50 percent pebbles.

A1--0 to 3 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots; many very fine and fine interstitial pores; 35 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--3 to 8 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, brown (10YR 4/3) moist; weak thick platy structure parting to moderate fine and medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; many fine and medium roots; common fine tubular pores; 35 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt--8 to 17 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common fine and medium roots; common fine tubular pores; common thin clay films lining pores and on faces of peds; 40 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

2Btqk--17 to 30 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and medium roots; common very fine and fine tubular pores; few thin clay films lining pores and on faces of peds; few lime filaments and lime and silica coatings on undersides of rock fragments; 40 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4) clear smooth boundary.

3Bqk--30 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, brown (10YR 4/3) moist; massive; very hard, very firm, nonsticky and nonplastic; 20 percent strong lime and silica cementation; few fine lime filaments; lime and silica coatings on undersides of rock fragments; 65 percent pebbles, 10 percent cobbles; violently effervescent; strongly alkaline (pH 8.6).

**Type location:** 1,800 feet north and 2,000 feet east of the southwest corner of section 24, T.3 N., R.50 E.; (38 degrees, 06 minutes, 05 seconds and 116 degrees, 20 minutes, 36 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring and for 10 to 20 days cumulative between July to October following convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Control section:*
Percent clay--18 to 35.
Rock fragments--45 to 60 percent.

**A horizons:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 3 or 4 moist.
Chroma--2 or 3.
Reaction--Moderately alkaline or strongly alkaline.
Effervescence--Noneffervescent or slightly effervescent.

**Bt horizon:**
Value--5 or 6 dry, 3 through 5 moist.
Chroma--2 through 4.
Texture--Very gravelly sandy clay loam, very gravelly clay loam or very gravelly loam.
Reaction--Neutral to moderately alkaline.
Structure--Weak or moderate prismatic or subangular blocky.
Consistence--Soft to hard dry, very friable to firm moist.
Effervescence--Noneffervescent or slightly effervescent. Strongly effervescent in lower part in some pedons.

**Btqk horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 through 4.
Texture--Very gravelly coarse sandy loam, very gravelly loam, or extremely gravelly loam.
Consistence--Slightly hard to hard dry, very friable to firm moist.

**3Bqk horizon:**
Value--6 through 8 dry; 4 through 6 moist.
Chroma--2 or 3.
Consistence--Slightly hard to very hard dry, very friable to very firm moist.
Rock fragments--50 to 70 percent pebbles, 5 to 30 percent cobbles, and 0 to 10 percent stones.
Reaction--Moderately alkaline to very strongly alkaline.
Other features--20 to 60 percent weak to strong discontinuous silica and lime cementation.

## Argalt series

The Argalt series consists of shallow or very shallow, over an indurated duripan, well drained soils that formed in residuum and colluvium weathered from basalt bedrock. The Argalt soils are on basalt flow plateaus and mesas. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durargids

**Typical pedon:** Argalt very stony fine sandy loam, in map unit 3620, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent stones, 10 percent cobbles, and 40 percent pebbles.

A1--0 to 1 inch; pale brown (10YR 6/3) very stony fine sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine, fine and medium vesicular pores; 25 percent pebbles, 10 percent cobbles, 5 percent stones; moderately alkaline (pH 8.0); clear smooth boundary.

A2--1 to 4 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic;
common very fine and fine roots; many very fine, few fine tubular and common very fine interstitial pores; 10 percent pebbles, 2 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bt--4 to 11 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; common thin clay films lining pores and bridging mineral grains; 10 percent pebbles, 2 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bqkm--11 to 15 inches; indurated duripan.

R--15 inches; basalt bedrock

**Type location:** 2,100 feet east and 1,400 feet south of the northwest corner of section 24 T.6 N., R.52 E.; (38 degrees, 22 minutes, 07 seconds north latitude and 116 degrees, 04 minutes, 33 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Moist in winter and spring, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 57 degrees F.
*Depth to duripan:* 8 to 14 inches.
*Depth to bedrock:* 10 to 20 inches.
*Other features:* Pan fragments are common immediately above the duripan in most pedons.
*Control section:*
Percent clay--15 to 25 percent.
Rock fragments--5 to 15 percent.
Reaction--Mildly alkaline or moderately alkaline.

**A horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.

**Bt horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Loam or clay loam.
Clay content--25 to 35 percent.
Rock fragments--5 to 15 percent.
Structure--Weak or moderate subangular blocky.
Consistence--Soft to slightly hard, dry, slightly sticky to sticky and slightly plastic to plastic wet.
Effervescence--Noneffervescent to slightly effervescent.

**Bqkm horizon:**
Value--7 or 8 dry, 5 through 7 moist.
Chroma--1 or 2 dry, 3 or 4 moist.
Reaction--Moderately alkaline or strongly alkaline.

## Armespan series

The Armespan series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources. Armespan soils are on fan piedmonts. Slopes are 2 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Durixerollic Calciorthids

**Typical pedon:** Armespan very gravelly sandy loam, in map unit 3641 rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 60 percent pebbles.

A1--0 to 1 inch; light gray (10YR 7/2) very gravelly sandy loam, light brownish gray (10YR 6/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine roots; common very fine interstitial and tubular pores; 40 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2--1 to 7 inches; light gray (10YR 7/2) gravelly loam, light brownish gray (10YR 6/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common fine and medium roots; common fine interstitial and tubular pores; 30 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bk--7 to 18 inches; very pale brown (10YR 7/3) gravelly loam, pale brown (10YR 6/3) moist; massive, slightly hard, friable, nonsticky and nonplastic; many fine and medium roots; many fine tubular pores; soft powdery lime throughout; 30 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqk--18 to 28 inches; white (10YR 8/2) very gravelly sandy loam, pale brown (10YR 6/3) moist; massive, hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine interstitial pores; 25 percent strongly cemented durinodes; soft powdery lime masses; 25 percent lime coated plates; silica and lime coatings on undersides of rock fragments; 45 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C--28 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; common very fine and fine roots; many fine and medium interstitial pores; lime pendants on undersides of rock fragments; 40 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6)

**Type location:** 100 feet east and 900 feet south of the northwest corner of section 22, T.7 N., R.50 E.; (38 degrees, 27 minutes, 27 seconds north latitude and 116 degrees, 20 minutes, 26 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Effervescence:* Strongly effervescent or violently effervescent throughout.
*Depth to Bk horizon:* 4 to 10 inches.
*Thickness of calcic horizon:* 15 to 35 inches.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--Averages 35 to 50 percent.

**A horizons:**
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 or 3.

**Bk horizon:**
Value--6 through 8 dry, 5 through 7 moist.
Chroma--2 or 3.
Texture (less than 2 mm fraction)--Sandy loam or loam.
Clay content--12 to 18 percent.
Rock fragments--15 to 35 percent, dominantly pebbles.
Structure--Massive, weak platy, or subangular blocky.
Consistence--Soft to hard dry, very friable to firm moist.
Effervescence--Soft powdery lime throughout.
Calcium carbonate equivalent--10 to 35 percent.

**Bqk horizon:**
Value--7 or 8 dry, 6 or 7 moist.
Chroma--2 or 3 dry or moist.
Texture (less than 2 mm fraction)--Sandy loam, coarse sandy loam.
Clay content--10 to 18 percent.
Rock fragments--35 to 50 percent, dominantly pebbles.
Consistence--Soft to hard dry, very friable to firm moist.
Calcium carbonate equivalent--10 to 35 percent.
Other features--20 to 50 percent weak to strong discontinuous silica-lime cementation as plates and pendants under rock fragments.

**C horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3 dry or moist.
Texture (less than 2 mm fraction)--Loamy sand, loamy coarse sand.
Clay content--5 to 10 percent.
Rock fragments--35 to 60 percent, predominantly pebbles.
Structure--Massive or single grain.
Consistence--Loose to hard dry, loose to friable moist.
Carbonates--Lime pendants on undersides of rock fragments.

## Beelem series

The Beelem series consists of very shallow, well drained soils that formed in residuum and colluvium from welded tuffs. Beelem soils are on mountain slopes and hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Loamy, mixed (calcareous), mesic Lithic Xeric Torriorthents

**Typical pedon:** Beelem gravelly sandy loam, in map unit 3710, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 30 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
A2--2 to 5 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 25 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.
R--5 inches; hard tuff that is weathered in the upper inch.

**Type location:** 10 feet east and 2,600 feet south of the northwest corner of section 16, T.2 S., R.54 E.; (37 degrees, 46 minutes, 26 seconds and 115 degrees, 54 minutes, 59 seconds.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall, except moist for 10 to 20 days cumulative July to October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to bedrock:* 4 to 9 inches.
*Reaction:* Mildly alkaline or moderately alkaline.
*Effervescence:* Slightly effervescent to violently effervescent throughout.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--15 to 35 percent, predominantly 2 to 5 mm pebbles.

**A horizons:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, and 4 or 5 moist.
Chroma--2 through 4. Color variations are due to lithochromic influence.

## Bellehelen series

The Bellehelen series consists of shallow or very shallow well drained soils that formed in residuum and colluvium from volcanic rocks. Bellehelen soils are on hill and mountain slopes. Slopes are 8 to 75 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Lithic Argixerolls

**Typical pedon:** Bellehelen very stony loam, in map unit 3420, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent stones, 15 percent cobbles, and 35 percent pebbles.

A1--0 to 2 inches; dark grayish brown (10YR 4/2) very stony loam, very dark brown (10YR 2/2) moist; weak medium angular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine interstitial pores; 25 percent pebbles, 10 percent cobbles, 5 percent stones; neutral (pH 6.6); abrupt smooth boundary.
A2--2 to 4 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine interstitial and tubular pores; 35 percent pebbles, 5 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.
Bt--4 to 9 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, medium and coarse roots; many very fine

tubular pores; common thin clay films lining pores and coating rock fragments; 45 percent pebbles, 5 percent cobbles; neutral (pH 6.8); clear wavy boundary.
R--9 inches; hard andesitic tuff.

**Type location:** 500 feet north and 500 feet east of the southwest corner of section 23, T.1 N., R.49 E.; (37 degrees, 54 minutes, 54 seconds and 116 degrees, 28 minutes, 22 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 47 to 53 degrees F.
*Depth to bedrock:* 7 to 14 inches.
*Reaction:* Neutral or mildly alkaline.
*Control section:*
Clay content--Averages 18 to 35 percent.
Rock fragments--35 to 60 percent.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Texture (less than 2 mm fraction)--Loam, sandy clay loam, or clay loam; subhorizons of some pedons have greater than 35 percent clay.
Consistence--Slightly sticky to sticky, slightly plastic to plastic wet.

## Belted series

The Belted series consists of shallow or very shallow to a duripan, well drained soils that formed in mixed alluvium. Belted soils are on fan piedmonts. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Haplic Durargids

**Typical pedon:** Belted very gravelly loam, in map unit 3600, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 40 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate thick platy structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine and fine vesicular pores; 35 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
Bt--4 to 11 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; common moderately thick clay films on faces of peds, lining pores and coating sand grains; 15 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
Bqkm--11 to 17 inches; continuous strongly cemented hardpan.
2C1--17 to 36 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots in pockets; many very fine and fine interstitial pores; 40 percent pebbles, 5 percent cobbles; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.
2C2--36 to 60 inches; pale brown (10YR 6/3) very gravelly coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine interstitial pores; 50 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.8).

**Type location:** 1,500 feet north and 2,300 feet east of the southwest corner of section 7, T.2 N., R.54 E.; (38 degrees, 02 minutes, 51 seconds north latitude and 115 degrees, 56 minutes, 36 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, but moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to duripan:* 6 to 14 inches.
*Depth to 2C:* 17 to 60 inches.
*Reaction:* Moderately alkaline to very strongly alkaline.
*Control section:*
Rock fragments--Average 0 to 30 percent.

**A horizon:**
Value--5 through 7 dry, 4 or 5 moist.

Chroma--2 or 3.
Effervescent--Slightly effervescent or strongly effervescent.

**Bt horizon:**
Hue--7.5YR or 10YR.
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture (less than 2 mm fraction)--Loam or clay loam.
Rock fragments--0 to 30 percent.
Clay content--18 to 30 percent.
Structure--Subangular blocky, platy or granular.
Consistence--Very friable or friable moist, slightly plastic or plastic wet.
Effervescence--Slightly effervescent or strongly effervescent.

**Bqkm horizon:**
Structure--Platy structure or is massive; consists of strongly cemented continuous laminae that are rarely over one-half inch thick.

**C1 horizon (when present):**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Sandy loam, fine sandy loam.
Rock fragments--0 to 35 percent.
Consistence--Soft to hard dry, very friable to friable moist.

**2C horizon:**
Hue--10YR or 7.5YR.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Averages extremely gravelly coarse sand or very gravelly coarse sand.
Consistence--Soft to very hard dry, very friable to very firm moist, nonsticky to slightly sticky and nonplastic to plastic wet.
Effervescence--Noneffervescent to violently effervescent.
Other features--Btk horizon is present in some pedons.

## Blueagle series

The Blueagle series consists of very deep, well drained soils that formed in eolian material from mixed sources. Blueagle soils are on stabilized dunes on lake plains and playas. Slopes are 4 to 30 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Fine-silty, mixed (calcareous) mesic Typic Torriorthents

**Typical pedon:** Blueagle silt loam, in map unit 3150, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; weak medium platy structure; slightly hard, friable, sticky and slightly plastic; many very fine and fine vesicular pores; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

A2--2 to 13 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; weak fine granular structure; slightly hard, very friable, sticky and slightly plastic; many very fine interstitial and few very fine tubular pores; few very fine lime filaments on faces of peds; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C1--13 to 28 inches; very pale brown (10YR 7/3) silty clay loam, pale brown (10YR 6/3) moist; weak fine granular structure; slightly hard, very friable, sticky and slightly plastic; many very fine interstitial and few very fine tubular pores; common very fine lime filaments; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C2--28 to 44 inches; pale yellow (5Y 7/4) silty clay loam, pale olive (5Y 6/4) moist; weak fine granular structure; slightly hard, very friable, sticky and slightly plastic; many very fine interstitial pores; common very fine lime filaments; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C3--44 to 60 inches; pale yellow (5Y 7/4) silty clay loam, pale olive (5Y 6/4) moist; massive; slightly hard, very friable, sticky and slightly plastic; many very fine interstitial and few very fine tubular pores; common very fine lime filaments; violently effervescent; very strongly alkaline (pH 9.6).

**Type location:** About 2,000 feet south and 2,200 feet west of the northeast corner of section 33, T.8 N., R.57 E.; (38 degrees, 30 minutes, 40 seconds north latitude and 115 degrees, 34 minutes, and 07 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some parts for short periods during winter and early spring and for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 53 to 59 degrees F.
*Control section:*
Clay content--Averages 25 to 35 percent.
Other features--Except where it has been redispersed by sodium, the soil is aggregated into sand-size granules. It readily wets up to silt loam or silty clay loam textures.

**A horizons:**
Value--6 through 8 dry, 5 or 6 moist.
Chroma--2 through 4.

**C horizons:**
Hue--10YR, 2.5Y, or 5Y.
Value--6 through 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Silt loam or silty clay loam.
Clay content--25 to 35 percent.
Structure--Weak to moderate granular. May be massive in lower part.
SAR--30 to 90.

## Breko series

The Breko series consists of very deep, well drained soils that formed in mixed alluvium. Breko soils are on fan remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Xerollic Haplargids

**Typical pedon:** Breko very cobbly loam, in map unit number 3080, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent pebbles and 20 percent cobbles.

A1--0 to 2 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, nonsticky and slightly plastic; few very fine roots; many very fine and fine vesicular and common very fine interstitial pores; 10 percent pebbles, 25 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

A2--2 to 5 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular and interstitial pores; 20 percent pebbles, 25 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1--5 to 10 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, sticky and plastic; common very fine and few fine roots; many very fine tubular pores; many thick clay films on faces of peds and lining pores; 15 percent pebbles, 35 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bt2--10 to 17 inches; light yellowish brown (10YR 6/4) very cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; common thick clay films lining pores and bridging sand grains; 20 percent pebbles, 35 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bt3--17 to 25 inches; light yellowish brown (10YR 6/4) extremely cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few thin clay films lining pores and bridging sand grains; 20 percent pebbles, 40 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1--25 to 34 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 25 percent pebbles, 30 percent cobbles; common lime coatings on undersides of rock fragments; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk2--34 to 41 inches; light yellowish brown (10YR 6/4) very gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent pebbles; 5 percent durinodes; common lime coatings on undersides of pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bqk--41 to 60 inches; light yellowish brown (10YR 6/4) very gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles; 35 percent durinodes; common lime and silica

coatings on pebbles; strongly effervescent; moderately alkaline (pH 8.4).

**Type location:** 1,400 feet east and 400 feet north of the southwest corner of section 14, T.9 N., R.51 E.; (38 degrees, 38 minutes, 09 seconds north latitude and 116 degrees, 12 minutes, 10 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in the winter and spring months, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 55 to 59 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Clay content--25 to 35 percent.
Rock fragments--35 to 60 percent pebbles and cobbles.

**A horizons:**
Value--5 through 7 dry, 3 through 6 moist.
Chroma--2 or 3, dry or moist.
Effervescence--Noneffervescent or slightly effervescent.

**Bt horizons:**
Hue--10YR, 7.5YR, or 5YR.
Value--5 through 7 dry, 3 through 6 moist.
Chroma--2 through 4, dry or moist.
Texture of fine earth--Clay loam or sandy clay loam.
Clay content--25 to 35 percent.
Rock fragments--Average 35 to 80 percent.
Structure--Weak to strong subangular blocky.
Consistence--Soft to hard dry, very friable to firm moist, slightly sticky to sticky and slightly plastic to plastic wet.
Effervescence--Slightly effervescent or strongly effervescent.

**Bk horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture of fine earth--Sandy loam or coarse sandy loam.
Clay content--5 to 8 percent.
Rock fragments--55 to 75 percent.
Structure--Massive or single grain.
Consistence--Soft to hard dry, nonsticky or slightly sticky wet.
Effervescence--Strongly effervescent or violently effervescent.

**Bqk horizon:**
Value--6 through 8 dry, 5 through 7 moist.
Chroma--1 through 4, dry or moist.
Texture of fine earth--Coarse sandy loam or loamy sand.
Rock fragments--35 to 75 percent, pebbles and cobbles.
Consistence--Soft to very hard dry, very friable to brittle moist.
Cementation--Has weak continuous brittle matrix or 30 to 50 percent durinodes in a friable matrix.

## Candelaria series

The Candelaria series consists of very deep, well drained soils that formed in alluvium from mixed rock sources. Candelaria soils are on fan piedmonts. Slopes are 0 to 15 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Sandy-skeletal, mixed, mesic Duric Calciorthids

**Typical pedon:** Candelaria very gravelly sandy loam, in map unit 3641, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 45 percent pebbles.

A--0 to 7 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine and fine interstitial pores; 35 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary

Bk--7 to 16 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard; very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 30 percent pebbles; common soft lime masses; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bqk--16 to 24 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine interstitial pores; 55 percent pebbles, 10 percent cobbles; 35 percent strongly silica and lime cemented plates; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

3C--24 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy coarse sand to very gravelly loamy sand, dark brown (10YR 4/3) moist; massive; soft,

very friable, nonsticky and nonplastic; few fine roots; many medium and coarse interstitial pores; 55 percent pebbles, 10 percent cobbles; violently effervescent; strongly alkaline (pH 8.8).

**Type location:** 2,000 feet north and 50 feet west of the southeast corner of section 4, T.7 N., R.50 E.; (38 degrees, 29 minutes, 20 seconds north latitude and 116 degrees, 20 minutes, 28 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and spring, and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to calcic horizon:* 1 to 7 inches.
*Reaction:* Strongly alkaline or very strongly alkaline.
*Control section:*
Clay content--Averages 4 to 10 percent.
Rock fragments--Average 50 to 70 percent, predominantly pebbles, with some strata having 40 to 80 percent in some pedons.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Effervescence--Noneffervescent to strongly effervescent.

**Bk horizon:**
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 through 4.
Structure--Platy or subangular blocky.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky wet.
Effervescence--Strongly effervescent or violently effervescent.

**2Bqk horizon:**
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Loamy sand or sandy loam.
Clay content--8 to 15 percent.
Rock fragments--45 to 65 percent, predominantly pebbles.
Consistence--Nonsticky to slightly sticky, nonplastic to slightly plastic wet.
Calcium carbonate equivalent--10 to 25 percent.
Other features--20 to 60 percent weakly to strongly silica and lime cemented plates.

**3C horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Sand, loamy sand or loamy coarse sand.
Rock fragments--Average 50 to 70 percent.
Structure--Massive or single grain.
Consistence--Soft or loose dry, very friable or loose moist.
Calcium carbonate equivalent--Less than 5 percent. Strongly effervescent or violently effervescent.

## Cath series

The Cath series consists of very deep well drained soils that formed in mixed alluvium. Cath soils are on fan piedmonts. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Durixerollic Haplargids

**Typical pedon:** Cath gravelly loam, in map unit 3110, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 30 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine vesicular pores; 25 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.
A and B--3 to 6 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3 moist; weak medium platy structure parting to weak medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine and few fine vesicular and few very fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.
Bt--6 to 15 inches; brown (7.5YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, sticky and plastic; many very fine and common fine roots; many very fine tubular and few very fine interstitial pores; common moderately thick clay films lining pores and coating sand grains; moderately alkaline (pH 8.2); clear smooth boundary.
Btk--15 to 20 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and few fine and medium

roots; many very fine tubular and common very fine interstitial pores; few thin clay films on faces of peds and coating rock fragments; few soft lime masses and coatings on pebbles; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bqk1--20 to 28 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, sticky and plastic; few very fine and fine roots; many very fine interstitial and common very fine tubular pores; 20 percent durinodes; few lime and silica coatings on rock fragments; 35 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bqk2--28 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam and very gravelly loam, yellowish brown (10YR 5/4) moist; massive; very hard, firm and brittle, nonsticky and nonplastic; few very fine and fine roots; many very fine and few fine interstitial pores; discontinuous indurated silica lamella; 30 percent pebbles, 10 percent cobbles; violently effervescent; strongly alkaline (pH 8.6).

**Type location:** 2,000 feet north and 700 feet west the of southeast corner of section 16 T.10 N., R.53 E., (38 degrees, 43 minutes, 40 seconds and 116 degrees, 00 minutes, 36 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer except for 10 to 20 days between July and October due to convection storms.

*Soil temperature:* 51 to 59 degrees F.

*Control section:*
Clay content--25 to 35 percent.
Rock fragments--0 to 15 percent.

**A horizons:**
Hue--7.5YR or 10YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Reaction--Neutral or mildly alkaline.

**Bt horizon:**
Hue--5YR, 7.5YR, or 10YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--4 or 5.
Texture--Clay loam or sandy clay loam.
Clay content--25 to 35 percent.
Rock fragments--0 to 15 percent.
Structure--Weak or moderate medium or coarse prismatic or subangular blocky.
Consistence--Hard or slightly hard dry, very friable or friable moist, sticky to very sticky and plastic to very plastic wet.
Reaction--Mildly alkaline or moderately alkaline.

**Btk horizon:**
Hue--5YR, 7.5YR, or 10YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--4 or 5.
Texture--Clay loam or sandy clay loam.
Clay content--25 to 35 percent.
Rock fragments--0 to 25 percent.
Structure--Weak or moderate, medium or coarse, prismatic or subangular blocky.
Consistence--Slightly hard or hard dry, very friable or friable moist, sticky or very sticky and plastic or very plastic wet.

**2Bqk1 horizon:**
Hue--5YR, 7.5YR, or 10YR.
Value--5 through 7 dry.
Chroma--2 through 4.
Clay content--20 to 30 percent.
Rock fragments--35 to 60 percent.
Consistence--Soft or slightly hard dry.
Reaction--Moderately alkaline to strongly alkaline.

**2Bqk2 horizons:**
Hue--5YR, 7.5YR, or 10YR.
Value--5 through 8 dry, 4 through 6 moist.
Chroma--1 through 4.
Texture--Stratified very gravelly loamy coarse sand to very gravelly loam.
Consistence--Hard or very hard, dry.
Clay content--Averages 5 to 10 percent.
Rock fragments--Average 35 to 60 percent.

## Chuckridge series

The Chuckridge series consists of shallow and very shallow over an indurated duripan, well drained soils that formed in mixed alluvium. Chuckridge soils are on fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durargids

**Typical pedon:** Chuckridge gravelly sandy loam, in map unit 3481, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially

covered with 5 percent cobbles and 40 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine and fine vesicular pores; 25 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bt--3 to 7 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; few thin clay films on faces of peds; 20 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btqk--7 to 14 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; common moderately thick clay films on faces of peds, lining pores and coating rock fragments; lime and silica pendants on undersides of rock fragments; 25 percent pebbles, 5 percent cobbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqkm1--14 to 19 inches; strongly cemented hardpan; common very fine and fine roots in pockets; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqkm2--19 to 27 inches; indurated hardpan with a laminar cap; violently effervescent; clear wavy boundary.

Bqk--27 to 60 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine interstitial pores; 30 percent pebbles, 10 percent cobbles; discontinuous weak to strong lime and silica cementation; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 100 feet east and 900 feet north of the southwest corner of section 26, T.3 N., R.49 E.; (38 degrees, 04 minutes, 32 seconds north latitude and 116 degrees, 28 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall except for 10 to 20 cumulative days between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to duripan:* 7 to 14 inches.

*Control section:*
Clay content--18 to 25 percent.
Rock fragments--15 to 35 percent dominantly pebbles.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Reaction--Mildly alkaline to moderately alkaline.

**Bt and Btqk horizon:**
Hue--10YR or 7.5YR.
Value--5 or 6 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Gravelly loam, gravelly clay loam, or gravelly sandy clay loam.
Clay content--25 to 35 percent.
Rock fragments--15 to 35 percent, dominantly pebbles.
Structure--Strong or moderate subangular blocky.
Consistence--Slightly hard or hard dry, slightly sticky or sticky and slightly plastic or plastic wet.
Reaction--Mildly alkaline to strongly alkaline.
Effervescence--Noneffervescent or slightly effervescent in the upper part, strongly effervescent or violently effervescent in the lower part.

**Bqkm horizons:**
Value--7 or 8 dry, 5 through 7 moist.
Chroma--2 or 3.
Rock fragments--35 to 60 percent, predominantly pebbles, with 10 to 30 percent cobbles in some pedons.
Cementation--Indurated with 1/16 to 1/8 inch silica laminae. The lower portion is strongly cemented with discontinuous silica laminae coating and bridging rock fragments.

**Bqk horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Very gravelly loamy sand or very gravelly sandy loam.
Clay content--8 to 18 percent.
Rock fragments--35 to 60 percent, predominantly pebbles.
Consistence--Soft to slightly hard dry.
Reaction--Strongly alkaline or very strongly alkaline.
Cementation--Discontinuous strong and weak silica cementation with lime and silica pendants on the undersides of rock fragments.

## Cirac series

The Cirac series consists of very deep, well drained soils that formed in mixed alluvium. Cirac soils are on alluvial flats, lake plains, and fan skirts. Slopes are 0 to 4 percent. Mean annual precipitation is about 6 inches and mean annual temperature is about 54 degrees F.

**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents

**Typical pedon:** Cirac sandy loam, map unit 3471, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine vesicular pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C1--4 to 8 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

C2--8 to 11 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

C3--11 to 60 inches; pale brown (10YR 6/3) stratified silt loam to sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; 10 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.4).

**Type location:** 600 feet south and 50 feet west of the northeast corner of section 1, T.2 N., R.52 E.; (38 degrees, 05 minutes, 34 seconds and 116 degrees, 03 minutes, 49 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Reaction:* Strongly alkaline or very strongly alkaline.
*Effervescence:* Slightly effervescent to violently effervescent throughout.
*Salinity:* 16 to 30 mmhos.
*SAR:* 13 to 90.
*Organic matter:* Irregular decrease with depth.
*Control section:*
Rock fragments--Average 0 to 15 percent, dominantly 2 to 4.6 millimeter pebbles, with any layer in substrata containing up to 35 percent.
Clay content--Averages 8 to 18 percent.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.

**C horizons:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Stratified gravelly sand through silt loam, averages sandy loam or loam.
Rock fragments--0 to 15 percent average, with any strata containing up to 35 percent.
Structure--Massive, prismatic or subangular blocky.
Consistence--Loose to hard dry, loose to friable moist, nonsticky or slightly sticky and nonplastic or slightly plastic.

## Clanalpine series

The Clanalpine series consists of moderately deep, well drained soils that formed in residuum and colluvium from rhyolitic and andesitic tuff. Clanalpine soils are on mountain sideslopes. Slopes are 15 to 75 percent. Mean annual precipitation is about 15 inches and the mean annual temperature is about 41 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, frigid Typic Argixerolls

**Typical pedon:** Clanalpine very cobbly loam, in map unit 3162, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 25 percent cobbles and 20 percent pebbles.

A1--0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine interstitial pores; 15 percent pebbles; 20 percent cobbles; neutral (pH 7.2); clear smooth boundary.

A2--3 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very

friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 30 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

A3--7 to 13 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; many fine tubular pores; 30 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1--13 to 21 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; common thin clay films lining pores and coating sand grains; 20 percent pebbles, 25 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt2--21 to 39 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; many fine interstitial pores; common thin clay films lining pores, on faces of peds and coating sand grains; 15 percent pebbles, 25 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Cr--39 to 45 inches; weathered rhyolitic tuff bedrock.

**Type location:** 100 feet north and 1,600 feet west of the southeast corner of section 11, T.14 N., R.54 E.; (39 degrees, 05 minutes, 34 seconds north latitude and 115 degrees, 51 minutes, 28 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and spring, dry from mid July to mid October.

*Soil temperature:* 43 to 45 degrees F.

*Mollic epipedon thickness:* 8 to 14 inches, includes the Bt1 horizon in some pedons.

*Depth to weathered bedrock (paralithic):* 20 to 40 inches.

*Depth to hard bedrock:* 40 to 60 inches.

*Other features:* Some pedons have a BC horizon overlying the paralithic contact.

*Control section:*

Clay content--25 to 35 percent.

Rock fragments--35 to 60 percent, mainly pebbles and cobbles.

**A horizons:**

Value--4 to 5 dry, 2 or 3 moist.

Chroma--2 or 3.

**Bt horizons:**

Value--6 or 7 dry, 4 or 5 moist; 5 dry and 3 moist in the upper part of some pedons.

Chroma--3 or 4.

Texture--Very cobbly clay loam, very cobbly loam or very gravelly clay loam.

Structure--Subangular blocky or angular blocky.

Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.

Reaction--Neutral or mildly alkaline.

## Cliffdown series

The Cliffdown series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Cliffdown soils are on fan piedmonts and fan skirts. Slopes are 2 to 15 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents

**Typical pedon:** Cliffdown gravelly sandy loam, in map unit 3750, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 45 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic, few fine roots; common fine vesicular and many fine interstitial pores; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C1--3 to 11 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine tubular and many fine interstitial pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C2--11 to 17 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine tubular and many fine interstitial pores; 40 percent pebbles; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.

C3--17 to 23 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine tubular and many fine interstitial pores; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2C4--23 to 33 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular and many fine interstitial pores; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3C5--33 to 60 inches: pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular and many fine interstitial pores; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.4).

**Type location:** 1,200 feet north and 850 feet east of the southwest corner of Sec. 11, T.2 S., R.53 E.; (37 degrees, 47 minutes, 05 seconds north latitude and 115 degrees, 59 minutes, 13 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist for short periods in winter and early spring and for 10 to 20 days cumulative between July and October following convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Other features:* Some pedons have an A horizon 1/2 unit of value darker then the C horizon. Some pedons have weak Bk horizons.
*Effervescence:* Slightly effervescent to strongly effervescent increasing to violently effervescent with depth.
*Control section:*
Clay content--5 to 15 percent.
Rock fragments--Average 35 to 50 percent.

**A horizon:**
Hue--10YR or 7.5YR.
Value--6 or 7 dry, 3 through 5 moist.
Chroma--2 through 4.

**C horizons:**
Texture--Stratified gravelly sandy loam to very gravelly fine sandy loam.
Consistence--Soft or slightly hard dry.

## Clowfin series

The Clowfin series consists of very deep, well drained soils that formed in mixed alluvium. Clowfin soils are on fan piedmonts. Slopes are 2 to 4 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents

**Typical pedon:** Clowfin sandy loam, in map unit 3091, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 25 percent pebbles.

A--0 to 2 inches; pale brown (10YR 6/3) sandy loam; brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and plastic; common fine vesicular pores; 5 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4) clear smooth boundary.

AC--2 to 6 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; moderately thick platy structure parting to weak fine subangular blocky; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; few fine vesicular pores; 15 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C1--6 to 18 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; 35 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2--18 to 28 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few fine roots; common fine tubular pores; 30 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C3--28 to 46 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine tubular pores; 50 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2C4--46 to 60 inches: pale brown (10YR 6/3) extremely gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many fine interstitial pores; 65 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 600 feet south and 900 feet west of the northeast corner of section 34, T.15 N., R.53 E.; (39 degrees, 08 minutes, 12 seconds north latitude and 115 degrees, 59 minutes, 18 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist for short periods in the winter and spring, dry late May through November.
*Soil temperature:* 47 to 53 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Effervescence:* Slightly effervescent to violently effervescent in the surface layer, strongly effervescent or violently effervescent below.
*Control section:*
Clay--8 to 18 percent.
Rock fragments--Averages 35 to 50 percent.
Profile color--Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.

**AC horizon:**
Structure--Platy or subangular blocky.
Consistence--Nonsticky or slightly sticky and nonplastic or slightly plastic.

**C horizons:**
Consistence--Nonsticky or slightly sticky wet.

## Cropper series

The Cropper series consists of shallow well drained soils that formed in residuum and colluvium from andesite, quartzite, and conglomerate. The Cropper soils are on mountains and hills. Slopes are 8 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, frigid Lithic Argixerolls

**Typical pedon:** Cropper very stony loam, in map unit 3161, woodland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent stones, 30 percent cobbles, and 15 percent pebbles.

A--0 to 4 inches; brown (10YR 4/3) very stony loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 15 percent pebbles, 25 percent cobbles, 15 percent stones; neutral (pH 7.2); clear smooth boundary.
Bt1--4 to 9 inches; brown (10YR 4/3) extremely gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, many fine and medium roots; many very fine tubular pores; common thin clay films lining pores and on faces of peds; 45 percent pebbles, 15 percent cobbles; neutral (pH 7.2); clear smooth boundary.
Bt2--9 to 15 inches; dark yellowish brown (10YR 4/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine, common fine and medium roots; many very fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 50 percent pebbles, 15 percent cobbles; mildly alkaline (pH 7.4); abrupt irregular boundary.
R--15 inches; hard rhyolitic tuff.

**Type location:** 800 feet west and 400 feet north of the southeast corner of section 11, T.14 N., R.50 E.; (39 degrees, 05 minutes, 35 seconds north latitude and 116 degrees, 17 minutes, 59 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry for 70 to 120 consecutive days in most years during mid July through early October.
*Soil temperature:* 44 to 47 degrees.
*Mollic epipedon thickness:* 7 to 10 inches, includes the upper part of the argillic horizon.
*Depth to bedrock:* 14 to 20 inches.
*Control section:*
Clay content--Averages 27 to 35 percent.
Rock fragments--Average 60 to 75 percent, mainly pebbles.

**A horizon:**
Value--3 or 4 dry, 2 or 3 moist.
Chroma--1 through 3 moist or dry.
Reaction--Neutral or mildly alkaline.

**Bt horizons:**
Hue--10YR or 7.5YR.
Value--3 or 4 dry, 2 or 3 moist.
Chroma--2 or 3, moist or dry, can be 4 moist in the lower part.
Texture--Extremely gravelly sandy clay loam or extremely gravelly clay loam.
Structure--Subangular blocky or angular blocky.
Consistence--Soft to hard dry, very friable to firm moist, slightly sticky or sticky and slightly plastic or plastic wet.
Reaction--Neutral or mildly alkaline in upper part, mildly alkaline in lower part.

Other features--In some pedons thin subhorizons overlying the bedrock have textures of sandy clay with 35 to 50 percent clay.

## Delacit series

The Delacit series consists of shallow, moderately well drained soils that formed in alluvium mixed with spring deposited travertine. Delacit soils are on beach plains. Slopes are 0 to 4 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 54 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Typic Natrargids

**Typical pedon:** Delacit gravelly sand, in map unit 3260, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 5 percent cobbles and 25 percent pebbles.

A1--0 to 1 inch; light gray (10YR 7/2) gravelly sand, brown (10YR 5/3) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine vesicular and common very fine interstitial pores; 15 percent travertine pebbles; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

A2--1 to 3 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine, fine and medium vesicular pores; 5 percent travertine pebbles; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

Btn--3 to 9 inches; very pale brown (10YR 7/4) very gravelly clay loam, light yellowish brown (10YR 6/4) moist; weak fine prismatic structure parting to weak fine subangular blocky; soft, very friable, sticky and plastic; few very fine roots; many very fine tubular pores; many thick clay films lining pores and on faces of peds; 35 percent travertine pebbles; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

BC--9 to 15 inches; white (10YR 8/1) very gravelly loam, light gray (10YR 7/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; 40 percent travertine pebbles; violently effervescent; very strongly alkaline (pH 9.4); clear irregular boundary.

Cr--15 to 60 inches; white (10YR 8/1) cemented travertine with common lenses of sand or sandy loam, light gray (10YR 7/2) moist.

**Type location:** 260 feet north and 1,200 feet west of the southeast corner of section 11, T.6 N., R.54 E.; (38 degrees, 23 minutes, 12 seconds north latitude and 115 degrees, 51 minutes, 47 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 54 to 59 degrees F.

*Depth to bedrock:* 14 to 20 inches.

*Control section:*

Clay content--24 to 35 percent.

Rock fragments--35 to 45 percent travertine, mostly gravel.

**A horizons:**

Value--6 or 7 dry.

Chroma--2 through 6.

**Btn horizon:**

Value--6 or 7 dry, 5 or 6 moist.

Chroma--2 through 4.

Clay content--27 to 35 percent.

SAR--13 to 30.

**BC horizon:**

Value--6 through 8 dry, 6 or 7 moist.

Chroma--1 through 3.

Texture--Loam, clay loam.

Clay content--18 to 30 percent.

Rock fragments--35 to 60 percent travertine gravel and cobbles, mostly gravel.

Other features--The travertine is 30 to 60 inches thick and is very hard to extremely hard.

## Delamar series

The Delamar series consists of moderately deep over an indurated duripan, well drained soils that formed in mixed alluvium. Delamar soils are on fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Typic Durargids

**Typical pedon:** Delamar sandy loam, in map unit 3700, rangeland. (Colors are for dry soil unless

otherwise noted.) The surface is partially covered with 20 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak moderately thick and thick platy structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; many very fine and fine vesicular pores; 10 percent pebbles; moderately alkaline (pH 8.3); abrupt smooth boundary.

A2--2 to 4 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine vesicular pores; 10 percent pebbles; moderately alkaline (pH 8.3); clear smooth boundary.

Bt--4 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; hard, friable, sticky and plastic; many very fine and fine roots; common fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.

Btk--12 to 20 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; many very fine and fine roots; common moderately thick clay films on faces of peds and lining pores; common soft lime masses; common thin lime coats and pendants on undersides of pebbles; 20 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bqk--20 to 25 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots, few fine tubular pores; lime and silica coatings on pebbles with thin pendants on undersides; common thin lime and silica cemented masses; common soft lime masses; 20 percent pebbles; violently effervescent; strongly alkaline (pH 8.6) abrupt wavy boundary.

3Bqkm--25 to 29 inches; strongly cemented duripan with a continuous indurated laminar cap; massive.

**Type location**: 50 feet east and 900 feet south of the northwest corner of section 23, T.2 S., R.53 E.; (37 degrees, 45 minutes, 51 seconds north latitude and 115 degrees, 59 minutes, 25 seconds west longitude.)

**Range in characteristics:**

*Soil moisture.* Usually dry, moist in some part for short periods during the winter and early spring months and for short intermittent periods 10 to 20 days cumulative following summer convection storms.

*Soil temperature:* 54 to 59 degrees.

*Depth to duripan:* 20 to 40 inches.

*Reaction:* Moderately alkaline to strongly alkaline.

*Other features:* The duripan commonly has platy structure but is massive in some pedons.

*Control section:*

Clay content--20 to 32 percent.

Rock fragments--Averages 10 to 25 percent, with lenses of 20 to 35 percent occurring in some pedons.

**A horizons:**

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4 dry or moist.

**Bt horizon:**

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4 dry or moist.

Structure--Weak to strong, subangular blocky or angular blocky.

Texture--Sandy loam, gravelly sandy loam, loam, gravelly loam, sandy clay loam, gravelly sandy clay loam, clay loam or gravelly clay loam.

Clay content--Averages 18 to 30 percent.

Rock fragments--5 to 25 percent.

Consistence--Slightly hard or hard dry, friable or firm moist, nonsticky or sticky and nonplastic or plastic wet.

**Btk horizon:**

Hue--7.5YR or 10YR.

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4 dry or moist.

Texture--Clay loam or gravelly clay loam.

Clay content--27 to 35 percent.

Rock fragments--10 to 30 percent.

Consistence--Friable or firm moist.

Secondary carbonates--Common to many, fine and medium lime filaments and seams and soft masses.

Other features--Few to many, very thin to thin lime coats and pendants on vertical faces and undersides of rock fragments.

**Bqk horizon:**

Hue--7.5YR or 10YR.

Value--6 or 7 dry, 4 through 6 moist.

Chroma--2 through 4 dry or moist.

Texture--Gravelly sandy loam, gravelly coarse sandy loam, gravelly loamy coarse sand or gravelly coarse sand.

Clay content-- Averages 2 to 10 percent.
Rock fragments--Average 15 to 25 percent.
Consistence--Soft to hard dry, very friable or friable moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Other features--Common or many, thin to thick lenses and masses of silica and lime cemented material.

## Downeyville series

The Downeyville series consists of very shallow and shallow well drained soils that formed in residuum and colluvium from andesite, basalt, rhyolite, and metavolcanic rock. Downeyville soils are on hills, mountain slopes, plateaus, and mesas. Slopes are 4 to 50 percent. Mean annual precipitation is about 5 inches and mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Lithic Haplargids

**Typical pedon:** Downeyville very cobbly fine sandy loam, in map unit 3830 rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 1 percent stones, 20 percent cobbles, and 40 percent pebbles.

A1--0 to 3 inches; pale brown (10YR 6/3) very cobbly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; few fine pores; 30 percent pebbles, 15 percent cobbles, 1 percent stones; moderately alkaline (pH 8.0); clear smooth boundary.
A2--3 to 5 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; 25 percent pebbles, 20 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.
Btk--5 to 13 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common moderately thick clay films lining pores and on faces of peds; lime pendants on undersides of rock fragments; 45 percent pebbles, 10 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2), abrupt wavy boundary.
R--13 inches; hard tuff, weathered in the upper inch.

**Type location:** 2,200 feet south and 500 feet west of the northeast corner of section 22, T.7 N., R.52 E.; (38 degrees, 27 minutes, 12 seconds north latitude and 116 degrees, 06 minutes, 08 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 57 degrees F.
*Depth to bedrock:* 4 to 14 inches.
*Control section:*
Clay content--14 to 25 percent.
Rock fragments--35 to 60 percent.

**A horizons:**
Hue--7.5YR or 10YR.
Value--6 or 7 dry, 3 through 5 moist.
Chroma--2 or 3.
Effervescent--Noneffervescent to strongly effervescent.

**Btk horizon:**
Value--5 through 7 dry, 3 through 5 moist.
Chroma--2 through 4.
Structure--Platy or subangular blocky.
Texture--Loam, fine sandy loam, very gravelly loam; some pedons have silt loam subhorizons.
Clay content--18 to 27 percent.
Rock fragments--Average 5 to 20 percent cobbles and stones; 30 to 50 percent pebbles.
Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and nonplastic or slightly plastic wet.
Reaction--Moderately alkaline or strongly alkaline.
Effervescence--Slightly effervescent or violently effervescent in lower part.
Carbonates--Carbonates and accessory silica in the form of pendants on the lower side of pebbles but range from few to many.

## Drewing series

Drewing soils consist of shallow over an indurated duripan, well drained soils that formed in mixed alluvium. Drewing soils are on fan remnants and mountain valley fan remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 12 inches and the mean annual air temperature is about 51 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Aridic Durixerolls

**Typical pedon:** Drewing gravelly loam, in map unit 3890, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A--0 to 3 inches; brown (7.5YR 5/2) gravelly loam, dark brown (7.5YR 3/2) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; many very fine and fine vesicular pores; 30 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt1--3 to 6 inches; reddish brown (5YR 5/3) gravelly clay loam, dark reddish brown (5YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine, medium and coarse roots; common fine tubular pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt2--6 to 8 inches; light reddish brown (5YR 6/3) very gravelly sandy clay loam, reddish brown (5YR 4/3) moist; moderate very fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine, medium and coarse roots; common fine tubular pores; few moderately thick clay films on faces of peds and lining pores; 45 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bk--8 to 11 inches; pink (7.5YR 7/4) extremely gravelly clay loam, brown (7.5YR 5/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine, medium and coarse roots; common fine tubular pores; 65 percent pebbles; seams and soft masses of lime; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bqk--11 to 18 inches; very pale brown (10YR 7/3) weakly cemented extremely gravelly sandy loam; weak very thick platy structure in upper 3 inches, massive below; hard, firm, nonsticky and nonplastic; few very fine roots; 60 percent lime and silica coated pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bqkm--18 to 46 inches; alternating indurated duripans 2 to 4 inches thick and gravelly layers 3 to 6 inches thick; few roots in gravelly layers; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk'--46 to 60 inches; weakly cemented fine gravel; few very fine roots; few films of lime on pebbles in the upper part.

**Type location:** 800 feet south and 1,200 feet east of the northwest corner of section 6, T.8 N., R. 59 E.; (38 degrees, 35 minutes, 22 seconds north latitude and 115 degrees, 23 minutes, 22 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in the winter and spring months.
*Soil temperature:* 47 to 52 degrees F.
*Mollic epipedon thickness:* 7 to 10 inches (when mixed).
*Depth to hardpan:* 14 to 20 inches.
*Control section:*
Clay content--Averages 15 to 25 percent.
Rock fragments--35 to 60 percent.

**A horizon:**
Hue--10YR or 7.5YR.
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Hue--7.5YR or 5YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Texture of fine earth--Loam, clay loam, or sandy clay loam.
Rock fragments--Average 35 to 60 percent.
Clay content--Averages 25 to 35 percent.

**Bk horizon:**
Carbonates--15 to 40 percent calcium carbonate equivalent.

## Duffer series

The Duffer series consists of very deep, poorly drained soils that formed in mixed alluvium. Duffer soils are on flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Fine-silty, carbonatic, mesic Aquic Calciorthids

**Typical pedon:** Duffer silt loam, in map unit 3280, rangeland. (Colors are for dry soil unless otherwise noted).

A--0 to 4 inches; light gray (10YR 7/1) silt loam, gray (10YR 5/1) moist; strong thick platy structure; slightly hard, very friable, sticky and plastic; common very fine, fine and medium roots; many very fine and fine vesicular pores; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Bw--4 to 13 inches; light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; common very fine and fine tubular pores; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Bk1--13 to 23 inches; gray (10YR 6/1) silt loam, gray (10YR 5/1) moist; few fine distinct dark brown (7.5YR 4/4) moist mottles; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; common soft lime masses; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Bk2--23 to 36 inches; variegated white (10YR 8/1) and gray (10YR 6/1) silty clay loam, light gray (10YR 7/2) and light brownish gray (10YR 6/2) moist; many coarse faint dark gray (10YR 4/1) moist mottles; massive; slightly hard, very friable, sticky and plastic; common fine roots; common fine and medium tubular pores; common soft lime masses; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C--36 to 60 inches; variegated white (10YR 8/1) and gray (10YR 6/1) silty clay loam, light gray (10YR 7/2) and light brownish gray (10YR 6/2) moist; few fine distinct dark yellowish brown (10YR 4/4) moist mottles; massive; hard, friable, sticky and plastic; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.6).

**Type location:** 2,300 feet east and 50 feet south of the northwest corner of section 26, T.9 N., R.61 E.; (38 degrees, 37 minutes, 04 seconds north latitude and 115 degrees, 05 minutes, 20 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Saturated between depths of 18 and 40 inches in the early spring and are usually moist at this depth due to capillary moisture from ground water. Dry periods occur in the summer and fall.

*Soil temperature:* 47 to 52 degrees F.

*Depth to the calcic horizon:* 12 to 29 inches.

*Effervescence:* Strongly effervescent to violently effervescent.

*Other features:* The upper 20 to 30 inches of the profile are normally strongly saline-sodic affected unless reclaimed.

*Reaction:* Strongly alkaline to very strongly alkaline. Some pedons are moderately alkaline in some parts.

*Control section:*
Clay content--20 to 35 percent.

**A horizon:**
Hue--10YR through 5Y.
Value--5 through 7 dry, 3 through 5 moist.
Chroma--1 to 4.

**Bw horizon:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Silt loam or silty clay loam.
Structure--Weak or moderate, very fine to medium, granular, subangular blocky, or platy; in some pedons the lower part is massive.
Consistence--Slightly hard or hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.

**Bk horizons:**
Hue--10YR through 5Y.
Value--6 through 8 dry, 4 through 6 moist.
Chroma--1 through 4.
Texture--Silt loam or silty clay loam.
Structure--Subangular blocky or horizon is massive.
Consistence--Slightly hard or hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.
Calcium carbonate equivalent--40 to 60 percent.

**2C horizon:**
Hue--10YR through 5Y.
Value--6 through 8 dry, 4 through 7 moist.
Chroma--1 through 4.
Texture--Stratified very fine sandy loam to silty clay loam.
Clay content--15 to 30 percent.
Consistence--Slightly hard to very hard dry, friable or firm moist, nonsticky or sticky and nonplastic or plastic wet.

## Eaglepass series

The Eaglepass series consists of very shallow, well drained soils that formed in residuum and colluvium from limestone and dolomite. Eaglepass soils are on mountain slopes and hills. Slopes are 8 to 75 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 49 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

**Typical pedon:** Eaglepass extremely stony loam, in map unit 3672, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially

covered with 25 percent stones, 20 percent cobbles, and 40 percent pebbles.

A--0 to 1 inch; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles, 10 percent cobbles, 20 percent stones; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

C--1 to 4 inches; pale brown (10YR 6/3) extremely stony loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many very fine interstitial pores; 35 percent pebbles, 5 percent cobbles, 20 percent stones; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

R--4 inches; limestone.

**Type location:** 2,100 feet west and 2,300 feet south of the northeast corner of section 23, T.8 N., R.49 E.; (38 degrees, 32 minutes, 25 seconds north latitude and 116 degrees, 25 minutes, 20 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry in summer and fall except for 10 to 20 days cumulative between July to October due to convection storms.

*Soil temperature:* 50 to 53 degrees F.

*Reaction:* Moderately alkaline or strongly alkaline.

*Effervescence:* Calcareous in all parts, violently effervescent.

*Calcium carbonate equivalent:* 40 to 60 percent.

*Depth to bedrock:* 4 to 6 inches.

*Control section:*

Clay content--8 to 18 percent.

Rock fragments--60 to 75 percent which includes pebbles, cobbles, and stones.

**A horizon:**

Value--5 through 7 dry, 3 through 5 moist.

Chroma--3 or 4.

**C horizon:**

Value--6 or 7 dry, 4 or 5 moist.

Chroma--3 or 4.

Texture of fine earth--Loam, fine sandy loam, or sandy loam.

Other features--Lime pendants and coatings on rock fragments in most pedons.

## Easychair series

The Easychair series consists of very deep, well drained soils that formed in mixed alluvium. Easychair soils are on lake plains, alluvial flats, and inset fans. Slopes are 0 to 4 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 55 degrees F.

**Taxonomic class:** Fine-silty, mixed (calcareous), mesic Typic Torriorthents

**Typical pedon:** Easychair silt loam, in map unit 3020, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 1 inch; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; strong thick platy structure; soft, very friable, sticky and plastic; many fine and medium and common very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

A2--1 to 9 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong medium platy structure; soft, very friable, sticky and plastic; many very fine and few fine roots; many fine and common very fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C1--9 to 13 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; weak thin and moderately thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; common very fine interstitial and few very fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.0);

C2--13 to 21 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and few fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C3--21 to 28 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C4--28 to 46 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak medium platy structure; soft, very friable, slightly

sticky and slightly plastic; few very fine roots; common very fine and fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

2Cq1--46 to 49 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 20 percent very hard, firm, brittle durinodes; moderately alkaline (pH 8.0); clear smooth boundary.

2Cq2--49 to 60 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 20 percent very hard, firm, brittle durinodes; moderately alkaline (pH 8.0).

**Type location:** 900 feet south and 300 feet west of the northeast corner of section 32, T.7 N., R.53 E.; (38 degrees, 25 minutes, 39 seconds north latitude and 116 degrees, 01 minute, 37 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some parts for short periods during winter and early spring and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Profile reaction:* Moderately alkaline or strongly alkaline.
*Effervescence:* Slightly effervescent or strongly effervescent above 40 inches.
*Control section:*
Clay content--Averages 18 to 25 percent.
Rock fragments--0 to 5 percent pebbles.

**A horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.

**C horizons:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Silt loam, with fine strata of sandy loam, loam, or fine sandy loam below 40 inches in some pedons.
Clay content--18 to 25 percent in upper part, 8 to 25 percent below 40 inches.
Rock fragments--0 to 5 percent pebbles.
Structure--Platy, blocky or massive.
Consistence--Nonsticky or slightly sticky and nonplastic or plastic.

**2Cq horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Rock fragments--0 to 5 percent.
Durinodes--0 to 20 percent weakly to strongly cemented durinodes.

## Eganroc series

The Eganroc series consists of moderately deep, well drained soils that formed in residuum and colluvium from limestone and dolomite. The Eganroc soils are on sideslopes of mountains. Slopes are 30 to 75 percent. The mean annual precipitation is about 30 inches and the mean annual temperature is about 41 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed Calcic Pachic Cryoborolls

**Typical pedon:** Eganroc very stony loam, in map unit 3861, woodland. (Colors are for dry soil unless otherwise noted). The surface is partially covered with 10 percent stones, 15 percent cobbles, and 25 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and coarse roots; many very fine and coarse tubular pores; 20 percent pebbles, 5 percent cobbles, 10 percent stones; mildly alkaline (pH 7.4); abrupt smooth boundary.

A2--2 to 10 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium and coarse roots; many very fine and coarse tubular pores; 30 percent pebbles; 5 percent cobbles; mildly alkaline (pH 7.6); clear smooth boundary.

2Bk1--10 to 15 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; many very fine and coarse roots; many very fine and coarse tubular pores; few thin lime coats on undersides of rock fragments; 45 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bk2--15 to 30 inches; brown (10YR 5/3) extremely gravelly loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable slightly sticky

and slightly plastic; many very fine, fine, medium and coarse roots; many fine tubular pores; many thick lime pendants on underside of rock fragments; 60 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4) abrupt irregular boundary

R--30 inches; hard fractured limestone

**Type location:** 1,200 feet west and 1,700 feet south of the northeast corner of section 3, T.6 N., R.58 E.; (38 degrees, 24 minutes, 36 seconds north latitude and 115 degrees, 26 minutes, 10 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist late fall through early summer, dry late July through September.
*Soil temperature:* 41 to 45 degrees F.
*Summer soil temperature:* 54 to 59 degrees F.
*Thickness of the mollic epipedon:* 16 to 25 inches (includes upper part of 2Bk horizon).
*Depth to calcic horizon:* 9 to 15 inches.
*Depth to bedrock:* 30 to 40 inches.
*Control section:*
Clay content--18 to 27 percent.
Rock fragments--35 to 70 percent, including 5 to 15 percent cobbles.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**2Bk1 horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.
Texture--Very gravelly loam, extremely gravelly loam.
Structure--Subangular blocky or massive.
Consistence--Soft or slightly hard.
Reaction--Mildly alkaline or moderately alkaline.

**2Bk2 horizon:**
Value--5 or 6 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Very gravelly loam, extremely gravelly loam.
Structure--Subangular blocky or massive.
Consistence--Soft or slightly hard dry.
Reaction--Mildly alkaline or moderately alkaline.

## Eoj series

The Eoj series consists of very deep, well drained soils that formed in colluvium and residuum from quartzite and some limestone. The Eoj soils are on mountains. Slopes are 8 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 43 degrees F.

**Taxonomic class:** Fine, montmorillonitic, frigid Typic Palexerolls

**Typical pedon:** Eoj very stony loam, in map unit 3340, rangeland. (Colors are for dry soil unless otherwise noted). The surface is partially covered with 5 percent stones, 10 percent cobbles, and 40 percent pebbles.

A--0 to 12 inches; brown (10YR 5/3) very stony loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; 20 percent pebbles, 20 percent cobbles, 5 percent stones; mildly alkaline (pH 7.4); abrupt smooth boundary.

2Bt1--12 to 19 inches; brown (10YR 5/3) cobbly clay, dark brown (10YR 3/3) moist, strong fine and medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; many thick clay films lining pores and on faces of peds; many pressure faces; 15 percent pebbles, 10 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary.

2Bt2--19 to 28 inches; pale brown (10YR 6/3) cobbly clay, brown (10YR 4/3) moist, strong fine and medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; common fine tubular pores; many thick clay films on faces of peds, lining pores, and coating rock fragments; 15 percent pebbles, 10 percent cobbles; slightly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.

2Btk1--28 to 38 inches; pale brown (10YR 6/3) cobbly clay, brown (10YR 4/3) moist, strong fine and medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few fine tubular pores; common thick clay films on faces of peds; few fine lime filaments; 10 percent pebbles, 15 percent cobbles; strongly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.

2Btk2--38 to 60 inches; pale brown (10YR 6/3) cobbly clay, brown (10YR 4/3) moist; strong fine and medium angular blocky structure; hard, firm, very sticky and very plastic; few fine tubular pores; common thick clay films on faces of peds; few fine lime filaments; 10 percent pebbles, 15 percent cobbles; strongly effervescent; mildly alkaline (pH 7.4).

**Type location:** 600 feet north and 1,550 feet east of the southwest corner of section 34, T.9 N., R.62 E.; (38 degrees, 40 minutes, 36 seconds north latitude and 115 degrees, 00 minutes, 03 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and spring, dry July through October.
*Soil temperature:* 44 to 47 degrees F.
*Mollic epipedon thickness:* 12 to 20 inches (includes upper part of Bt horizon).
*Depth to carbonates:* 17 to 30 inches.
*Control section:*
Clay content--40 to 60 percent.
Rock fragments--15 to 35 percent stones, cobbles, and gravel.
Other features--There is an increase of 15 to 30 percent clay at the upper boundary of the Bt horizon.

**A horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Rock fragments--15 to 35 percent cobbles and pebbles.
Structure--Angular blocky or subangular blocky.
Consistence--Hard or very hard dry, firm or very firm moist.
Reaction--Mildly alkaline or moderately alkaline.
Effervescence--Slightly effervescent or strongly effervescent in lower part.
Secondary carbonates--Few to common lime filaments in the lower part.
Other features--Pressure faces are present in some pedons in the upper part.

## Equis series

The Equis series consists of very deep, poorly drained soils that formed in lacustrine sediments and mixed alluvium. Equis soils are on flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Fine, carbonatic, mesic Typic Halaquepts

**Typical pedon:** Equis silty clay, in map unit 3280, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; light gray (10YR 7/1) silty clay, gray (10YR 6/1) moist, weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.

Bg1--4 to 21 inches; gray (10YR 6/1) silty clay, gray (10YR 5/1) moist; many large coarse grayish brown (10YR 5/2) mottles; strong coarse prismatic structure parting to strong coarse angular blocky; very hard, firm, very sticky and very plastic; common very fine and few medium and coarse roots; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.5); clear wavy boundary.

Bg2--21 to 29 inches; light brownish gray (10YR 6/2) silty clay, grayish brown (10YR 5/2) moist; many medium distinct dark yellowish brown (10YR 4/4) mottles; strong fine angular blocky structure; hard, friable, very sticky and very plastic; few very fine and coarse roots; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bkg1--29 to 40 inches; white (10YR 8/1) silty clay, light gray (10YR 7/2) moist; many medium distinct dark yellowish brown (10YR 4/4) mottles; massive; hard, friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; few fine soft masses of lime; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.

Bkg2--40 to 52 inches; white (10YR 8/1) silty clay loam, light gray (10YR 7/2) moist; many medium distinct dark yellowish brown (10YR 4/4) mottles; massive; hard, friable, sticky and plastic; few very fine and fine roots; few fine tubular pores; few fine soft masses of lime; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.

Cg--52 to 60 inches; white (10YR 8/1) silty clay loam, light gray (10YR 7/2) moist; many medium distinct dark yellowish brown (10YR 4/4) mottles; massive; hard, friable, sticky and plastic; few fine tubular pores; few fine soft masses of lime; strongly effervescent; strongly alkaline (pH 8.5)

**Type location:** 2,000 feet north and 600 feet east of the southwest corner of section 14, T.9 N., R.61 E.; (38 degrees, 38 minutes, 15 seconds north latitude and 115 degrees, 05 minutes, 40 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Moist at or near the surface. Saturated at a depth of 5 to 20 inches in most years. Depth to the water table ranges from about 1 foot in the spring to 5 feet in late summer.
*Soil temperature:* 48 to 52 degrees F.
*SAR*: 20 to 70 in the upper 20 inches, decreasing to less than 5 percent below 20 inches.
*Calcium carbonate equivalent:* 45 to 65 percent. Clay sized carbonates range from 30 to 45 percent in the upper 30 inches.

**A horizon:**
Hue--2.5Y, 10YR, or N.
Value--7 or 8 dry, 6 or 7 moist.
Chroma--0 through 2.

**Bg horizons:**
Hue--2.5Y, 10YR, or N.
Value--6 through 8 dry, 5 through 7 moist.
Chroma--0 through 2.
Clay content--40 to 50 percent silicate clay, 30 to 45 percent carbonates of clay size.
Texture--Silty clay or clay.
Structure--Prismatic or angular blocky.
Consistence--Hard or very hard dry, very friable to very firm moist.
Reaction--Strongly alkaline or very strongly alkaline.

**Bkg horizons:**
Hue--5Y, 10YR, or N.
Value--6 through 8 dry, 5 through 7 moist.
Chroma--0 through 3
Texture--Silty clay or silty clay loam.
Clay content--30 to 45 percent silicate clay, 18 to 30 percent carbonates of clay size.
Structure--Massive or angular blocky.
Consistence--Hard or very hard dry, friable or very firm moist, sticky to very sticky and plastic or very plastic wet.

**Cg horizon:**
Texture--Silty clay or silty clay loam.
Consistence--Hard to very hard dry, friable to very firm moist.

## Foxvire series

The Foxvire series consists of very deep, well drained soils that formed in colluvium from volcanic rocks. Foxvire soils are on concave mountain sideslopes (snow pockets). Slopes are 8 to 75 percent. The mean annual precipitation is about 15 inches and the mean annual temperature is about 43 degrees F.

**Taxonomic class:** Coarse-loamy, mixed Pachic Cryoborolls

**Typical pedon:** Foxvire gravelly loam, in map unit 3540, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 25 percent pebbles.

A1--0 to 5 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; many fine interstitial pores; 20 percent pebbles, 5 percent cobbles; neutral (pH 6.8); clear smooth boundary.
A2--5 to 13 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many fine tubular pores; 20 percent pebbles; neutral (pH 6.8); clear smooth boundary.
Bw--13 to 16 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many fine tubular pores; 20 percent pebbles, 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.
C--16 to 60 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; 15 percent pebbles, 5 percent cobbles; neutral (pH 7.0).

**Type location:** 600 feet south and 1,200 feet east of the northwest corner of section 13, T.1 N., R.49 E.; (37 degrees, 56 minutes, 30 seconds north latitude and 116 degrees, 27 minutes, 04 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and early spring, dry summer and fall, but moist intermittently due to convection storms; dry in all parts at least 45 consecutive days following summer solstice, dry 90 to 100 days cumulative.
*Soil temperature:* 44 to 47 degrees F.
*Mollic epipedon thickness:* 16 to 25 inches.

*Control section:*
Clay content--8 to 15 percent.
Rock fragments--15 to 35 percent.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bw horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.
Texture of fine earth--Sandy loam or loam.
Clay content--8 to 15 percent.
Rock fragments--15 to 35 percent.

**C horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 or 3.
Texture of fine earth--Sandy loam or loam.
Clay content--8 to 15 percent.
Rock fragments--15 to 35 percent.

## Gabbvally series

The Gabbvally series consists of shallow and very shallow, well drained soils that formed in residuum and colluvium from volcanic rocks. Gabbvally soils are on hills, plateaus, mesas, and mountains. Slopes are 8 to 50 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

**Typical pedon:** Gabbvally very gravelly sandy loam, in map unit 3101, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 40 percent pebbles.

A--0 to 2 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common fine vesicular pores; 30 percent pebbles, 5 percent cobbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

Bt1--2 to 9 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; common thin clay films on faces of peds and lining pores; 30 percent pebbles, 5 percent cobbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

Bt2--9 to 11 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; common thin clay films on faces of peds and lining pores; 30 percent pebbles, 10 percent cobbles; mildly alkaline (pH 7.8) clear wavy boundary.

R--11 inches; hard volcanic rock, weathered in the upper 2 inches.

**Type location:** 500 feet south and 2,600 feet west of the northeast corner of section 30, T.2 S., R.54 E.; (37 degrees, 44 minutes, 54 seconds north latitude and 115 degrees, 56 minutes, 35 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry in summer and fall except for 10 to 20 days between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to bedrock:* 6 to 14 inches.
*Control section:*
Percent clay--15 to 25 percent.
Rock fragments--35 to 50 percent, predominantly pebbles.
Reaction--Neutral or mildly alkaline.

**A horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4 dry or moist.

**Bt horizons:**
Value--5 or 6 dry, 3 through 5 moist.
Chroma--3 or 4, dry or moist.
Texture of fine earth--Sandy clay loam, loam or sandy loam.
Clay content--18 to 27 percent.
Rock fragments--35 to 50 percent.
Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky wet.

## Ganaflan series

The Ganaflan series consists of moderately deep, well drained soils that formed in lacustrine deposits and residuum from tufa. The Ganaflan soils are on lake plain terraces. Slopes are 2 to 15 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 51 degrees F.

**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents

**Typical pedon:** Ganafian gravelly loam, in map unit 3200, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine vesicular pores; 25 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

C1--4 to 11 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 10 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2--11 to 23 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 25 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C3--23 to 37 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 40 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Cr--37 to 50 inches; tufa with holes and cracks.

2C--50 to 60 inches; pale brown (10YR 6/3) stratified sand to very gravelly coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; 30 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4).

**Type location:** 2,000 feet north and 800 feet east of the southwest corner of section 32, T.13 N., R.56 E.; (38 degrees, 56 minutes, 40 seconds and 115 degrees, 42 minutes, 13 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist for short periods during winter and early spring.
*Soil temperature:* 54 to 59 degrees F.
*Depth to tufa:* 20 to 40 inches.
*Control section:*
Clay content--Averages 10 to 18 percent. Sometimes strata may have up to 27 percent.
Rock fragments--Average less than 35 percent most of which are pebble-sized tufa fragments. Some strata may have 35 to 60 percent pebbles.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Reaction--Moderately alkaline or strongly alkaline.

**C horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Dominantly gravelly loam or loam, with strata of sandy loam, silt loam, very gravelly loam, silty clay loam, or very fine sandy loam in some pedons.
Rock fragments--Less than 35 percent dominantly pebble-sized dendritic or thinolite tufa fragments. Some strata may have 35 to 60 percent pebbles.
Structure--Subangular blocky or massive.
Consistence--Soft to hard dry, very friable or friable moist.
Reaction--Moderately alkaline to very strongly alkaline.

**Cr horizon:**
Other features--Lithoid or dendritic tufa most commonly with soil in cracks and pockets.

**2C horizon:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture of fine earth--Sand or coarse sand.
Clay content--2 to 10 percent.
Rock fragments--10 to 50 percent.
Reaction--Moderately alkaline to very strongly alkaline.

## Garhill series

The Garhill series consists of shallow and very shallow over an indurated duripan, well drained soils that formed in residuum and colluvium weathered from basalt. Garhill soils are on hills, pediments, plateaus, and mesas. Slopes are 2 to 30 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Typic Durorthids

**Typical pedon:** Garhill very gravelly sandy loam, in map unit 3610, rangeland. (Colors are for dry soil

unless otherwise noted.) The surface is partially covered with 15 percent cobbles and 30 percent pebbles.

A1--0 to 1 inch; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine vesicular pores; 40 percent pebbles, 15 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2--1 to 6 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; many very fine vesicular pores; 10 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk--6 to 10 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine tubular pores; many lime coatings on undersides of rock fragments; 15 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

2Bqkm--10 to 21 inches; very pale brown (10YR 7/3) indurated hardpan, light yellowish brown (10YR 6/4) moist; massive; few very fine roots in pockets; laminar silica cap (1/4 inch thick); strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

R-- 21 inches; hard basalt bedrock.

**Type location:** 2,100 feet east and 10 feet south of the northwest corner section 6, T.7 N., R.53 E.; (38 degrees, 29 minutes, 59 seconds north latitude and 116 degrees, 03 minutes, 21 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 56 to 59 degrees F.

*Depth to duripan:* 7 to 14 inches.

*Depth to bedrock:* 12 to 30 inches.

*Other features:* Pan fragments and lime accumulation are common in subhorizons immediately above the duripan in most pedons.

*Control section:*
Percent clay--10 to 18 percent.
Rock fragments--15 to 25 percent.

**A horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Effervescent--Noneffervescent to violently effervescent.

**Bk horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture of fine earth--Loam or sandy loam.
Clay content--18 to 25 percent.
Rock fragments--15 to 35 percent, mainly pebbles.
Structure--Weak subangular blocky or platy.
Consistence--Soft or slightly hard dry, slightly sticky or sticky.
Reaction--Moderately alkaline or strongly alkaline.

**2Bqkm horizon:**
Value--7 or 8 dry, 5 through 7 moist.
Chroma--1 through 3 dry, 3 or 4 moist.
Structure--Platy or is massive.
Other features--1/4 to 3/4 inch continuous laminar cap. Strongly cemented, somewhat fractured indurated duripan with pockets of weakly cemented material.

## Geer series

The Geer series consists of very deep, well drained soils that formed in alluvium from mixed sources. Geer soils are on fan skirts and inset fans. Slopes are 0 to 4 percent. Mean annual precipitation is about 7 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents

**Typical pedon:** Geer fine sandy loam, in map unit 3754, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; common very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2--2 to 6 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C1--6 to 25 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common fine tubular pores; violently effervescent; moderately alkaline; (pH 8.4); clear smooth boundary.
C2--25 to 60 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common fine tubular pores; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4)

**Type location**: 50 feet east and 800 feet south of the northwest corner of section 26, T.7 N., R.50 E.; (38 degrees, 20 minutes, 35 seconds north latitude and 116 degrees, 19 minutes, 21 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Other features:* Averages 15 to 30 percent fine sand or coarser. Minerology is influenced by volcanic ash, glass and other pyroclastic material. Gravelly layers are in some pedons below 40 inches.
*Control section:*
Clay content--Averages less than 18 percent.

**A horizons**:
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Effervescence--Slightly effervescent or strongly effervescent.

**C horizons**:
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Stratified fine sandy loam to silt loam.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic to plastic wet.
Reaction--Moderately alkaline to very strongly alkaline.
Effervescence--Strongly effervescent or violently effervescent.
Other features--Some fine or medium lime segregations are in strata below 20 inches in some pedons.

## Grassval series

The Grassval series consists of shallow and very shallow over an indurated duripan, well drained soils that formed in alluvium from mixed rock sources. Grassval soils are on fan remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 48 degrees F.

**Taxonomic class**: Loamy, mixed, mesic, shallow Xerollic Durargids

**Typical pedon**: Grassval gravelly loam, in map unit 3920, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent pebbles.

A--0 to 5 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist, moderately thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 15 percent pebbles; slightly effervescent, moderately alkaline (pH 8.4); clear smooth boundary.
Bt--5 to 9 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist, moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and coarse roots; common fine tubular pores; common medium moderately thick clay films on faces of peds; 15 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Btk--9 to 13 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist, moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and coarse roots; common fine tubular pores; common moderately thick clay films on faces of peds and coating rock fragments; lime films and pendants on undersides of pebbles; fine soft lime masses; 25 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.5); abrupt wavy boundary.
Bqkm--13 to 60 inches; indurated duripan with continuous laminar cap.

**Type location**: 900 feet south and 200 feet east of the northwest corner of section 29, T.11 N., R.50 E.; (38 degrees, 51 minutes, 06 seconds north latitude and 116 degrees, 23 minutes, 21 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in winter and spring, dry early June through October.
*Soil temperature:* 47 to 50 degrees F.

*Depth to duripan:* 8 to 14 inches.
*Depth to carbonates:* Calcareous throughout, effervescence increasing with depth; segregated lime common in lower portion of the solum.
*Control section:*
Percent clay--18 to 25 percent.
Rock fragments--15 to 35 percent, mainly pebbles.

**A horizon:**
Value--3 or 4 moist.
Chroma--2 or 3.
Reaction--Mildly alkaline or moderately alkaline.

**Bt horizon:**
Value--4 or 5 moist.
Chroma--3 or 4.
Texture--Gravelly loam or gravelly clay loam.
Clay content--25 to 35 percent.
Structure--Prismatic or subangular blocky.
Consistence--Slightly hard or hard dry, slightly plastic or plastic wet.
Reaction--Moderately alkaline or strongly alkaline.

## Hackwood series

The Hackwood series consists of very deep, well drained soils that formed in alluvium and colluvium derived from volcanic quartzite and conglomerate rocks with a component of loess. Hackwood soils are on mountain sideslopes. Slopes are 4 to 50 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 41 degrees F.

**Taxonomic class:** Fine-loamy, mixed Pachic Cryoborolls

**Typical pedon:** Hackwood gravelly loam, in map unit 3170, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent pebbles.

Oi--1 to 0 inch; aspen leaf litter.
A1--0 to 8 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial and common very fine tubular pores; 15 percent pebbles; neutral (pH 6.8); clear smooth boundary.
A2--8 to 30 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine, fine, medium and coarse roots; many very fine interstitial and tubular pores; 15 percent pebbles; neutral (pH 6.8); clear wavy boundary.
C1--30 to 60 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium roots; common very fine interstitial and tubular pores; very thin silt coatings line pores; 35 percent pebbles; slightly acid (pH 6.4)

**Type location:** 1,300 feet west and 1,900 feet north of the southeast corner of section 6, T.14 N., R.51 E.; (39 degrees, 06 minutes, 42 seconds north latitude and 116 degrees, 15 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist late fall through summer, dry September and October.
*Additional soil moisture:* Supplied by lateral water movement in lower part of the control section or substratum.
*Soil temperature:* 38 to 44 degrees F.
*Summer soil temperature:* 43 to 47 degrees F.
*Mollic epipedon thickness:* 16 to 35 inches.
*Depth to the 2C horizon:* 30 to 49 inches.
*Reaction:* Neutral or slightly acid, decreasing with depth.
*Control section:*
Clay content--Averages 18 to 30 percent.
Rock fragments--Averages 15 to 35 percent, mainly pebbles.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--1 through 3 dry, 1 or 2 moist.

**C horizon:**
Hue--2.5Y or 10YR.
Value--6 to 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Very gravelly clay loam, very gravelly silty clay loam or very gravelly loam.
Structure--Subangular blocky or massive.
Consistence--Slightly hard or hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic, wet.
Other features--Pores in the lower part are lined with very thin silt coats or uncoated sand grains. Some pedons have few to common fine distinct yellowish brown mottles. Some pedons have few manganese stains coating pebbles and lining pores.

## Handpah series

The Handpah series consists of shallow over an indurated duripan, well drained soils that formed in mixed alluvium from dominantly volcanic rock sources. Handpah soils are on fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durargids

**Typical pedon:** Handpah gravelly fine sandy loam, in map unit 3460, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; weak thick platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine vesicular pores; 20 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1--3 to 7 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; 10 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bt2--7 to 11 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common thick clay films on faces of peds, coating pebbles and lining pores; 10 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bt3--11 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; common thick clay films on faces of peds, coating pebbles and lining pores; 25 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk--14 to 18 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine roots; few fine tubular pores; lime and silica coatings on undersides of rock fragments; strongly effervescent; 40 percent pebbles, 5 percent cobbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqkm1--18 to 24 inches; indurated hardpan with laminar cap.

Bqkm2--24 to 60 inches; continuous strongly cemented duripan.

**Type location:** 2,300 feet south and 1,400 feet west of the northeast corner of section 20, T.1 N., R.51 E.; (37 degrees, 49 minutes, 42 seconds north latitude and 116 degrees, 17 minutes, 38 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, mostly dry in summer and fall except for 10 to 20 days cumulative between July October due to convection storms.
*Soil temperature:* 53 to 54 degrees F.
*Depth to hardpan:* 14 to 20 inches.
*Control section:*
Clay content--Averages 25 to 35 percent.
Rock fragments--Averages 15 to 30 percent.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Reaction--Mildly alkaline or moderately alkaline.
Effervescence--Noneffervescent to slightly effervescent.

**Bt horizons:**
Value--5 or 6 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Averages gravelly clay loam or gravelly sandy clay loam, but some pedons have clay loam or clay layers.
Structure--Prismatic or subangular blocky.
Consistence--Slightly hard or hard dry, slightly sticky or sticky and slightly plastic or plastic wet.
Reaction--Mildly alkaline to strongly alkaline.
Effervescence--Noneffervescent to slightly effervescent, some pedons may be strongly effervescent in lower part.

**Bqkm horizons:**
Thickness--Some pedons have weakly cemented layers within the strongly cemented matrix.
Other features--The duripan is fractured but still remains in place.

## Hardhat series

The Hardhat series consists of very deep, well drained soils that formed in mixed alluvium over lacustrine sediments. Hardhat soils are on fan piedmonts and fan skirts. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

**Typical pedon:** Hardhat gravelly sandy loam, in map unit 3805, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 35 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine vesicular pores; 20 percent pebbles, slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--2 to 8 inches; pale brown (10YR 6/3) gravelly sandy loam with lenses of extremely gravelly sand; brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; silica and lime coatings on undersides of some pebbles increasing with depth; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk1--8 to 17 inches; pale brown (10YR 6/3) gravelly fine sandy loam; brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; silica and lime coatings on undersides of pebbles; 20 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk2--17 to 23 inches; pale brown (10YR 6/3) gravelly sandy loam; brown (10YR 4/3) moist; massive; hard, firm and brittle, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; silica and lime coatings on undersides of pebbles; continuous brittle matrix; 20 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bqky--23 to 35 inches; pale brown (10YR 6/3) gravelly sandy loam; brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; silica and lime coatings on undersides of pebbles; few fine gypsum filaments; 20 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C--35 to 60 inches; pale brown (10YR 6/3) gravelly sandy loam; brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine roots; common fine interstitial pores; 15 percent pebbles; violently effervescent; strongly alkaline (pH 8.8).

**Type location:** 1,400 feet north and 1,600 feet west of the southeast corner of section 1, T.12 N., R.56 E.; (38 degrees, 55 minutes, 41 seconds north latitude and 115 degrees, 37 minutes, 09 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist for short periods in the winter and spring, dry late May through early November.
*Soil temperature:* 53 to 57 degrees F.
*Depth to lacustrine material:* 15 to 25 inches.
*Depth to continuous weak brittle matrix:* 10 to 20 inches.
*Depth to segregated lime and silica bridging mineral grains:* 4 to 10 inches.
*Depth to gypsum:* 12 to 25 inches.
*Profile reaction:* Moderately alkaline or strongly alkaline.
*Calcium carbonate equivalent:* Averages 10 to 20 percent.
*Control section:*
Clay content--8 to 18 percent.
Rock fragments--Average 5 to 20 percent, mainly pebbles.

**A horizons:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.

**Bqk horizons:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Gravelly fine sandy loam or gravelly sandy loam.
Structure--Weak prismatic, weak to strong platy or massive.
Consistence--Hard to very hard dry.
Silica-lime cementation--The upper part has few to many silica bridges or coats, but the matrix is friable or very friable. Some subhorizons are

continuously brittle and have very firm or firm consistency.

**Bqky horizons:**
Hue--10YR, 2.5Y, or 5Y.
Value--6 through 8 dry, 4 through 7 moist.
Chroma--2 through 4.
Structure--Platy or massive.
Consistence--Soft or hard dry, very friable or brittle moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Gypsum crystals--Few or common.
Relict mottles or black coats--Common in any subhorizon.

## Hardol series

The Hardol series consists of very deep, well drained soils that formed in colluvium and residuum from limestone. Hardol soils are on sideslopes of mountains. Slopes are 15 to 50 percent. The mean annual precipitation is about 25 inches and the mean annual temperature is about 40 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic Calcic Pachic Cryoborolls

**Typical pedon:** Hardol very gravelly silt loam, in map unit 3340, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 60 percent pebbles.

Oi--1 inch; needles, leaves and twigs; abrupt smooth boundary.
A--1 to 3 inches; grayish brown (10YR 5/2) very gravelly silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic; common very fine interstitial pores; thin lime coatings on undersides of rock fragments; 40 percent pebbles, 5 percent cobbles; violently effervescent; mildly alkaline (pH 7.6); clear smooth boundary.
Bk1--3 to 13 inches; grayish brown (10YR 5/2) extremely gravelly silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; thin lime coatings on undersides of rock fragments; 55 percent pebbles, 5 percent cobbles, 5 percent stones; violently effervescent; mildly alkaline (pH 7.8); clear smooth boundary.
Bk2--13 to 33 inches; grayish brown (10YR 5/2) extremely gravelly silt loam, very dark brown (10YR 2/2) moist, moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; common fine tubular pores; few soft lime masses, lime pendants on underside of rock fragments; 55 percent pebbles, 5 percent cobbles, 5 percent stones; violently effervescent; mildly alkaline (pH 7.8); clear smooth boundary.
Bk3--33 to 60 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist, massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; common fine tubular pores; common soft lime masses, thin lime pendants on undersides of rock fragments; 55 percent pebbles, 5 percent cobbles, 5 percent stones; violently effervescent; moderately alkaline (pH 8.0).

**Type location:** 200 feet north and 300 feet east of the southwest corner of section 34, T.10 N., R.62 E.; (38 degrees, 39 minutes, 32 seconds north latitude and 114 degrees, 59 minutes, 44 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and spring, dry in late summer and fall.
*Mean annual soil temperature:* 38 to 45 degrees F.
*Summer soil temperature:* 43 to 47 degrees F.
*Effervescence:* Slightly effervescent to violently effervescent.
*Calcium carbonate equivalent:* Less than 20 millimeter fraction 40 to 50 percent.
*Depth to base of mollic epipedon:* 40 or more inches.
*Depth to calcic horizon:* 30 to 40 inches.
*Control section:*
Clay content--20 to 27 percent.
Rock fragments--Averages 60 to 85 percent, with 40 to 60 percent pebbles, and 10 to 25 percent cobbles and stones.

**A horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.
Reaction--Mildly alkaline or moderately alkaline.

**Bk horizons:**
Value--4 through 6 dry, 2 through 4 moist.
Chroma--2 or 3.
Structure--Subangular blocky or massive.
Consistence--Soft or hard, very friable or friable, nonplastic or slightly plastic wet.
Reaction--Mildly alkaline or moderately alkaline in upper part and moderately alkaline in lower part.

Other features--Secondary lime occurs as fine filaments and soft masses, and as coatings and pendants on rock fragments.

## Haunchee series

The Haunchee series consists of shallow, well drained soils that formed in residuum from limestone. Haunchee soils are on mountain sideslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic Cryic Lithic Rendolls

**Typical pedon:** Haunchee very gravelly loam, in map unit 3140, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 30 percent pebbles.

A1--0 to 5 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 35 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2--5 to 12 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores and few fine tubular pores; 40 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

R--12 inches; fractured limestone.

**Type location:** 900 feet east and 700 feet south of northwest corner of section 36, T.10 N., R.50 E.; (38 degrees, 41 minutes, 29 seconds north latitude and 116 degrees, 18 minutes, 19 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and spring and dry in late summer and fall.
*Soil temperature:* 42 to 46 degrees F.
*Summer soil temperature:* 55 to 59 degrees F.
*Depth to bedrock:* 10 to 20 inches.
*Reaction:* Mildly alkaline or moderately alkaline in the surface layer and moderately alkaline or strongly alkaline below.
*Effervescence:* Strongly effervescent or violently effervescent throughout.
*Calcium carbonate equivalent:* Less than 20 millimeter fraction, 40 to 70 percent.
*Other features:* Some pedons have a thin C horizon above the bedrock.
*Control section:*
Clay content--10 to 20 percent.
Rock fragments--35 to 60 percent mainly pebbles with up to 20 percent stones and cobbles in some pedons.

**A horizons:**
Hue--10YR or 7.5YR.
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

## Hodedo series

The Hodedo series consists of moderately deep over an indurated duripan, well drained soils that formed in alluvium from mixed rock sources. Hodedo soils are on fan remnants. Slopes are 15 to 30 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 45 degrees F.

**Taxonomic class:** Fine, montmorillonitic, frigid Aridic Durixerolls

**Typical pedon:** Hodedo stony loam, in map unit 3960, woodland. (Colors are for dry soil unless otherwise noted.) The soil is partially covered with 2 percent stones, 10 percent cobbles, and 30 percent pebbles.

A--0 to 6 inches; brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist, weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine vesicular pores; 10 percent pebbles, 10 percent cobbles, 2 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt1--6 to 12 inches; brown (10YR 5/3) cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine roots; common fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 15 percent pebbles, 10 percent cobbles, 2 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt2--12 to 23 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium subangular blocky

structure; hard, firm, sticky and plastic; many very fine, fine and medium roots; common fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 20 percent pebbles, 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

Bqkm--23 to 32 inches; very pale brown (10YR 7/3) indurated duripan, yellowish brown (10YR 5/4) moist; massive; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Cq--32 to 60 inches; pale brown (10YR 6/3) extremely cobbly loamy coarse sand, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic, many very fine interstitial pores; continuous weak silica cementation; 30 percent pebbles, 35 percent cobbles; mildly alkaline (pH 7.8).

**Type location:** 2,200 feet north and 1,000 feet west of the southeast corner of section 24, T.15 N., R.51 E.; (39 degrees, 09 minutes, 20 seconds north latitude and 116 degrees, 10 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist winter and spring, dry July through October.
*Soil temperature:* 44 to 47 degrees F.
*Mollic epipedon thickness:* 7 to 12 inches.
*Depth of indurated duripan:* 20 to 26 inches.
*Reaction:* Slightly acid or neutral above the duripan.
*Control section:*
Clay content--35 to 45 percent.
Rock fragments--15 to 35 percent, pebbles and cobbles.

**A horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Hue--10YR or 7.5YR.
Value--4 or 5 dry, 3 or 4 moist.
Chroma--2 through 4.
Texture--Gravelly clay loam, cobbly clay loam or cobbly clay.
Structure--Angular blocky or subangular blocky
Consistence--Slightly hard to very hard dry, friable or firm moist, sticky or very sticky and plastic or very plastic wet.

**Bqkm horizon:**
Value--7 or 8 dry, 5 or 6 moist.

**C horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Reaction--Mildly alkaline to strongly alkaline.

## Hollywell series

The Hollywell series consists of very deep, well drained soils that formed in alluvium from mixed extrusive igneous rocks. Hollywell soils are on fan piedmonts and fan skirts. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Typic Camborthids

**Typical pedon:** Hollywell gravelly loamy sand, in map unit 3134, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) gravelly loamy sand, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common fine vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.

Bw--4 to 12 inches; light yellowish brown (10YR 6/4) gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.

Bqk--12 to 60 inches; pale brown (10YR 6/3) stratified very gravelly sandy loam to very gravelly coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular and interstitial pores; few fine lime and silica coatings on undersides of rock fragments; 45 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4)

**Type location:** 200 feet west and 2,600 feet north of the southeast corner of section 16, T.3 N., R.49 E.; (38 degrees, 06 minutes, 32 seconds north latitude and 116 degrees, 29 minutes, 23 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring and for 10 to 20 days cumulative during July through September following convection storms.

*Soil temperature:* 53 to 59 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Clay content--6 to 12 percent.
Rock fragments--Average 35 to 60 percent.

**A horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4 dry or moist.
Effervescence--Noneffervescent or slightly effervescent.

**Bw horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Texture of fine earth--Sandy loam or fine sandy loam.
Rock fragments--5 to 50 percent pebbles, 0 to 5 percent cobbles.
Structure--Weak medium and coarse subangular blocky.
Effervescence--Noneffervescent or slightly effervescent.

**Bqk horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4 moist or dry.
Texture of fine earth--Stratified sandy loam to coarse sand.
Rock fragments--35 to 50 percent pebbles, 0 to 15 percent cobbles.
Effervescence--Strongly effervescent to violently effervescent.

## Hopeka series

The Hopeka series consists of very shallow, well drained soils that formed in residuum and colluvium from limestone and dolostone. Hopeka soils are on mountain sideslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 43 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents

**Typical pedon:** Hopeka very gravelly loam, in map unit 3180, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 50 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine vesicular pores; 45 percent pebbles, 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C--3 to 9 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine tubular pores; 40 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

R--9 to 13 inches; hard fractured limestone.

**Type location:** 1,000 feet west and 2,400 feet north of the southeast corner of section 21, T.14 N., R.50 E.; (39 degrees, 04 minutes, 10 seconds north latitude and 116 degrees, 20 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry; moist in winter and spring, dry June through mid October.
*Soil temperature:* 43 to 47 degrees.
*Effervescence:* Violently effervescent, but some surface layers are strongly effervescent; 40 to 85 percent calcium carbonate equivalent.
*Reaction:* Moderately alkaline or strongly alkaline.
*Depth to bedrock:* 4 to 10 inches.
*Control section:*
Clay content--18 to 27 percent.
Rock fragments--35 to 60 percent limestone or dolostone pebbles, cobbles, or stones.

**A horizon:**
Hue--10YR or 7.5YR.
Value--5 through 7 dry, 3 or 4 moist.
Chroma--2 or 3.

**C horizon:**
Hue--10YR or 7.5YR.
Value--5 through 7 dry, 3 or 4 moist.
Chroma--2 or 3.
Structure--Weak to moderate subangular blocky or it is massive.
Consistence--Soft or slightly hard dry, very friable or friable.

## Hymas series

The Hymas series consists of shallow, well drained soils that formed in residuum and colluvium from limestone. Hymas soils are on mountains. Slopes are 15 to 75 percent. The mean annual precipitation is

about 13 inches and the mean annual temperature is about 44 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls

**Typical pedon:** Hymas very cobbly loam, in map unit 3180, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent cobbles and 40 percent pebbles.

A1--0 to 2 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles, 20 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--2 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; many very fine tubular pores; 30 percent pebbles, 10 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C--7 to 13 inches; brown (10YR 5/3) extremely gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; 50 percent pebbles, 15 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

2R--13 inches; fractured limestone.

**Type location:** 800 feet west and 1,500 feet south of the northeast corner of section 26, T.15 N., R.50 E.; (39 degrees, 08 minutes, 44 seconds north latitude and 116 degrees, 17 minutes, 58 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in late fall, winter and spring, dry summer and fall.
*Soil temperature:* 42 to 47 degrees F.
*Summer soil temperature:* 59 to 66 degrees F.
*Mollic epipedon thickness:* 7 to 14 inches.
*Depth to bedrock:* 10 to 20 inches.
*Reaction:* Mildly alkaline or moderately alkaline.
*Control section:*
Clay content--8 to 27 percent.
Rock fragments--35 to 80 percent, dominantly angular fragments of limestone.

**A horizons:**
Hue--10YR or 2.5Y.
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3 moist and dry.

**C horizons:**
Hue--10YR or 2.5Y.
Value--5 through 8 dry, 3 through 7 moist.
Chroma--2 or 3 moist and dry.
Rock fragments--Average 35 to 80 percent.
Structure--Massive or weak subangular blocky or granular.

## Hyzen series

The Hyzen series consists of shallow and very shallow, well drained soils that formed in residuum and colluvium from limestone and dolomite. Hyzen soils are on mountain sideslopes. Slopes are 30 to 75 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees.

**Taxonomic class:** Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls

**Typical pedon:** Hyzen extremely stony loam, in map unit 3861, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 15 percent stones, 30 percent cobbles, and 30 percent pebbles.

A1--0 to 3 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine vesicular pores; 30 percent pebbles, 30 percent cobbles, 15 percent stones; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--3 to 12 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; common fine tubular pores; 30 percent pebbles, 30 percent cobbles, 15 percent stones; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

R--12 inches; hard fractured limestone

**Type location:** 1,400 feet north and 600 feet west of the southeast corner of section 16 T.7 N., R.59 E.;

(38 degrees, 27 minutes, 44 seconds north latitude and 115 degrees, 20 minutes, 27 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter, spring and early summer, dry in late summer and fall.
*Soil temperature:* 42 to 47 degrees F.
*Mollic epipedon thickness:* 6 to 14 inches.
*Depth to bedrock:* 6 to 14 inches.
*Calcium carbonate equivalent (less than 20 millimeters):* 40 to 60 percent.
*Control section:*
Clay content--Averages 10 to 18 percent.
Rock fragments--60 to 85 percent with more than half cobbles and stones.

**A horizons:**
Value--4 or 5 dry.
Chroma--2 or 3.

## Izar series

The Izar series consists of shallow and very shallow somewhat excessively drained soils that formed in residuum and colluvium from dolomite, tuff, conglomerate, and sandstone. Izar soils are on hills. Slopes are 8 to 30 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 46 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed (calcareous), mesic Lithic Xeric Torriorthents

**Typical pedon:** Izar very gravelly loam, in map unit 3380, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 50 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; common very fine and fine vesicular pores; 40 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
A2--2 to 6 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 35 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
Bk--6 to 13 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; common thin lime filaments on undersides of rock fragments; 40 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
2R--13 inches; hard, fractured sandstone

**Type location:** 350 feet east and 2,000 feet north of the southwest corner of section 36, T.15 N., R.54 E.; (39 degrees, 08 minutes, 32 seconds and 115 degrees, 52 minutes, 29 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist late fall through early spring, dry mid July through October.
*Soil temperature:* 47 to 52 degrees F.
*Depth to bedrock:* 7 to 14 inches.
*Reaction:* Mildly alkaline or moderately alkaline.
*Calcium carbonate equivalent:* Less than 20 millimeter fraction, 5 to 35 percent.
*Effervescence:* Slightly effervescent to violently effervescent.
*Other features:* Commonly has silica and lime pan fragments covering up to 75 percent of the surface.
*Control section:*
Clay content--18 to 25 percent.
Rock fragments--40 to 75 percent, mainly pebbles.

**A horizons:**
Hue--2.5Y or 10YR.
Value--4 or 5 moist.
Chroma--2 or 3.

**Bk horizon:**
Hue--2.5Y or 10YR.
Value--6 through 8 dry, 4 or 5 moist.
Chroma--2 through 4.
Lime coats--None to common on undersides of rock fragments.
Consistence--Slightly sticky or sticky and slightly plastic or plastic wet.

## Izo series

The Izo series consists of very deep, excessively drained soils that formed in alluvium from mixed igneous and sedimentary rock. Izo soils are on inset

fans and channels. Slopes are 2 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Sandy-skeletal, mixed, mesic Typic Torriorthents

**Typical pedon:** Izo very gravelly sand, in map unit 3139, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C1--3 to 11 inches; pale brown (10YR 6/3) very gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 40 percent pebbles, 10 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C2--11 to 60 inches; pale brown (10YR 6/3) stratified gravelly loamy sand to extremely gravelly coarse sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common fine roots; many very fine and fine interstitial pores; 55 percent pebbles, 10 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2).

**Type location:** 200 feet north and 900 feet west of the southeast corner of section 4, T.2 N., R.52 E.; (38 degrees, 06 minutes, 06 seconds north latitude and 116 degrees, 05 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods in winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 53 to 59 degrees F.

*Reaction:* Moderately alkaline or strongly alkaline, commonly increasing with depth.

*Effervescence:* Slightly to strongly effervescent. Individual thin strata are noncalcareous in some pedons.

*Control section:*

Rock fragments--Average 50 to 75 percent, mainly pebbles.

**A horizon:**

Value--6 or 7 dry, 4 or 5 moist.

Chroma--3 or 4.

**C horizons:**

Hue--2.5Y or 10YR.

Value--6 or 7 dry, 4 or 5 moist.

Chroma--2 through 4.

Texture of fine earth--Sand, coarse sand, loamy sand, loamy coarse sand, commonly stratified.

Rock fragments--50 to 75 percent, predominantly pebbles. Individual strata range from 15 to 85 percent rock fragments.

Structure--Massive or single grain.

Consistence--Loose or soft, loose or very friable moist.

Segregated lime--Some pedons have up to 50 percent of the undersides of rock fragments in any subhorizon covered with thin lime coats.

## Jarab series

The Jarab series consists of shallow, over an indurated duripan, well drained soils that formed in mixed alluvium dominantly from quartzite, limestone, and lacustrine sediments. Jarab soils are on mountain valley fans and fan piedmonts. Slopes are 8 to 15 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Orthidic Durixerolls

**Typical pedon:** Jarab gravelly loam, in map unit 3890, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 35 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin and moderately thick platy structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; many fine vesicular pores; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--2 to 6 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine, medium and coarse roots; many fine tubular pores; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bqk1--6 to 9 inches; very pale brown (10YR 7/4) very gravelly loam, yellowish brown (10YR 5/4) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine and medium roots; many fine tubular pores; 35 percent pebbles; common films and few very fine lime masses; many lime and silica coatings on pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bqk2--9 to 17 inches; white (10YR 8/2) very gravelly clay loam, very pale brown (10YR 7/4) moist; massive; hard, firm, sticky and plastic; few fine and medium roots; few fine tubular pores; very weakly lime and silica cemented; 45 percent pebbles; violently effervescent; moderately alkaline (pH 8.4) abrupt wavy boundary.

Bqkm--17 to 32 inches; white (10YR 8/2) strongly lime and silica cemented duripan, very pale brown (10YR 7/3) moist; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Bqk--32 to 60 inches; very pale brown (10YR 7/4) weakly cemented gravel, yellowish brown (10YR 5/4) moist; massive; hard, firm, brittle; few fine roots; pebbles coated with silica and lime; strongly effervescent; moderately alkaline (pH 8.4).

**Type location:** 700 feet south and 1,100 feet east of the northwest corner of section 6, T.8 N., R.59 E.; (38 degrees, 35 minutes, 18 seconds north latitude and 115 degrees, 23 minutes, 23 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter or spring, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 57 degrees F.
*Depth to duripan:* 10 to 20 inches.
*Mollic epipedon thickness:* 7 to 10 inches (when mixed).
*Profile reaction:* Mildly alkaline through strongly alkaline.
*Effervescence:* Strongly effervescent or violently effervescent.
*Control section:*
Rock fragments--35 to 50 percent.

**A horizons:**
Hue--10YR or 7.5YR.
Value--4 or 5 dry.
Chroma--2 or 3.

**Bqk horizon:**
Hue--10YR, 7.5YR, or 5YR.
Value--5 through 7 dry, 3 through 7 moist.
Chroma--2 through 4.
Texture of fine earth--Loam or clay loam.
Clay content--20 to 35 percent.
Rock fragments--35 to 50 percent.
Structure--Subangular blocky or massive.
Consistence--Soft or hard dry, very friable to firm moist, slightly sticky or sticky and slightly plastic or plastic wet.

## Jotava series

The Jotava series consists of very deep, somewhat poorly drained soils that formed in mixed alluvium. Jotava soils are on alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 54 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Aquic Duric Calciorthids

**Typical pedon:** Jotava silty clay loam, in map unit 3270, rangeland. (Colors are for dry soil unless otherwise noted.)

Anz1--0 to 2 inches; white (10YR 8/2) silty clay loam, gray (10YR 6/1) moist, with 0 to 1/4 inch thick white (10YR 8/2) salt crust; weak medium prismatic structure; slightly hard, friable, sticky and plastic; few very fine, fine and medium roots; many very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Anz2--2 to 8 inches; white (10YR 8/2) clay loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, sticky and plastic; common very fine, fine and medium roots; many very fine interstitial and few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); abrupt smooth boundary.

2Bknz--8 to 13 inches; white (10YR 8/2) clay loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular pores; many very fine lime nodules; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bkn--13 to 15 inches; white (10YR 8/2) clay loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; common very fine tubular and vesicular pores; many very fine lime nodules and common coarse soft masses of lime; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2Bk--15 to 24 inches; very pale brown (10YR 7/4) silt loam, yellowish brown (10YR 5/4) moist; few fine prominent black (N2) mottles; massive; hard, firm,

slightly sticky and slightly plastic; common very fine vesicular pores and few fine tubular pores; many very fine lime nodules; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bqk--24 to 41 inches; very pale brown (10YR 7/3) weakly lime and silica cemented silt loam, pale brown (10YR 6/3) moist; massive; hard, brittle, very firm, slightly sticky and slightly plastic; common very fine tubular pores; many lime nodules; continuous brittle matrix; violently effervescent; strongly alkaline (pH 8.8); clear irregular boundary.

2Bk1--41 to 45 inches; light gray (10YR 7/2) silt loam, light olive brown (2.5Y 5/4) moist; massive; hard, very firm, sticky and plastic; common very fine and few fine tubular pores; many coarse lime nodules; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bk2--45 to 57 inches; light gray (10YR 7/2) sandy loam, pale olive (5Y 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine interstitial pores; common lime nodules; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

3C1--57 to 83 inches; light gray (10YR 7/2) loamy sand, olive (5Y 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

3C2--83 to 89 inches; light gray (10YR 7/2) sandy loam, olive gray (5Y 5/2) moist; many fine and medium distinct olive (5Y 5/3, 5/4 and 4/4) mottles; massive; hard, firm, slightly sticky and slightly plastic; violently effervescent; moderately alkaline (pH 8.2).

**Type location:** 1,400 feet east and 700 feet north of the southwest corner of section 24, T.9 N., R.56 E.; (38 degrees, 35 minutes, 18 seconds north latitude and 115 degrees, 37 minutes, 42 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, saturated for at least 4 months of the year (mainly in the winter) below a depth of 26 inches.
*Soil temperature:* 54 to 59 degrees F.
*Depth to calcic horizon:* 8 to 25 inches.
*Calcium carbonate (profile average):* 25 to 40 percent. Some pedons lack lime nodules in some subhorizons.
*Control section:*
Clay content--18 to 35 percent (individual horizons may have up to 40 percent).

**Anz horizon:**
Value--6 through 8 dry, 3 through 6 moist.
Chroma--1 through 4.
Salinity--Greater than 16 mmhos/cm
Reaction--Strongly alkaline or very strongly alkaline.

**Bknz and Bkn horizons:**
Value--7 or 8 dry, 5 or 6 moist.
Chroma--2 through 4.
Texture--Stratified silt loam, silty clay loam, clay loam.
Clay content--18 to 40 percent.
Structure--Subangular blocky or massive.
Consistence--Soft to hard dry, very friable to firm moist, slightly sticky or sticky and slightly plastic or plastic wet.
Reaction--Moderately alkaline to very strongly alkaline.
Salt--4 to 16 mmhos/cm

**2Bk and 2Bqk horizons:**
Hue--10YR, 2.5Y, or 5Y.
Value--7 or 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Stratified silt loam, silty clay loam, loam, sandy loam.
Clay content--12 to 30 percent.
Consistence--Slightly hard to very hard dry, friable or very firm moist, slightly sticky or sticky and slightly plastic or plastic wet.
Reaction--Moderately alkaline or strongly alkaline.
Exchangeable sodium percentage--Less than 10 percent.
Salinity--Less than 2 mmhos/cm.
Other features--Depth to high chroma iron mottles is 15 to 40 inches.

**C horizon:**
Hue--10YR, 5Y, or 2.5Y.
Value--7 or 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Stratified loamy sand, sandy loam, loam, silt loam.
Clay content--5 to 15 percent.
Reaction--Moderately alkaline or strongly alkaline.

## Kawich series

The Kawich series consists of deep and very deep over a playa, excessively drained soils that formed in eolian sand from mixed rocks. Kawich soils are on stabilized dunes. Slopes are 0 to 30 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Mixed, mesic Typic Torripsamments

**Typical pedon:** Kawich fine sand, in map unit 3474, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; light brownish gray (10YR 6/2) fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C--4 to 60 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common fine and medium roots; many very fine and fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6).

**Type location:** 1,700 feet north and 1,300 feet west of the southeast corner of section 26, T.6 N., R.54 E.; (38 degrees, 21 minutes, 26 seconds north latitude and 115 degrees, 51 minutes, 43 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, but moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 54 to 59 degrees F.

*Depth to unconformable layer:* 40 to over 120 inches.

*Effervescence:* Slightly effervescent to violently effervescent.

*Profile reaction:* Moderately alkaline to very strongly alkaline.

*Control section:*

Texture--Averages fine sand, but may contain strata of sand or loamy fine sand.

**Profile color:**

Hue--10YR or 7.5YR.

Value--5 through 8 dry; 4 through 6 moist.

Chroma--2 through 4.

Other features--Contains significant amounts of pyroclastic material.

## Keefa series

The Keefa series consists of very deep, well drained soils that formed in mixed alluvium. Keefa soils are on inset fans and fan skirts. Slopes are 0 to 8 percent. Mean annual precipitation is about 6 inches and mean annual temperature is about 54 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Duric Camborthids

**Typical pedon:** Keefa gravelly sandy loam, in map unit 3744, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 50 percent pebbles.

A1--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine vesicular pores; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

A2--3 to 7 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; many very fine and fine vesicular pores; 5 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bw--7 to 15 inches; very pale brown (10YR 7/4) sandy loam, yellowish brown (10YR 5/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk--15 to 26 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; few soft lime masses; 15 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Bqk--26 to 60 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 45 percent durinodes; 25 percent pebbles, 5 percent cobbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 400 feet north and 1,500 feet east of the southwest corner of section 10, T.6 N., R.52 E.; (38 degrees, 23 minutes, 17 seconds north latitude and 116 degrees, 06 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 53 to 59 degrees F.
*Depth to duric layer:* 20 to 36 inches.
*Effervescence:* Strongly effervescent or violently effervescent in all parts. A and Bw horizons are affected by recharge of carbonates as dust.
*Control section:*
Clay content--8 to 15 percent.
Rock fragments--10 to 25 percent.

**A horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.

**Bw horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 through 6.
Texture of fine earth--Sandy loam or coarse sandy loam.
Rock fragments--0 to 25 percent, one-half or more are less than 5 millimeter diameter.
Structure--Moderate or strong subangular blocky.
Consistence--Very friable to friable, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Reaction--Moderately alkaline or strongly alkaline.

**Bk horizon:**
Value--6 through 8 dry, 4 or 5 moist.
Chroma--2 through 6.
Texture of fine earth--Sandy loam or coarse sandy loam.
Rock fragments--0 to 30 percent, one-half or more are less than 5 millimeters in diameter.
Structure--Massive or subangular blocky.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Reaction--Moderately alkaline or strongly alkaline.

**Bqk horizon:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--3 through 6.
Texture of fine earth--Sandy loam, coarse sandy loam; subhorizons of loamy sand are in some pedons.
Rock fragments--15 to 35 percent, one-half or more are less than 5 millimeters in diameter.
Reaction--Strongly alkaline or very strongly alkaline.
Other features--Discontinuous lenses of weakly or strongly silica-lime cemented material are in some pedons.

## Koyen series

The Koyen series consists of very deep, well drained soils that formed in mixed alluvium derived dominantly from volcanic rocks. Koyen soils are on fan piedmonts and fan skirts. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is approximately 53 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Typic Camborthids

**Typical pedon:** Koyen gravelly sandy loam, in map unit 3137, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 1 inch; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine interstitial pores; 15 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.
A2--1 to 4 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine vesicular and tubular pores; 15 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.
Bw--4 to 16 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; 20 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.
Bk--16 to 35 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; soft lime masses; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
2C--35 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; 40 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 200 feet north and 1,000 feet west of the southeast corner of section 28, T.4 N., R.50 E.; (38 degrees, 10 minutes, 10 seconds north latitude and 116 degrees, 20 minutes, 25 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and

for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to Bk horizon:* 14 to 21 inches.
*Reaction:* Moderately alkaline or strongly alkaline, being mostly alkaline in Bk horizon.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--Average 10 to 25 percent but any one horizon can contain up to 40 percent pebbles.

**A horizons:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.

**Bw horizon:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Structure--Appears massive but parts to very weak, weak or moderate medium or coarse subangular blocky.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic or plastic wet.
Effervescence--Noneffervescent except in lower part.

**Bk horizon:**
Value--6 through 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Effervescence--Strongly effervescent or violently effervescent.
Structure--Subangular blocky or massive.
Consistence--Soft to hard dry, very friable or firm moist.

**2C horizon:**
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 or 3.
Consistence--Soft or slightly hard dry.

## Kunzler series

The Kunzler series consists of very deep, well drained, soils formed in mixed alluvium. Kunzler soils are on axial stream terraces. Slopes are 0 to 4 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Durixerollic Calciorthids

**Typical pedon:** Kunzler loam, in map unit 3211, rangeland. (Colors are for dry soil unless otherwise stated.) The surface is partially covered with 20 percent pebbles.

A1--0 to 3 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine tubular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
A2--3 to 10 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine tubular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
Bq--10 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; common very fine tubular pores; 5 percent durinodes; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
Bqk1--15 to 40 inches; variegated white (10YR 8/2) and very pale brown (10YR 7/3) loam, very pale brown (10YR 7/3) and pale brown (10YR 6/3) moist; moderate medium platy structure; hard, firm, slightly sticky and slightly plastic; few very fine, fine and medium roots; few very fine tubular pores; 30 percent strongly cemented durinodes; continuous brittle matrix; 10 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
Bqk2--40 to 60 inches; variegated white (10YR 8/2) and very pale brown (10YR 7/4) very gravelly loam, very pale brown (10YR 7/3) and light yellowish brown (10YR 6/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine tubular pores; 35 percent pebbles, 5 percent cobbles; 30 percent strongly cemented durinodes; continuous brittle matrix; strongly effervescent; moderately alkaline (pH 8.4).

**Type location:** 2,000 feet east and 1,500 feet north of the southwest corner of section 15, T.9 N., R.61 E.; (38 degrees, 38 minutes, 11 seconds north latitude and 115 degrees, 06 minutes, 28 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 50 to 53 degrees F.
*Depth to calcic horizon:* 15 to 35 inches.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--0 to 15 percent pebbles.

**A horizons:**
Value--5 or 6 dry, 4 or 5 moist.
Chroma--2 through 4.
Reaction--Moderately alkaline to strongly alkaline.

**Bq and Bqk1 horizons:**
Hue--7.5YR or 10YR.
Value--6 through 8 dry, 4 through 7 moist.
Chroma--2 through 4 moist.
Texture--Loam, fine sandy loam, or sandy loam.
Rock fragments--0 to 15 percent.
Structure--Subangular blocky, platy or massive.
Consistence--Slightly hard or hard dry, very friable or firm moist.
Durinodes--0 to 30 percent, 20 percent or more in some part above 40 inches.
Exchangeable sodium percentage (ESP)--Increases with depth, greater than 40 percent in some part.
Reaction--Moderately alkaline to very strongly alkaline.

**Bqk2 horizon:**
Hue--7.5YR or 10YR.
Value--6 through 8 dry, 6 or 7 moist.
Chroma--2 through 4.
Rock fragments--35 to 60 percent.
Consistence--Slightly hard to hard dry, very friable to firm moist.
Reaction--Moderately alkaline to very strongly alkaline.

## Kyler series

The Kyler series consists of shallow and very shallow, well drained soils formed in residuum and colluvium from limestone and dolomite. Kyler soils are on mountain slopes and hills. Slopes are 8 to 75 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

**Typical pedon:** Kyler extremely cobbly loam, in map unit 3672, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent cobbles and 40 percent pebbles.

A1--0 to 1 inch; pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; 35 percent pebbles, 30 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
A2--1 to 5 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial and tubular pores; 25 percent pebbles, 15 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
C--5 to 14 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; 25 percent pebbles, 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
R--14 inches; hard limestone, upper 5 inches is weathered.

**Type location:** 2,500 feet south and 2,600 feet west of the northeast corner of section 23, T.8 N., R.49 E.; (38 degrees, 32 minutes, 20 seconds north latitude and 116 degrees, 25 minutes, 26 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to bedrock:* 6 to 14 inches.
*Reaction:* Moderately alkaline or strongly alkaline.
*Effervescence:* Strongly effervescent to violently effervescent.
*Calcium carbonate equivalent:* 40 to 60 percent.
*Control section:*
Clay content--7 to 18 percent.
Rock fragments--35 to 60 percent.

**A horizons:**
Value--6 or 7 dry, 3 through 5 moist.
Chroma--2 or 3.

**C horizon:**
Hue--10YR or 7.5YR.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4 moist.
Texture of fine earth--Average loam, including strata of fine sandy loam, very fine sandy loam, silt loam, or very gravelly loam.
Structure--Massive or subangular blocky.
Consistence--Slightly sticky or sticky and slightly plastic or plastic wet.
Rock fragments--35 to 60 percent.
Other features--Subhorizons have up to 70 percent rock fragments in some pedons. Some pedons have a thin Bk horizon. Some pedons have thin lime coats on rock fragments.

## Labshaft series

The Labshaft series consists of shallow, well drained soils that formed in residuum and colluvium weathered from volcanic rocks. Labshaft soils are on mountain sideslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 43 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed Lithic Cryoborolls

**Typical pedon:** Labshaft extremely stony loam, in map unit 3441, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent stones, 25 percent cobbles, and 15 percent pebbles.

A1--0 to 6 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; strong very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium and coarse roots; many very fine tubular and common very fine interstitial pores; 5 percent pebbles, 20 percent cobbles, 40 percent stones; slightly acid (pH 6.2); clear smooth boundary.
A2--6 to 8 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots, many very fine tubular pores; 10 percent pebbles, 25 percent cobbles, 30 percent stones; neutral (pH 7.0); abrupt irregular boundary.
Bw--8 to 14 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; 35 percent pebbles, 5 percent cobbles, 10 percent stones; neutral (pH 7.0); abrupt irregular boundary.
R--14 inches; hard welded rhyolitic tuff.

**Type location:** 2,300 feet north and 1,600 feet west of the southeast corner of section 7, T.14 N., R.51 E.; (39 degrees, 05 minutes, 54 seconds north latitude and 116 degrees, 15 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist winter and spring, dry summer and fall.
*Soil temperature:* 43 to 47 degrees F.
*Summer soil temperature:* 54 to 59 degrees F.
*Mollic epipedon thickness:* 7 to 14 inches and commonly includes part or all of Bw horizon.
*Depth to bedrock:* 10 to 20 inches.
*Reaction:* Slightly acid or neutral.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**B horizon:**
Value--5 or 6 dry, 2 or 3.
Chroma--2 through 4.
Texture--Very gravelly loam, very gravelly clay loam, extremely gravelly sandy clay loam, or extremely gravelly loam.
Clay content--25 to 35 percent.
Rock fragments--40 to 70 percent, mainly pebbles.
Structure--Angular blocky or subangular blocky.
Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.

## Layview series

The Layview series consists of shallow, well drained soils formed in residuum and colluvium from andesite, rhyolite, chert, and tuff. Layview soils are on mountain crests and sideslopes. Slopes are 8 to 50 percent. Mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed Argic Lithic Cryoborolls

**Typical pedon:** Layview very gravelly sandy loam, in map unit 3441, rangeland. (Colors are for dry soil

unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 40 percent pebbles.

A--0 to 4 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular and common very fine tubular pores; 30 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1--4 to 9 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; few thin clay films on faces of peds and lining pores; 40 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt2--9 to 14 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; few thin clay films on faces of peds and lining pores; 40 percent pebbles; neutral (pH 7.2); abrupt irregular boundary.

2R--14 inches; fractured welded tuff.

**Type location:** 1,800 feet south and 1,400 feet west of the northeast corner of section 6, T.14 N., R.51 E.; (39 degrees, 07 minutes, 00 seconds north latitude and 116 degrees, 15 minutes, 55 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 43 to 47 degrees F.
*Summer soil temperature:* 50 to 59 degrees F.
*Mollic epipedon thickness:* 7 to 12 inches.
*Depth to bedrock:* 10 to 14 inches.
*Reaction:* Neutral or mildly alkaline.
*Control section:*
Clay content--18 to 30 percent.
Rock fragments--35 to 60 percent, mainly pebbles.

**A horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Value--4 or 5 dry, 3 or 4 moist.
Chroma--2 through 4.
Texture--Very gravelly loam or very gravelly clay loam.
Clay content--22 to 35 percent.
Rock fragments--35 to 60 percent, mainly pebbles.
Structure--Weak or moderate subangular blocky or angular blocky.
Consistence--Soft or hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic, wet.

## Leo series

The Leo series consists of very deep, excessively drained soils that formed in alluvium from mixed rocks. Leo soils are on inset fans, alluvial fans, and fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Sandy-skeletal, mixed, mesic Typic Torriorthents

**Typical pedon:** Leo gravelly sandy loam, in map unit 3700, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many fine interstitial pores; 20 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

C1--3 to 8 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial and tubular pores; 20 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C2--8 to 16 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial and tubular pores; 30 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.

C3--16 to 60 inches; pale brown (10YR 6/3) stratified gravelly sandy loam to very gravelly loamy coarse sand, brown (10YR 4/3) moist; massive soft, very friable, nonsticky and nonplastic; 50 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4).

**Type location:** 1,850 feet north and 2,400 feet west of the southeast corner of section 30, T.1 N., R.54 E.; (37 degrees, 55 minutes, 01 second north

latitude and 115 degrees, 56 minutes, 31 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Clay content--0 to 5 percent.
Rock fragments--35 to 55 percent, dominantly pebbles. Individual strata range from 10 to 100 percent rock fragments in some pedons.

**A horizon:**
Value--5 through 7 dry; 4 or 5 moist.
Chroma--2 or 3.
Effervescence--Noneffervescent to strongly effervescent.

**C horizons:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Stratified; includes strata of fine sandy loam or sandy loam as well as sand, loamy sand and gravel in some pedons.
Rock fragments--Average 35 to 65 percent, dominantly pebbles, with individual strata ranging from 10 to 100 percent.
Structure--Massive or single grain.
Consistence--Loose to soft dry, loose to very friable moist.
Effervescence--Slightly effervescent to strongly effervescent.
Other features--Strong influence from pyroclastic materials. Some pedons have randomly oriented silica and lime coats on rock fragments.

## Lien series

The Lien series consists of very shallow and shallow, over an indurated duripan, well drained soils that formed in alluvium from mixed rock sources. Lien soils are on fan remnants. Slopes are 4 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Xerollic Durorthids

**Typical pedon:** Lien very gravelly loam, in map unit 3870 woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 45 percent pebbles.

A--0 to 2 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine vesicular pores; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Bk--2 to 8 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; many fine interstitial pores; common soft lime masses and lime coatings on undersides of rock fragments; 50 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4) abrupt smooth boundary.
2Bqkm--8 to 21 inches; indurated duripan with laminar cap
3Bqk--21 to 60 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; very hard, firm, brittle; weakly silica and lime cemented 10 percent pebbles; violently effervescent; strongly alkaline (pH 8.6)

**Type location:** 800 feet south and 700 feet east of the northwest corner of section 28, T.15 N., R.54 E.; (39 degrees, 08 minutes, 50 seconds north latitude and 115 degrees, 54 minutes, 11 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry; moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 50 degrees F.
*Depth to indurated duripan:* 6 to 14 inches.
*Reaction:* Moderately alkaline to very strongly alkaline.
*Control section:*
Clay content--8 to 24 percent.
Rock fragments--50 to 70 percent mainly pebbles.

**A horizon:**
Value--3 or 4 moist.
Chroma--2 through 4.

**Bk horizon:**
Value--3 or 4 moist.
Chroma--2 through 4.
Texture--Very gravelly fine sandy loam, very gravelly sandy loam, or extremely gravelly loam.

Structure--Weak, fine, or medium subangular blocky or massive.
Consistence--Nonsticky to slightly sticky wet.

**2Bqkm horizon:**
Value--7 or 8 dry, 6 or 7 moist.
Chroma--1 through 3.
Structure--Platy or massive.
Other features--Laminar opal sheets and coatings comprise 20 to 40 percent with higher chroma than the lime cemented portions.

**3Bqk horizon:**
Chroma--3 or 4.
Consistence--Hard or very hard, dry.

## Linoyer series

The Linoyer series consists of very deep, well drained soils that formed in mixed alluvium. Linoyer soils are on fan skirts and inset fans. Slopes are 0 to 4 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Coarse-silty, mixed (calcareous), mesic Xeric Torriorthents

**Typical pedon:** Linoyer very fine sandy loam, in map unit 3972, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist, strong medium platy structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; many very fine and medium vesicular pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
A2--3 to 11 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist, moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
C--11 to 46 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
2C--46 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine interstitial pores; 65 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 100 feet west and 2,200 feet north of the southeast corner of section 12, T.10 N., R.60 E.; (38 degrees, 44 minutes, 06 seconds north latitude and 115 degrees, 10 minutes, 16 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 54 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Clay content--Averages 10 to 18 percent.

**A horizons:**
Hue--10YR or 7.5YR.
Value--5 through 7 dry, 4 through 6 moist.
Chroma--2 through 4.

**C horizon:**
Hue--10YR, 7.5YR, or 5YR.
Value--5 through 7 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Very fine sandy loam or silt loam.
Consistence--Soft or slightly hard dry, very friable to friable moist, slightly sticky to sticky and slightly plastic to nonplastic wet.
Effervescence--10 to 40 percent calcium carbonate equivalent.

**2C horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Extremely gravelly loamy sand.
Rock fragments--60 to 80 percent dominantly pebbles.
Other features--The soils mapped as Linoyer differ slightly from the typical Linoyer soils, which do not have gravelly substrata below 40 inches.

## Logring series

The Logring series consists of shallow and very shallow, well drained soils that formed in residuum and colluvium from limestone, dolomite, and other highly calcareous sedimentary rocks. Logring soils are on mountain slopes and hills. Slopes are 15 to 75 percent. Mean annual precipitation is about 12 inches and mean annual temperature is about 47 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

**Typical pedon:** Logring very gravelly loam, in map unit 3672, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 15 percent cobbles and 45 percent pebbles.

A--0 to 3 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine and fine interstitial and tubular pores; 50 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4) abrupt smooth boundary.

Bw--3 to 8 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and medium roots; many very fine and fine interstitial pores; 30 percent pebbles, 20 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk--8 to 12 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine and many medium roots; many very fine and fine tubular pores; many fine soft lime masses; thin lime pendants coating rock fragments; 30 percent pebbles, 20 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

R--12 inches; hard limestone bedrock

**Type location:** 2,000 feet south and 2,200 feet east of the northwest corner of section 12, T.7 N., R.49 E.; (38 degrees, 28 minutes, 59 seconds north latitude and 116 degrees, 24 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 47 to 50 degrees F.

*Reaction:* Moderately alkaline or strongly alkaline.

*Effervescence:* Strongly effervescent to violently effervescent throughout, with 40 to 60 percent calcium carbonate equivalent, and 15 to 40 percent finely divided lime in upper 18 centimeters.

*Organic carbon:* 1.0 to 1.5 percent in upper 7 inches.

*Depth to bedrock:* 7 to 14 inches.

*Control section:*

Clay content--8 to 18 percent.

Rock fragments--35 to 60 percent.

**A horizon:**

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 through 4.

**Bw horizon:**

Value--5 or 6 dry, 3 through 5 moist.

Chroma--2 through 4.

Texture--Very cobbly loam, very cobbly fine sandy loam, or extremely cobbly loam.

**Bk horizon:**

Chroma--3 or 4.

Texture--Very cobbly loam, very cobbly fine sandy loam, or extremely cobbly loam.

## Lyda series

The Lyda series consists of very shallow and shallow over an indurated duripan, well drained soils that formed in mixed alluvium from mainly volcanic sources. Lyda soils are on fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Typic Durargids

**Typical pedon:** Lyda very gravelly fine sandy loam, in map unit 3800, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 25 percent cobbles and 30 percent pebbles.

A--0 to 1 inch; pale brown (10YR 6/3) very gravelly fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine interstitial pores; 25 percent pebbles, 10 percent cobbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

E--1 to 5 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; few fine roots; many very fine and fine vesicular pores; 5 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.

Bt--5 to 11 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and fine roots; common fine

tubular pores; common moderately thick clay films on faces of peds; 25 percent pebbles, 10 percent cobbles; strongly alkaline (pH 8.8); clear smooth boundary.

Btk--11 to 14 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; few thin clay films lining pores; lime pendants on undersides of rock fragments; 35 percent pebbles, 15 percent cobbles; violently effervescent; very strongly alkaline (pH 9.4); abrupt wavy boundary.

Bqkm1--14 to 20 inches; indurated hardpan with laminar cap.

Bqkm2--20 to 60 inches; continuous silica and lime cemented hardpan.

**Type location:** 1,200 feet north and 1,200 feet east of the southwest corner of section 32, T.4 N., R.51 E.; (38 degrees, 09 minutes, 29 seconds north latitude and 116 degrees, 15 minutes, 37 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to duripan:* 8 to 14 inches.
*Reaction:* Strongly alkaline or very strongly alkaline.
*Control section:*
Clay content--Average 25 to 35 percent.
Rock fragments--35 to 50 percent, mainly pebbles.

**A and E horizons:**
Value--6 or 7 dry, 3 or 4 moist.
Chroma--2 or 3.
Effervescence--Noneffervescent to violently effervescent.

**Bt horizon:**
Hue--7.5YR or 10YR.
Value--5 or 6 dry, 4 or 5 moist.
Chroma--2 through 4.
Clay content--30 to 40 percent.
Texture (less than 2 millimeters)--Clay loam or sandy clay loam.
Rock fragments--35 to 50 percent.
Structure--Subangular blocky or prismatic.
Consistence--Slightly hard or hard dry, very friable or friable moist, slightly plastic to very plastic wet.

**Btk horizon:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture (less than 2 millimeters)--Sandy clay loam or sandy loam.
Rock fragments--40 to 60 percent.
Consistence--Soft or slightly hard dry, very friable or friable moist.

**Bqkm horizons:**
Value--5 through 8.
Chroma--2 through 4.
Thickness--Typically cemented for 2 to 4 feet and indurated in the upper part.

## Lyx series

The Lyx series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Lyx soils are on inset fans and fan skirts. Slopes are 2 to 8 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Sandy-skeletal, mixed, mesic Typic Camborthids

**Typical pedon:** Lyx very gravelly loamy sand, in map unit 3804, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 55 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many fine interstitial pores; 35 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bw--3 to 11 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; 30 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bk--11 to 22 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; lime coatings on undersides of

pebbles; 55 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4) clear smooth boundary.

2Bk--22 to 60 inches; pale brown (10YR 6/3) stratified extremely gravelly coarse sand through very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine and fine tubular pores; lime coatings on undersides of pebbles; 55 percent pebbles; violently effervescent; strongly alkaline (pH 8.6)

**Type location:** 700 feet south and 1,700 feet west of the northeast corner of section 34, T.6 N., R.50 E.; (38 degrees, 20 minutes, 27 seconds north latitude and 116 degrees, 19 minutes, 41 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist during winter and early spring and for 10 to 20 days cumulative between July and September due to convection storms.
*Soil temperature:* 55 to 59 degrees F.
*Depth to 2Bk horizon:* 11 to 28 inches.
*Effervescence:* Noneffervescent in the upper part, strongly effervescent to violently effervescent in the subsoil in most pedons.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Rock fragments--Average 35 to 55 percent.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.

**Bw horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Sandy loam or fine sandy loam.
Rock fragments--25 to 45 percent.
Consistence--Nonplastic or slightly plastic wet.

**Bk and 2Bk horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Averages loamy sand, sand or loamy coarse sand with strata of sandy loam.
Rock fragments--Averages 35 to 60 percent mainly gravel with less than 5 percent cobbles.
Other features--The 2Bk horizon is highly stratified in most pedons.

## Mijay series

The Mijay series consists of moderately deep over a duripan, well drained soils that formed in mixed alluvium, predominantly from andesite. Mijay soils are on fan piedmonts. Slopes are 8 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Haploxerollic Durargids

**Typical pedon:** Mijay very cobbly sandy loam, in map unit 3050, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent cobbles and 35 percent pebbles.

A1--0 to 1 inch; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles, 20 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

A2--1 to 4 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine interstitial and few very fine tubular pores; 15 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1--4 to 11 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak very fine prismatic structure parting to strong medium angular blocky; hard, firm, sticky and plastic; many very fine and fine and few medium roots; many very fine and fine tubular pores; common thick clay films lining pores, on faces of peds and bridging mineral grains; 25 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt2--11 to 29 inches; yellowish brown (10YR 5/4) very cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; many very fine and fine interstitial and few very fine and fine tubular pores; few thick clay films lining pores, on faces of peds, and bridging mineral grains; 30 percent pebbles, 20 percent cobbles, 5 percent stones; moderately

alkaline (pH 8.0); clear smooth boundary.

2Bk--29 to 33 inches; yellowish brown (10YR 5/4) very cobbly sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; common soft lime masses; 35 percent pebbles, 20 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

3Bqkm--33 to 58 inches; white (10YR 8/2) strongly silica and lime cemented duripan, light brownish gray (10YR 6/2) moist; few very fine and fine roots; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

4C--58 to 60 inches; pale brown (10YR 6/3) very gravelly sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; few thin silica pendants on undersides of rock fragments; 40 percent pebbles, 15 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6).

**Type location**: 1,000 feet south and 1,300 feet east of the northwest corner of section 5, T.8 N., R.51 E.; (38 degrees, 35 minutes, 19 seconds north latitude and 116 degrees, 15 minutes, 48 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer except for 10 to 20 days between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to duripan:* 20 to 40 inches, strong continuous cementation.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Clay content--Averages 27 to 35 percent.
Rock fragments--Average 35 to 50 percent.

**A horizons**:
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.

**Bt1 horizon**:
Value--5 or 6 dry, 4 or 5 moist.
Chroma--4 through 6.
Texture--Clay loam or sandy clay loam.
Clay content--27 to 40 percent.
Rock fragments--15 to 35 percent.

**Bt2 horizon**:
Value--5 or 6 dry, 4 or 5 moist.
Chroma--4 through 6.
Texture of fine earth--Clay loam or sandy clay loam.
Clay content--27 to 35 percent.
Rock fragments--35 to 60 percent.
Other features--Weak silica cementation and few thin silica pendants on undersides of rock fragments.

**Bk horizon**:
Value--5 or 6 dry, 4 moist.
Chroma--4 through 6.
Texture--Sand or sandy loam.
Rock fragments--35 to 60 percent.
Effervescence--Strongly effervescent or violently effervescent.

**Bqkm horizon**:
Value--7 or 8 dry, 5 or 6 moist.
Chroma--2 or 3.
Cementation--Strong continuous cementation.

**C horizon**:
Chroma--3 or 4.
Texture--Sand or coarse sand.
Rock fragments--35 to 60 percent.
Structure--Single grain or massive.
Consistence--Loose or soft, loose, or very friable.
Effervescence--Slightly effervescent to strongly effervescent.
Other features--Few thin silica pendants on undersides of rock fragments.

## Molion series

The Molion series consists of shallow, over a duripan, well drained soils that formed in alluvium from mixed rock sources with a component of loess. Molion soils are on fan piedmonts. Slopes are 2 to 8 percent. Mean annual precipitation is about 10 inches and mean annual temperature is about 52 degrees F.

**Taxonomic class**: Loamy-skeletal, mixed, mesic, shallow Haploxerollic Durorthids

**Typical pedon**: Molion loam, in map unit 3091, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent pebbles.

A1--0 to 1 inch; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and

nonplastic; few fine roots; many very fine vesicular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2--1 to 3 inch; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine vesicular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk1--3 to 8 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common fine tubular pores; common fine lime filaments; 50 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk2--8 to 14 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; few fine tubular pores; common fine lime filaments; 55 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6), clear wavy boundary.

Bqkm--14 to 26 inches; continuous strongly silica and lime cemented hardpan; gradual wavy boundary.

2C1--26 to 36 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many fine interstitial pores; 40 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C2--36 to 60 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common fine interstitial pores; 60 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8).

**Type location**: 300 feet west and 2,000 feet north of the southeast corner of section 3, T.14 N., R.53 E.; (39 degrees, 06 minutes, 42 seconds north latitude and 115 degrees, 58 minutes, 57 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 53 degrees F.
*Depth to duripan:* 14 to 20 inches.
*Control section:*
Clay content--8 to 18 percent
Rock fragments--50 to 70 percent.

**A horizons:**
Value--5 through 7 dry, 3 or 4 moist.
Chroma--2 or 3.

**Bk horizons:**
Value--5 or 6 dry.
Chroma--2 through 4.
Texture of fine earth--Sandy loam or loam.
Structure--Subangular blocky or massive.
Consistence--Soft or slightly hard dry, very friable or friable moist, nonsticky to slightly sticky wet.
Effervescence--Strongly effervescent or violently effervescent.
Reaction--Moderately alkaline or strongly alkaline.

**2C horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Structure--Massive or single grain.
Consistence--Loose to hard dry, loose to firm moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.

## Morbench series

The Morbench series consists of very deep, well drained soils that formed in alluvium derived from mixed sources. Morbench soils are on fan remnants. Slopes are 8 to 30 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class**: Loamy-skeletal, mixed, mesic Durixerollic Calciorthids

**Typical pedon**: Morbench gravelly sandy loam, in map unit 3060, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 2 percent cobbles and 40 percent pebbles.

A1--0 to 1 inch; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine vesicular pores; 25 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A2--1 to 4 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak thick platy structure parting to weak medium subangular blocky; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and common fine vesicular pores; 15 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk--4 to 10 inches; brown (10YR 5/3) gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; many very fine and fine tubular and common very fine interstitial pores; some soft powdery lime in matrix; 25 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bqk1--10 to 29 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft and slightly hard in spots, very friable and friable in spots, nonsticky and nonplastic; few very fine and many fine, medium and coarse roots; many very fine and fine tubular and common very fine and fine interstitial pores; soft powdery lime in matrix; 10 percent weak silica cementation and 1 millimeter thick silica lamella; 40 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk2--29 to 50 inches; very pale brown (10YR 7/3) very gravelly loamy sand, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few medium roots; any very fine and fine and few medium interstitial pores; 10 percent strong and 50 percent weak discontinuous silica cementation; soft powdery lime in matrix; 45 percent pebbles, 5 percent cobbles violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Bq--50 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, fine and medium interstitial pores; 15 percent weak discontinuous silica cementation; 40 percent pebbles, 5 percent cobbles; strongly effervescent with noneffervescent spots; moderately alkaline (pH 8.4).

**Type location**: 1,400 feet south and 1,100 feet west of the approximate northeast corner of section 4, T.9 N., R.51 E.; (38 degrees, 40 minutes, 27 seconds north latitude and 116 degrees, 13 minutes, 58 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer except for 10 to 20 days between July and October due to convection storms.
*Soil temperature:* 48 to 51 degrees F.
*Profile reaction:* Moderately alkaline or strongly alkaline.
*Effervescence:* Strongly effervescent or violently effervescent.
*Thickness of calcic horizon:* 35 to 55 inches.
*Control section:*
Clay content--8 to 13 percent.
Rock fragments--Average 35 to 55 percent.

**A horizons**:
Chroma--2 or 3.

**Bk horizon**:
Value--5 through 7 dry, 4 through 6 moist.
Chroma--3 or 4.

**Bqk1 horizon**:
Value--6 or 7 dry, 4 through 6 moist.
Chroma--3 through 5.
Rock fragments--35 to 50 percent pebbles, 0 to 10 percent cobbles.
Consistence--Soft or slightly hard dry, very friable or friable moist.
Carbonates--Soft powdery lime throughout horizon.
Other features--10 to 65 percent weak to strong discontinuous silica-lime cementation as plates or durinodes.

**Bqk2 horizon**:
Value--6 or 7 dry, 4 through 6 moist.
Chroma--3 through 5.
Texture of fine earth--Loamy sand or sandy loam.
Rock fragments--35 to 50 percent pebbles, 0 to 10 percent cobbles.
Carbonates--Soft powdery lime throughout horizon.
Other features--20 to 65 percent weak to strong discontinuous silica-lime cementation as plates or durinodes.

**Bq horizon**:
Value--6 or 7 dry, 4 through 6 moist.
Chroma--3 through 6.
Texture of fine earth--Sand through sandy loam.
Rock fragments--35 to 60 percent, mainly pebbles.

## Mosida series

The Mosida series consists of very deep, well drained soils that formed in mixed alluvium. Mosida soils are on axial stream terraces. Slopes are 0 to 4 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees F.

**Taxonomic class**: Coarse-loamy, mixed, mesic Torrifluventic Haploxerolls

**Typical pedon:** Mosida loam, in map unit 3041, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; weak thick platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common fine vesicular pores; slightly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.

A2--4 to 11 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; few fine tubular pores; slightly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.

C1--11 to 19 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

C2--19 to 36 inches; brown (10YR 5/3) fine sandy loam with thin lenses of sandy loam and silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common fine roots; few very fine and fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

C3--36 to 60 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; slightly effervescent; mildly alkaline (pH 7.8).

**Type location:** 850 feet west and 1,500 feet north of the southeast corner of section 34, T.13 N., R.50 E.; (38 degrees, 54 minutes, 57 seconds north latitude and 116 degrees, 20 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 51 degrees F.
*Control section:*
Clay content--5 to 18 percent.

**A horizons:**
Value--4 or 5 dry.
Chroma--2 or 3.
Reaction--Neutral or mildly alkaline.

**C horizons:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 through 4.
Texture--Fine sandy loam, loam, or silt loam
Structure--Subangular blocky, granular, or massive.
Consistence--Soft to hard dry, very friable or friable moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Reaction--Mildly alkaline or moderately alkaline.

## Nuc series

The Nuc series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium mainly from limestone. Nuc soils are on fan piedmonts. Slopes are 4 to 30 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, mesic Durixerollic Calciorthids

**Typical pedon:** Nuc gravelly loam, in map unit 3301, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent pebbles.

A1--0 to 1 inch; light gray (10YR 7/2) gravelly loam, brown (10YR 5/3) moist; weak medium platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; common very fine and fine vesicular pores; 25 percent limestone pebbles, mostly lime-coated; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--1 to 3 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; common very fine and fine interstitial pores; 15 percent limestone pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw--3 to 9 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 5/3) moist; moderate very fine subangular blocky and fine granular structure; slightly hard, friable, slightly sticky and plastic; common very fine, fine and medium roots; common very fine and fine interstitial pores; 15 percent limestone pebbles with lime coatings that are thicker on lower side; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bk--9 to 12 inches; very pale brown (10YR 7/3) very gravelly loam, light yellowish brown (10YR 6/4)

moist; massive; slightly hard, friable, sticky and plastic; common very fine, fine and medium roots; common very fine and fine interstitial pores; 50 percent lime-coated pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk1--12 to 21 inches; white (10YR 8/1) very gravelly clay loam, very pale brown (10YR 8/3) moist; massive; hard, firm, sticky and plastic; few fine roots between lime plates and in pockets of softer soil; few fine interstitial pores; discontinuous lime and silica-cemented lenses; brittle matrix; 50 percent lime-coated and lime-cemented pebbles; weakly cemented with some discontinuous platy very hard and very firm areas that are strongly cemented; few thin brownish silica patches on undersides of pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk2--21 to 36 inches; white (10YR 8/2) very gravelly clay loam, very pale brown (10YR 7/3) moist; massive; hard, friable, sticky and plastic; few fine roots; few fine interstitial pores; few weakly cemented lenses; few thin brownish silica patches on underside of pebbles; 50 percent lime-coated pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bk'1--36 to 60 inches; very pale brown (10YR 7/4) extremely gravelly loam, light yellowish brown (10YR 6/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; weakly cemented; 90 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

3Bk'2--60 to 70 inches; very pale brown (10YR 7/4) extremely gravelly loamy sand, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, nonsticky and nonplastic; many fine, medium and coarse interstitial pores; few soft lime masses; 85 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

**Type location:** 800 feet south and 1,100 feet west of the northeast corner of section 16, T.10 N., R.59 E.; (38 degrees, 43 minutes, 45 second north latitude and 115 degrees, 20 minutes, 41 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 48 to 52 degrees F.
*Carbonates:* 40 to 70 percent calcium carbonate equivalent.
*Depth to weakly cemented calcic horizon:* 10 to 16 inches.
*Other features:* Some pedons have strata of extremely gravelly loamy sand below 40 inches.
*Control section:*
Clay content--15 to 30 percent.
Rock fragments--50 to 75 percent, mainly pebbles.

**A horizon:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.

**Bw horizon:**
Hue--10YR or 7.5YR.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Rock fragments--15 to 35 percent, mainly pebbles.

**Bk, Bqk, and 2Bk horizons:**
Texture--Very gravelly loam, very gravelly clay loam, extremely gravelly clay loam.
Consistence--Slightly hard to very hard dry, friable to firm moist, brittle in one subhorizon or more.
Cementation--Weakly cemented with carbonates and minor accessory silica in one or more subhorizons.

## Nuyobe series

The Nuyobe series consists of very deep, poorly drained soils that formed in lacustrine sediments derived from mixed rock sources and volcanic ash. Nuyobe soils are on alluvial flats, lake plains, and axial stream terraces. Slopes are 0 to 2 percent. Mean annual precipitation is about 6 inches and mean annual temperature is about 53 degrees F.

**Taxonomic class:** Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

**Typical pedon:** Nuyobe silt loam, in map unit 3521, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.6); clear smooth boundary

A2--2 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; strongly effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Bk1--5 to 19 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; massive; soft, very friable,

slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; few fine soft lime masses; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bk2--19 to 25 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; few fine soft lime masses; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk3--25 to 37 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few soft lime masses; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk4--37 to 48 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; common distinct brown (7.5YR 5/4) mottles; massive; hard, friable, sticky and slightly plastic; few soft lime masses; violently effervescent; strongly alkaline (pH 8.9); clear smooth boundary.

Bk5--48 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; many distinct brown (7.5YR 5/4) mottles; massive; hard, friable, sticky, and plastic; few soft lime masses; violently effervescent; moderately alkaline (pH 8.4).

**Type location:** 1,680 feet south and 1,150 feet east of the northwest corner of section 13, T.4 N., R.51 E.; (38 degrees, 12 minutes, 30 seconds north latitude and 116 degrees, 11 minutes, 14 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* These soils are saturated in some horizon between depths of 24 and 36 inches for a brief period in most years. The capillary fringe moistens the soil to within 6 inches of the surface.

*Soil temperature:* 53 to 59 degrees F.

*Exchangeable sodium:* Sodium adsorption ratio is greater than 13, decreases with depth below 20 inches.

*Effervescence:* Strongly effervescent or violently effervescent.

*Control section:*

Clay content--18 to 27 percent.

Texture--When mixed has less than 15 percent fine sand coarser than very fine sand.

Soil profile—Hue: 10YR, 2.5Y or 5Y.

Value--6 through 8 dry; 4 through 6 moist.

Chroma--2 through 4. (Thin layers of volcanic ash have chroma of 1).

**A horizons:**

Reaction--Strongly alkaline or very strongly alkaline.

**Bk horizons:**

Texture--Stratified very fine sandy loam, loam, silt loam, or silty clay loam.

Structure--Platy or massive.

Consistence--Soft to hard dry, slightly sticky or sticky and slightly plastic or plastic wet.

Reaction--Moderately alkaline or strongly alkaline.

## Nyserva series

The Nyserva series consists of very deep, moderately well drained soils formed in mixed alluvium. Nyserva soils are on alluvial flats and lake plains. Slopes are 0 to 4 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Duric Natrargids

**Typical pedon:** Nyserva loam in map unit 3474, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent pebbles.

A--0 to 6 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Bt--6 to 12 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong medium and coarse prismatic structure parting to weak thick platy; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine interstitial pores; many thin clay films on faces of peds; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Btn--12 to 15 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; common fine tubular pores; many moderately thick clay films coating sand grains; violently effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Bqk--15 to 35 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly

plastic; few very fine roots; few very fine tubular pores; 30 percent very hard and firm silica and lime durinodes about 1/2 inch diameter and 1 1/2 inches long; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

Bk--35 to 60 inches; pale brown (10YR 6/3) stratified loam to gravelly sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky to slightly sticky and nonplastic; common very fine interstitial pores; few thin lime filaments; 20 percent pebbles; violently effervescent; very strongly alkaline (pH 9.2).

**Type location**: 400 feet west and 1,800 south of the northeast corner of section 12, T.5 N., R.54 E.; (38 degrees, 19 minutes, 06 seconds north latitude and 115 degrees, 54 minutes, 25 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to durinodes:* 6 to 15 inches.
*Effervescence:* Strongly effervescent to violently effervescent.
*Control section:*
Clay content--Averages 18 to 27 percent.
Rock fragments--Average 0 to 15 percent.

**A horizon:**
Hue--10YR, 2.5Y, or 5Y.
Value--6 through 8 dry, 4 or 5 moist.
Chroma--3 or 4.

**Bt horizons:**
Hue--10YR, 2.5Y, or 5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Loam or clay loam.
Clay content--20 to 30 percent.
Structure--Prismatic, platy, or subangular blocky.
Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.

**Bqk horizon:**
Hue--10YR, 2.5Y, or 5Y
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Clay loam, loam, sandy loam, or fine sandy loam.
Rock fragments--0 to 20 percent.
Cementation--20 to 60 percent weak to strong durinodes.

**Bk horizon:**
Hue--10YR, 2.5Y, or 5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Stratified gravelly sand to clay loam.
Clay content--Averages 10 to 20 percent.
Rock fragments--0 to 35 percent.
Consistence--Soft or slightly hard dry.
Other features--Relict faint or distinct mottles in some pedons.

## Packer series

The Packer series consists of deep and very deep, well drained soils that formed in residuum and colluvium weathered from chert, shale, quartzite, and extrusive volcanic rocks with component of loess and volcanic ash. Packer soils are on mountain crests and sideslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 15 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class**: Loamy-skeletal, mixed Argic Cryoborolls

**Typical pedon:** Packer very gravelly loam, in map unit 3540, rangeland. (Colors for dry soil unless otherwise noted.) The surface is partially covered with 55 percent pebbles.

A1--0 to 1 inch; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine interstitial pores; 50 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2--1 to 5 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, slightly sticky and nonplastic; common fine roots; many very fine and fine vesicular pores; 15 percent pebbles; neutral (pH 7.0); clear smooth boundary.

2Bt--5 to 13 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; few thin clay films on faces of peds and lining pores; 45 percent pebbles, 30 percent cobbles; neutral (pH 7.2); clear smooth boundary.

2C--13 to 60 inches; light yellowish brown (10YR 6/4) extremely cobbly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and nonplastic; common fine roots; few fine tubular pores; 25 percent pebbles, 35 percent cobbles; neutral (pH 7.2).

**Type location**: 1,000 feet east and 600 feet south of the northwest corner of section 26, T.2 N., R.49 E.; (37 degrees, 59 minutes, 56 seconds north latitude and 116 degrees, 28 minutes, 10 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring dry summer and fall.
*Soil temperature:* 42 to 45 degrees F.
*Summer soil temperature:* 57 to 59 degrees F.
*Mollic epipedon thickness:* 7 to 13 inches, includes upper part of Bt horizon in some pedons.
*Depth to base of Bt horizon:* 9 to 21 inches.
*Depth to bedrock:* 40 to more than 60 inches.
*Other features:* Thin BA and BC horizons are common in some pedons.
*Control section:*
Clay content--18 to 30 percent, when averaged.
Rock fragments--60 to 80 percent with 25 to 60 percent pebbles, 20 to 40 percent cobbles and up to 10 percent stones.

**A horizons:**
Chroma--2 or 3.

**Bt horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Texture--Extremely cobbly clay loam or extremely cobbly loam.
Structure--Weak or moderate, very fine to medium, angular or subangular blocky structure or massive.
Consistence--Slightly hard or hard dry, slightly sticky to very sticky and slightly plastic to very plastic wet.

**2C horizon:**
Value--5 or 6 dry, 4 or 5 moist.
Chroma--3 through 6.
Texture--Extremely cobbly loam or extremely cobbly sandy loam.
Rock fragments--25 to 50 percent pebbles, 20 to 35 percent cobbles, and up to 10 percent stones.
Consistence--Soft to very hard dry, very friable or friable moist, slightly sticky or sticky and nonplastic to plastic wet.

## Palinor series

The Palinor series consists of shallow over an indurated duripan, well drained soils formed in alluvium dominantly from limestone and other calcareous sources. Palinor soils are on fan remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 8 inches, the mean annual air temperature is about 47 degrees F.

**Taxonomic class**: Loamy-skeletal, carbonatic, mesic, shallow Xerollic Durorthids

**Typical pedon**: Palinor very gravelly loam, in map unit 3300, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 60 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine vesicular pores; 35 percent pebbles; thin and moderately thick lime coatings on undersides of pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw--3 to 8 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; common very fine tubular pores; thin lime coatings on upper sides of coarse fragments, moderately thick lime pendants on undersides; 25 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk--8 to 18 inches: very pale brown (10YR 7/3) extremely gravelly loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; common very fine tubular pores; weak discontinuous lime cementation; thin lime coatings on upper sides of pebbles, moderately thick lime pendants on undersides; 60 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bqkm--18 to 29 inches; indurated duripan, with a 2 to 5 mm thick laminar cap.

2Cqk1--29 to 47 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; few very fine

interstitial pores; strong discontinuous silica and lime cementation with pockets of weak cementation; 65 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Cqk2--47 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine interstitial pores; weak discontinuous silica and lime cementation; 45 percent pebbles, 5 percent cobbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location**: 200 feet west and 2,600 feet south of the northeast corner of section 30, T.10 N., R.62 E.; (38 degrees, 41 minutes, 52 seconds north latitude and 115 degrees, 02 minutes, 29 seconds west longitude.)

**Range in characteristics**:

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Depth to duripan:* 14 to 20 inches.
*Reaction:* Moderately alkaline or strongly alkaline.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--45 to 75 percent pebbles and 0 to 5 percent cobbles.
Calcium carbonate equivalent--40 to 60 percent.

**A horizon:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 or 3.

**Bw horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Rock fragment--15 to 25 percent pebbles
Consistence--Soft or slightly hard dry.

**Bk horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.

**Cqk horizons:**
Value--6 through 8 dry, 4 through 6 moist, may be variegated in coarse textured subhorizons.
Chroma--1 through 3.
Rock fragments--45 to 70 percent pebbles, 5 to 20 percent cobbles.
Consistence--Slightly hard or hard dry, very friable to firm moist, nonplastic or slightly plastic wet.
Other features--Discontinuous weakly to strongly silica and lime cemented subhorizons in most pedons.

## Parisa series

The Parisa series consists of moderately deep over an indurated duripan, well drained soils that formed in alluvium from mixed rock sources, dominantly limestone. Parisa soils are on fan remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees F.

**Taxonomic class**: Loamy-skeletal, carbonatic, mesic Xerollic Durorthids

**Typical pedon**: Parisa gravelly loam, in map unit 3400, rangeland. (Colors are for dry soil unless otherwise noted). The surface is partially covered with 40 percent pebbles.

A--0 to 4 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine interstitial pores; 25 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bk--4 to 16 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; common very fine tubular pores; common lime pendants on underside of pebbles; 35 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk1--16 to 23 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; weak discontinuous lime and silica cementation; 40 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bqk2--23 to 32 inches; very pale brown (10YR 7/3) very gravelly loam, light brown (7.5YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; weak discontinuous lime and silica cementation; 50 percent pebbles; violently effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

2Bqkm--32 to 50 inches; indurated duripan; strong thick platy structure; extremely hard; 2 to 5 mm continuous laminar cap; violently effervescent; abrupt smooth boundary.

2B'qk--50 to 60 inches; pale brown (10YR 6/3) extremely gravelly coarse sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine interstitial pores; weak discontinuous lime and silica cementation; 75 percent pebbles, 5 percent cobbles; slightly effervescent; strongly alkaline (pH 8.8).

**Type location:** 900 feet south and 2,000 feet west of the northeast corner of section 30, T.10 N., R.62 E.; (38 degrees, 02 minutes, 08 seconds north latitude and 115 degrees, 02 minutes, 50 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Reaction:* Moderately alkaline or strongly alkaline.
*Calcium carbonate equivalent:* 40 to 60 percent by weight of the up to 20 millimeters fraction.
*Other features:* Some pedons have thin strata of gravelly loam in the control section.
*Depth to lime and silica cementation:* 8 to 24 inches.
*Depth to indurated duripan:* 20 to 40 inches.
*Control section:*
Clay content--8 to 18 percent.
Rock fragments--35 to 60 percent, dominantly pebbles.

**A horizon:**
Value--5 or 6 dry.
Chroma--2 or 3.

**Bqk horizon:**
Hue--10YR or 7.5YR.
Value--6 or 7, 4 through 6 moist.
Chroma--2 through 4.
Texture--Very gravelly loam and very gravelly sandy loam.
Structure--Weak to moderate subangular blocky or massive.
Consistence--Very friable to brittle moist.
Silica cementation--20 to 60 percent discontinuous weak.

**2Bqkm horizon:**
Structure--Thick to very thick platy, or it is massive.

**2B'qk horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Consistence--Slightly hard to hard, very friable to friable moist.
Silica cementation--20 percent discontinuous weak to continuous weak cementation.
Other features--Some pedons have thin strata of non-cemented very gravelly sandy loam.

## Peeko series

The Peeko series consists of shallow, over an indurated duripan, well drained soils that formed in alluvium from mixed rock sources. Peeko soils are on fan remnants. Slopes are 2 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 48 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durorthids

**Typical pedon:** Peeko gravelly loam, in map unit 3940, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 60 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine interstitial pores; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
AB--4 to 8 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 25 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Bqk--8 to 13 inches; light yellowish brown (10YR 6/4) gravelly silt loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; lime and silica coatings on rock fragments; 20 percent strongly silica cemented durinodes; 25 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4), abrupt wavy boundary.
2Bqkm--13 to 60 inches; indurated duripan, with laminar silica cap.

**Type location:** 2,000 feet north and 100 feet west of the southeast corner section 19, T.15 N., R.54 E.; (39 degrees, 09 minutes, 18 seconds north latitude

and 115 degrees, 55 minutes, 32 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Depth to indurated duripan:* 10 to 20 inches.
*Control section:*
Clay content--18 to 27 percent.
Rock fragments--Average 15 to 35 percent, mainly pebbles of which approximately 80 to 90 percent are comprised of duripan fragments.

**A horizon:**
Value--6 or 7 dry, 3 or 4 moist.
Chroma--2 or 3.

**AB horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Structure--Subangular blocky or is massive.
Consistence--Slightly sticky or sticky and nonplastic or plastic wet.

**Bqk horizon:**
Value--6 through 8 dry, 4 through 6 moist.
Chroma--3 or 4.
Cementation--10 to 40 percent weak or strongly cemented durinodes.
Rock fragments--15 to 40 percent rock and duripan fragments of which fewer than one third are larger than 3 inches.
Consistence--Soft to slightly hard dry, very friable to friable moist, slightly sticky to sticky and nonplastic to plastic wet.

## Penelas series

The Penelas series consists of shallow and very shallow, well drained soils that formed in residuum and colluvium from soft sedimentary and metamorphic rock. Penelas soils are on mountain slopes and hills. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Xerollic Haplargids

**Typical pedon:** Penelas very channery loam, in map unit 3730, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 55 percent channers.

A--0 to 2 inches; pale brown (10YR 6/3) very channery loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine and fine vesicular pores; 40 percent channers; moderately alkaline (pH 8.2); clear smooth boundary.
Bt1--2 to 6 inches; light yellowish brown (10YR 6/4) extremely channery clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; few thin clay films lining pores; 60 percent channers; moderately alkaline (pH 8.3); clear smooth boundary.
Bt2--6 to 10 inches; light yellowish brown (10YR 6/4) extremely channery loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine tubular pores; common thin clay films lining pores and on faces of peds; 55 percent channers, 5 percent cobbles; moderately alkaline (pH 8.4); clear wavy boundary.
Cr--10 to 20 inches; fractured and weathered metamorphosed shale.

**Type location:** 1,500 feet west and 750 feet south of the northeast corner of section 19, T.4 N., R.50 E.; (38 degrees, 12 minutes, 10 seconds north latitude and 116 degrees, 22 minutes, 10 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and early spring months, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to soft rock:* 5 to 14 inches.
*Reaction:* Mildly alkaline to strongly alkaline.
*Carbonates:* Commonly noncalcareous, but slightly effervescent in the A horizon. Some pedons have some lime coating the shale rocks.
*Control section:*
Clay content--20 to 30 percent.
Rock fragments--60 to 75 percent, mainly channery or flaggy fragments.

**A horizon:**
Hue--10YR or 7.5YR.
Value--5 or 6 dry, 3 through 5 moist.
Chroma--2 through 4.

**Bt horizons:**
Hue--10YR or 7.5YR.
Value--4 through 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture of fine earth--Loam, clay loam or silty clay loam with less than 35 percent clay and less than 35 percent sand.
Structure--Moderate to strong very fine to medium angular or subangular blocky or massive.
Consistence--Very friable or friable moist, sticky or very sticky and plastic or very plastic wet.

**Cr horizon:**
Structure--Bedrock is generally platy but is massive in some pedons.

## Penoyer series

The Penoyer series consists of very deep, well drained soils that formed in alluvium from limestone, volcanic rocks and lacustrine sediments. Penoyer soils are on inset fans, fan skirts, and alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 54 degrees F.

**Taxonomic class:** Coarse-silty, mixed (calcareous), mesic Typic Torriorthents

**Typical pedon:** Penoyer silt loam, in map unit 3190, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; few fine vesicular and tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C1--4 to 15 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; few fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C2--15 to 27 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; few fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C3--27 to 45 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and medium roots; common fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C4--45 to 54 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C5--54 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine tubular pores; violently effervescent; moderately alkaline (pH 8.4).

**Type location:** 2,200 feet south and 2,000 feet west of the northeast corner of section 17, T.3 N., R.62 E.; (38 degrees, 07 minutes, 08 seconds north latitude and 115 degrees, 02 minutes, 12 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Effervescence:* Strongly effervescent or violently effervescent.
*Reaction:* Moderately alkaline to very strongly alkaline.
*Control section:*
Percent clay--10 to 18.

**Soil profile:**
Hue--7.5YR or 10YR.
Value--6 or 7 dry, 3 through 5 moist.
Chroma--2 through 4.
Texture--Averages silt loam, but strata of very fine sandy loam, loam, or silty clay loam are in some pedons.
Structure--Platy or massive.
Consistence--Soft to hard dry, very friable or friable moist.

## Pharo series

The Pharo series consists of deep somewhat excessively drained soils that formed in alluvium derived mainly from limestone, but also from other sedimentary and volcanic rocks. Pharo soils are on fan remnants. Slopes are 4 to 30 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees F.

**Taxonomic class**: Loamy-skeletal, carbonatic, mesic Aridic Calcixerolls

**Typical pedon**: Pharo gravelly loam, in map unit 3890, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 50 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin and moderately thick platy structure; soft, very friable, nonsticky and slightly plastic; few very fine, fine and medium roots; common very fine and fine vesicular pores; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--2 to 6 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; few fine tubular pores; 15 percent partly lime-coated pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A3--6 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; few fine tubular pores; rock fragments are lime-coated; 20 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1--9 to 12 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; few fine tubular pores; common films and fine soft masses of lime; 50 percent pebbles, 1/3 of which are pan fragments; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk2--12 to 20 inches; white (10YR 8/2) extremely gravelly loam, very pale brown (10YR 6/3) moist; massive; very hard, friable, slightly sticky and slightly plastic; few fine and medium roots in few soft pockets; very weakly lime cemented with few discontinuous strongly cemented areas; 45 percent pebbles, 15 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk3--20 to 32 inches; light gray (10YR 7/2) extremely gravelly loam, pale brown (10YR 6/3) moist; massive; very hard, friable, slightly sticky and slightly plastic; few fine and medium roots; very weakly lime cemented with lime-filled pores; 70 percent pebbles, few cobbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk4--32 to 39 inches; white (10YR 8/2) very gravelly loam, pale brown (10YR 6/3) moist; massive; very hard, friable, slightly sticky and slightly plastic; few fine and medium roots; very weakly lime cemented with lime-filled pores; few discontinuous strongly cemented laminae; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk5--39 to 60 inches; very pale brown (10YR 8/3) extremely gravelly loam, pale brown (10YR 6/3) moist; massive; very hard, friable, nonsticky and nonplastic; few fine and medium roots; very weakly lime cemented with lime-filled pores; 65 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

**Type location**: 1,580 feet south and 1,580 feet east of the northwest corner of section 1, T.8 N., R.58 E.; (38 degrees, 35 minutes, 11 seconds north latitude and 115 degrees, 24 minutes, 24 seconds west longitude.)

### Range in characteristics:

*Soil moisture:* Usually dry, but moist in the winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Reaction:* Mildly alkaline or moderately alkaline.
*Depth to hardpan:* 40 to 60 inches.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--Average 50 to 70 percent.

**A horizons:**
Chroma--2 or 3.

**Bk horizons:**
Hue--7.5YR or 10YR.
Value--6 through 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Very gravelly loam or extremely gravelly loam.
Structure--Massive or subangular blocky.

Consistence--Loose to very hard dry, very friable to friable moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.

## Portmount series

The Portmount series consists of very deep, well drained soils that formed in mixed alluvium. Portmount soils are on fan piedmonts. Slopes are 0 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Xerollic Haplargids

**Typical pedon:** Portmount gravelly sandy loam, in map unit 3112, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; few medium and coarse roots; common fine and very fine vesicular pores; 15 percent pebbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt--3 to 12 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common fine, medium and coarse roots; common fine interstitial and tubular pores; common moderately thick clay films on faces of peds and lining pores; 10 percent very fine and fine pebbles; moderately alkaline (pH 8.0); clear wavy boundary.

2Btk--12 to 34 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; common fine interstitial and tubular pores; few thin clay films on faces of peds; 40 percent lime-coated pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

2Bk--34 to 60 inches; white (10YR 8/2) gravelly sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common interstitial and tubular pores; common thin lime coatings on undersides of pebbles; 20 percent very fine and fine pebbles; violently effervescent; moderately alkaline (pH 8.4)

**Type location:** 2,000 feet north and 100 feet west of the southeast corner of section 13, T.10 N., R.53 E.; (38 degrees, 43 minutes, 39 second north latitude and 115 degrees, 56 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Depth to the Btk horizon:* 12 to 28 inches.
*Control section:*
Clay content--Averages less than 18 percent.
Rock fragments--Averages 15 to 35 percent.

**A horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--3 or 4.

**Bt and Btk horizons:**
Value--5 through 7 dry, 3 through 5 moist.
Chroma--2 through 4.
Texture of fine earth--Sandy loam or sandy clay loam.
Structure--Subangular blocky or massive.
Consistence--Soft or slightly hard dry; nonsticky or sticky and nonplastic to plastic, wet.

**2Bk horizon:**
Value--6 through 8 dry, 4 through 7 moist.
Chroma--2 through 4.
Texture--Sandy loam or loam.
Rock fragments--15 to 35 percent.
Consistence--Soft to slightly hard, dry; very friable to friable, moist; nonplastic to plastic and nonsticky to slightly sticky, wet.

## Puett series

The Puett series consists of shallow, well drained soils formed in residuum and colluvium of weathered tuff, tuffaceous sandstone, and siltstone. Puett soils are on rock pediments. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and mean annual temperature is about 50 degrees F.

**Taxonomic class:** Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

**Typical pedon:** Puett gravelly sandy loam, in map unit 3920, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent pebbles.

A--0 to 5 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; few fine

roots; common very fine and fine vesicular pores; 15 percent pebbles, violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C--5 to 11 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; 20 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Cr--11 inches; highly weathered tuff bedrock.

**Type location:** 450 feet south and 1,350 feet west of the northeast corner of section 23, T.10 N. R.49, E.; (38 degrees, 41 minutes, 28 seconds north latitude and 116 degrees, 25 minutes, 51 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry; moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Depth to bedrock:* 10 to 20 inches.
*Reaction:* Moderately alkaline or strongly alkaline.
*Effervescence:* Strongly effervescent or violently effervescent with lime coats on pebbles in lower part of some pedons.
*Control section:*
Clay content--5 to 10 percent.
Rock fragments--Up to 35 percent pebbles.

**A horizon:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.

**C horizon:**
Hue--10YR or 2.5Y.
Value--6 through 8 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Coarse sandy loam, sandy loam or loam.
Structure--Subangular blocky or massive.
Consistence--Nonsticky or slightly sticky and nonplastic or slightly plastic wet.

## Raster series

The Raster series consists of very deep, well drained soils that formed in mixed alluvium dominantly from andesite. Raster soils are on fan aprons. Slopes are 8 to 15 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 50 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Pachic Haploxerolls

**Typical pedon:** Raster very stony sandy loam, in map unit 3050, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent stones, 20 percent cobbles, and 20 percent pebbles.

A1--0 to 4 inches; dark grayish brown (10YR 4/2) very stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine and fine interstitial and few fine tubular pores; 15 percent pebbles, 10 percent cobbles, 10 percent stones; neutral (pH 7.0); clear smooth boundary.

A2--4 to 12 inches; dark grayish brown (10YR 4/2) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine and fine, common medium and few coarse pores; 20 percent pebbles, 25 percent cobbles, 5 percent stones; mildly alkaline (pH 7.4); clear wavy boundary.

A3--12 to 27 inches; dark grayish brown (10YR 4/2) extremely stony sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine tubular and many very fine and few fine interstitial pores; 25 percent pebbles, 15 percent cobbles, 25 percent stones; mildly alkaline (pH 7.4); clear wavy boundary.

C--27 to 60 inches; light yellowish brown (10YR 6/4) extremely stony sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and few fine interstitial pores; 10 percent pebbles, 35 percent cobbles, 25 percent stones; mildly alkaline (pH 7.6).

**Type location:** 1,120 feet east and 480 feet south of the northwest corner of section 16, T.9 N., R.51 E.; (38 degrees, 38 minutes, 53 seconds north latitude and 116 degrees, 14 minutes, 34 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and early spring, dry summer and fall, but moist intermittently due to convection storms; dry in all parts at least 45 consecutive days following the summer solstice.
*Soil temperature:* 48 to 53 degrees F.

*Mollic epipedon thickness:* 20 to 30 inches.
*Profile reaction:* Neutral or mildly alkaline.
*Control section:*
Clay content--6 to 14 percent.
Rock fragments--60 to 80 percent; 10 to 30 percent pebbles, 15 to 35 percent cobbles, and 15 to 25 percent stones.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**C horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Loamy sand or sand.
Rock fragments--60 to 80 percent, with 45 to 70 percent stones and cobbles.

## Ravenswood series

The Ravenswood series consists of moderately deep, well drained soils formed in colluvium and residuum derived from volcanic and metavolcanic rocks. Ravenswood soils are on mountain sideslopes. Slopes are 8 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class:** Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

**Typical pedon:** Ravenswood very cobbly loam, in map unit 3161, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent cobbles and 10 percent pebbles in a litter of pine needles.

A1--0 to 5 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak medium subangular blocky; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine vesicular pores; 10 percent pebbles, 30 percent cobbles; mildly alkaline (pH 7.6); abrupt smooth boundary.
A2--5 to 8 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine tubular pores; 15 percent pebbles, 35 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.
Bt1--8 to 13 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; many fine, medium and coarse roots; many very fine and fine tubular pores; many thick clay films lining pores and on faces of peds; 30 percent pebbles, 15 percent cobbles; neutral (pH 7.2); clear wavy boundary.
Bt2--13 to 25 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, sticky and plastic; common very fine, fine and medium coarse roots; many very fine, fine and medium tubular pores; many thick clay films lining pores and on faces of peds; 35 percent pebbles, and 15 percent cobbles; neutral (pH 7.2); clear wavy boundary.
Bt3--25 to 34 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; hard, firm, sticky and plastic; common medium and coarse roots; many very fine tubular pores; common thick clay films lining pores and on faces of peds; 40 percent pebbles, 15 percent cobbles; neutral (pH 7.2); clear wavy boundary.
R--34 inches; hard welded tuff.

**Type location:** 200 feet south and 700 feet east of the northwest corner of section 23, T.14 N., R.50 E.; (39 degrees, 04 minutes, 37 seconds north latitude and 116 degrees, 18 minutes, 46 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and spring, dry summer and fall.
*Soil temperature:* 43 to 47 degrees F., greater than 41 degrees F. from May through November.
*Mollic epipedon thickness:* 10 to 16 inches and includes the upper part of the argillic horizon.
*Depth to unweathered bedrock:* 30 to 40 inches.
*Reaction:* Neutral or mildly alkaline.
*Control section:*
Clay content--35 to 50 percent.
Rock fragments--35 to 60 percent, mainly pebbles and cobbles.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Hue--10YR or 7.5YR.
Value--5 dry in the upper part, 5 or 6 dry in the lower part, 3 moist in the upper part, 3 through 5 moist in the lower part.

Chroma--3 in the upper part, 3 through 6 in the lower part.
Texture--Very gravelly clay loam in the upper part, ranging to very gravelly clay in the lower part.
Structure--Angular blocky, subangular blocky, or prismatic.
Consistence--Friable to firm moist, sticky or very sticky and plastic or very plastic wet.

## Rebel series

The Rebel series consists of very deep, well drained soils that formed in mixed alluvium. Rebel soils are on inset fans, fan skirts, and stream terraces. Slopes are 0 to 8 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 48 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Xerollic Camborthids

**Typical pedon:** Rebel sandy loam, in map unit 3970, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; light brownish gray (10YR 6/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine vesicular pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.
Bw1--4 to 16 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.
Bw2--16 to 24 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 5 percent pebbles; strongly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.
Bk--24 to 60 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; common soft lime masses; 5 percent pebbles; violently effervescent; mildly alkaline (pH 7.8).

**Type location:** 2,000 feet south and 2,200 feet east of the northwest corner of section 4, T.12 N., R.50 E.; (38 degrees, 54 minutes, 24 seconds north latitude and 116 degrees, 23 minutes, 10 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Combined thickness of A and Bw horizons:* 15 to 24 inches.
*Depth to lime:* 15 to 24 inches.
*Other features:* Common or many mica flakes in a major part of the particle-size control section.
*Control section:*
Clay content--10 to 18 percent.
Sand content--50 to 80 percent.

**A horizon:**
Hue--10YR or 2.5Y.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 or 3.
Reaction--Neutral or mildly alkaline.
Other features--Slightly effervescent in some pedons due to recharge from calcareous dust.

**Bw horizons:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 3 through 5 moist.
Chroma--2 through 4.
Texture--Commonly fine sandy loam, but is sandy loam or loam in some pedons.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic to slightly plastic wet.
Reaction--Neutral or mildly alkaline.

**Bk horizon:**
Hue--10YR or 2.5Y.
Value--5 through 7 dry, 3 through 5 moist.
Chroma--3 through 5 dry, 2 through 4 moist.
Texture--Commonly fine sandy loam, but is sandy loam or loam in some pedons.
Rock fragments--Some pedons contain strata with up to 50 percent pebbles.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Effervescence--Slightly effervescent to violently effervescent.
Reaction--Mildly alkaline to strongly alkaline.
Other features--Subhorizons with coarse sandy loam are common in some pedons.

## Roden series

The Roden series consists of shallow or very shallow, well drained soils that formed in residuum and colluvium from calcareous shale, sandstone, siltstone, and claystone. Roden soils are on hills. Slopes are 8 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees F.

**Taxonomic class:** Clayey-skeletal, montmorillonitic (calcareous), mesic, shallow Xeric Torriorthents

**Typical pedon:** Roden very gravelly clay loam, in map unit 3380, rangeland. (Colors are for dry soil unless otherwise noted). The surface is partially covered with 5 percent cobbles and 45 percent pebbles.

A--0 to 3 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; few fine roots; many fine interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk1--3 to 7 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and medium roots; common fine tubular pores; many thin lime films on undersides of pebbles; 35 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk2--7 to 12 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist, moderate fine subangular blocky structure; slightly hard, firm, sticky and plastic; common very fine and medium roots; common fine tubular pores; many thin lime filaments on undersides of pebbles; 40 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Cr--12 to 20 inches; fractured soft shale; roots extend into fractures.

**Type location:** 300 feet east and 2,200 feet north of the southwest corner of section 36, T.15 N., R.54 E.; (39 degrees, 07 minutes, 34 seconds north latitude and 115 degrees, 51 minutes, 05 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Effervescence:* Slightly effervescent to violently effervescent.
*Depth to paralithic contact:* 8 to 14 inches.
*Control section:*
Clay content--Averages 35 to 50 percent.
Rock fragments--35 to 60 percent.

**A horizon:**
Hue--10YR through 5YR.
Value--4 through 6 dry, 3 through 5 moist.
Chroma--2 through 4.

**Bk horizons:**
Hue--10YR through 2.5YR.
Value--4 through 7 dry, 3 through 6 moist.
Chroma--2 through 6.
Texture--Very gravelly clay or very gravelly silty clay.
Structure--Subangular blocky or angular blocky.
Consistence--Slightly hard to very hard dry, sticky or very sticky and plastic or very plastic wet.
Other features--Some pedons have thin layers with less than 35 percent rock fragments.

## Rustigate series

The Rustigate series consists of very deep, somewhat poorly drained soils that formed in alluvium from mixed sources. Rustigate soils are on lake plains, alluvial flats, and axial stream terraces. Slopes are 0 to 2 percent. Mean annual precipitation is about 6 inches and the mean annual temperature is about 54 degrees F.

**Taxonomic class:** Fine-loamy, mixed (calcareous), mesic Aquic Torriorthents

**Typical pedon:** Rustigate loam, in map unit 3520, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2--2 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; slightly

effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

C1--4 to 14 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; common moderately thick platy structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; many very fine tubular pores; few fine salt filaments; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C2--14 to 18 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; common fine and medium faint relict mottles; massive; slightly hard, friable, sticky and plastic; common very fine through medium roots; many very fine tubular pores; 5 percent durinodes; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C3--18 to 25 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; common fine and medium faint relict mottles; massive; soft, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; many very fine tubular pores; 5 percent durinodes; 5 percent pebbles, strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C4--25 to 60 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; common medium distinct iron oxide mottles; massive; slightly hard, very friable, sticky and plastic; common very fine, fine and medium roots; many very fine and fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

**Type location:** 1,800 feet east and 50 feet north of the southwest corner of section 20, T.8 N., R.49 E.; (38 degrees, 31 minutes, 53 seconds north latitude and 116 degrees, 28 minutes, 56 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring, and for 10 to 20 days cumulative between July to October due to convection storms.

*Water table:* Fluctuates between 36 and 60 inches, in winter, spring, and early summer.

*Soil temperature:* 53 to 59 degrees F.

*Effervescence:* Slightly effervescent to violently effervescent.

*Control section:*

Clay content--Averages 18 to 27 percent.

**A horizons:**

Value--6 or 7 dry, 3 through 6 moist.

Chroma--2 through 4.

Reaction--Moderately alkaline to very strongly alkaline.

**C horizons:**

Value--6 through 8 dry, 3 through 5 moist.

Chroma--2 through 4.

Structure--Platy, subangular blocky or massive.

Texture--Averages loam or sandy loam.

Consistence--Soft to hard dry, very friable to firm moist, slightly sticky or sticky and nonplastic to plastic wet.

Reaction--Moderately alkaline or strongly alkaline.

## Segura series

The Segura series consists of shallow or very shallow, well drained soils that formed in residuum and colluvium from tuff, andesite, quartzite, and conglomerate. Segura soils are on mountain sideslopes. Slopes are 8 to 50 percent. Mean annual precipitation is about 14 inches and the mean annual temperature is about 45 degrees F.

**Taxonomic class:** Loamy, mixed, frigid Lithic Argixerolls

**Typical pedon:** Segura very stony sandy clay loam, in map unit 3161, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent stones, 25 percent cobbles, and 15 percent pebbles.

A--0 to 3 inches; grayish brown (10YR 5/2) very stony sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; 25 percent pebbles, 20 percent cobbles, 5 percent stones; neutral (pH 7.2); clear smooth boundary.

Bt1--3 to 6 inches; grayish brown (10YR 5/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; few thin clay films lining pores; 25 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt2--6 to 10 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; few moderately thick clay films lining pores; 25 percent pebbles; neutral (pH 7.2); abrupt wavy boundary.

R--10 inches; tuff.

**Type location:** 700 feet west and 2,400 feet south of the projected northeast corner of section 20, T.13 N., R.51 E.; (38 degrees, 56 minutes, 59 seconds north latitude and 116 degrees, 16 minutes, 45 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and early fall.
*Soil temperature:* 43 to 47 degrees F.
*Mollic epipedon:* 7 to 14 inches thick. Thin epipedons are mollic after mixing to 7 inches. Commonly includes part or all of Bt horizon.
*Depth to bedrock:* 7 to 14 inches.
*Reaction:* Neutral to moderately alkaline.
*Control section:*
Clay content--18 to 30 percent.
Rock fragments--Average 10 to 35 percent.

**A horizon:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.
Texture--Loam, sandy clay loam, or clay loam.
Structure--Angular blocky or subangular blocky.
Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.
Clay content--20 to 35 percent.
Rock fragments--10 to 35 percent.
Other features--Lower part ranges to value of 6 dry, chroma of 4.

## Slaw series

The Slaw series consists of very deep, well drained soils that formed in alluvium from mixed sources. Slaw soils are on alluvial flats, lake plains, and stream terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 54 degrees F.

**Taxonomic class:** Fine-silty, mixed (calcareous), mesic Typic Torrifluvents

**Typical pedon:** Slaw silty clay loam, in map unit 3040, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; strong very fine granular structure; soft, very friable, sticky and plastic; few very fine roots; many very fine and fine interstitial and common very fine vesicular pores; 1 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
A2--3 to 9 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure; hard, friable, sticky and plastic; common very fine, fine and medium roots; many very fine and few fine tubular and few very fine interstitial pores; 1 percent pebbles; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.
C1--9 to 14 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine, fine and medium roots; many very fine tabular and few very fine interstitial pores; 1 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.
C2--14 to 24 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; many very fine and few fine tubular pores; 1 percent pebbles, violently effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.
C3--24 to 33 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular and interstitial pores; 1 percent pebbles; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.
C4--33 to 44 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular and interstitial pores; 1 percent pebbles; violently effervescent; very strongly alkaline (pH 9.2); gradual smooth boundary.
2C5--44 to 54 inches; light yellowish brown (10YR 6/4) silty clay to very fine sandy loam, dark yellowish brown (10YR 4/4) moist; 10 percent pockets of dark yellowish brown (10YR 4/6) moist, fine sandy loam; moderate coarse subangular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; many very fine interstitial pores; 1 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

3C6--54 to 60 inches: light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, sticky and plastic; many very fine interstitial pores; 1 percent pebbles; violently effervescent; very strongly alkaline (pH 9.2).

**Type location:** 2,200 feet east and 300 feet north of the southwest of corner section 24 T.10 N. R.51 E.; (38 degrees, 42 minutes, 29 seconds north latitude and 116 degrees, 11 minutes, 04 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 57 degrees F.
*Effervescence:* Slightly effervescent to violently effervescent.
*Calcium carbonate equivalent:* 1 to 4 percent.
*Organic matter:* Decreases irregularly with depth.
*Control section:*
Clay content--25 to 35 percent.

**A horizons:**
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 through 4.

**C horizons:**
Hue--10YR or 2.5Y.
Value--6 through 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Averages silty clay loam or silt loam, ranges from very fine sandy loam to silty clay.
Reaction--Strongly alkaline or very strongly alkaline.
Consistence--Soft to hard dry, very friable or friable moist, slightly sticky to very sticky and slightly plastic to very plastic wet.

## Solak series

The Solak series consists of shallow, somewhat excessively drained soils that formed in residuum and colluvium from limestone. Solak soils are on mountain sideslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is 44 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed (calcareous), frigid Lithic Xeric Torriorthents

**Typical pedon:** Solak very gravelly loam, in map unit 3180, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 40 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 35 percent pebbles, 10 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Bk1--4 to 10 inches; light yellowish brown (10YR 6/4) very gravelly loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine and medium roots; many very fine tubular pores; common lime masses; 40 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Bk2--10 to 14 inches; very pale brown (10YR 7/3) extremely gravelly loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine, fine, medium and coarse roots; common very fine interstitial and tubular pores; many coarse pockets of weakly cemented lime; 50 percent pebbles, 15 percent cobbles; strongly effervescent; strongly alkaline (pH 8.6) abrupt irregular boundary.
R--14 inches; hard fractured limestone.

**Type location:** 2,300 feet west and 220 feet north of the southeast corner of section 9, T.14 N., R.50 E.; (39 degrees, 05 minutes, 32 seconds north latitude and 116 degrees, 20 minutes, 31 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall.
*Soil temperature:* 38 to 45 degrees F.
*Depth to bedrock:* 10 to 20 inches.
*Control section:*
Clay content--12 to 18 percent.
Rock fragments--35 to 60 percent.

**A horizon:**
Hue--5YR, 7.5YR, or 10YR.
Value--4 through 7 dry, 3 or 4 moist.
Chroma--2 through 4.

Reaction--Neutral to moderately alkaline.
Effervescence--Noneffervescent to strongly effervescent.

**Bk horizon:**
Hue--5YR, 7.5YR, or 10YR.
Value--4 through 8 dry, 3 through 7 moist.
Chroma--2 through 7 dry, 3 through 8 moist.
Structure--Massive or subangular blocky.
Consistence--Soft to hard dry, very friable or friable moist, nonsticky or slightly sticky wet.
Reaction--Mildly alkaline to strongly alkaline.
Effervescence--Slightly effervescent or strongly effervescent.

## Spager series

The Spager series consists of shallow over indurated hardpan somewhat excessively drained soils that formed in alluvium weathered mainly from limestone. Spager soils are on fan remnants. Slopes are 2 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 48 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, mesic, shallow Xerollic Paleorthids

**Typical pedon:** Spager gravelly loam, in map unit 3647, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 30 percent pebbles.

A--0 to 2 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine vesicular pores; 25 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bk1--2 to 8 inches; very pale brown (10YR 7/3) very gravelly loam, brown (10YR 5/3) moist; weak medium platy structure parting to weak medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium and coarse roots; common fine tubular pores; many soft lime masses and lime pendants on underside of rock fragments; 40 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bk2--8 to 12 inches; very pale brown (10YR 8/3) very gravelly loam, very pale brown (10YR 7/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; soft lime masses and lime pendants on underside of rock fragments; 45 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bkm--12 to 60 inches; lime indurated hardpan with laminar cap 2 mm thick.

**Type location:** 1,200 feet south and 600 feet west of the northeast corner of section 18, T.6 N., R.61 E.; (38 degrees, 22 minutes, 55 seconds north latitude and 115 degrees, 09 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry summer and fall.
*Soil temperature:* 48 to 51 degrees F.
*Calcium carbonate equivalent:* 40 to 60 percent.
*Effervescence:* Strongly effervescent or violently effervescent.
*Depth to hardpan:* 10 to 20 inches.
*Control section:*
Clay content--15 to 20 percent.
Rock fragments--Average 35 to 60 percent.

**A horizon:**
Hue--10YR or 7.5YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 or 3.
Reaction--Mildly alkaline to strongly alkaline.

**Bk horizons:**
Hue--10YR or 7.5YR.
Value--6 through 8 dry, 4 through 7 moist.
Chroma--2 through 6.
Texture of fine earth--Loam or fine sandy loam.
Rock fragments--Average 35 to 60 percent.
Structure--Platy, subangular blocky, or massive.
Consistence--Soft to hard dry, very friable or friable moist, slightly plastic or plastic wet.
Reaction--Strongly alkaline or very strongly alkaline.

## Springwarm series

The Springwarm series consists of moderately deep, poorly drained soils that formed in mixed alluvium with spring deposited travertine. Springwarm soils are on alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed (calcareous), mesic Aeric Halaquepts

**Typical pedon:** Springwarm sandy loam, in map unit 3260, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent pebbles.

Anz--0 to 1 inch; light gray (10YR 7/2) sandy loam, pale brown (10YR 6/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine vesicular and common very fine interstitial pores; 10 percent travertine pebbles; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Cnz--1 to 10 inches; very pale brown (10YR 7/3) gravelly clay loam, light yellowish brown (10YR 6/4) moist; weak medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; 15 percent travertine pebbles; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Cn1--10 to 15 inches; white (10YR 8/1) very cobbly loam, very pale brown (10YR 7/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular and common very fine interstitial pores; 20 percent travertine pebbles, 25 percent travertine cobbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Cn2--15 to 22 inches; white (10YR 8/1) extremely gravelly loam, light gray (10YR 7/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine interstitial pores; 60 percent travertine pebbles, 20 percent travertine cobbles; violently effervescent; strongly alkaline (pH 8.6); clear irregular boundary.

R--22 inches; white (10YR 8/1) cemented travertine with common pockets of very gravelly sand, pale olive (5Y 6/3) moist.

**Type location:** 1,400 feet east and 2,000 feet south of the northwest corner of section 12, T.6 N., R.54 E.; (38 degrees, 24 minutes, 19 seconds north latitude and 115 degrees, 51 minutes, 09 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring and for 10 to 20 days cumulative between July and October following convection storms.
*Soil temperature:* 54 to 59 degrees F.
*SAR:* 13 to 50, decreases with depth.
*Depth to travertine bedrock:* 20 to 40 inches.
*Water table:* 18 to 40 inches in winter and spring.
*Control section:*
Clay content--18 to 35 percent.
Rock fragments--45 to 80 percent travertine pebbles and cobbles.

**A horizon:**
Value--6 or 7.
Chroma--2 through 4.
Salinity--Greater than 16 mmhos/cm.

**Cnz horizon:**
Value--6 through 8.
Chroma--2 through 4.
Texture of fine earth--Loam, silt loam, or clay loam.
Clay content--27 to 40 percent.
Rock fragments--15 to 25 percent travertine pebbles and cobbles.
Salinity--8 to 16 mmhos/cm.

**Cn horizons:**
Value--6 through 8.
Chroma--1 through 3.
Texture of fine earth--Loam, silt loam, or clay loam.
Clay content--18 to 35 percent.
Rock fragments--45 to 80 percent travertine pebbles and cobbles.
Structure--Granular or massive.
Salinity--2 to 4 mmhos/cm

## Squawtip series

The Squawtip series consists of moderately deep, well drained soils that formed in residuum and colluvium from volcanic rocks. Squawtip soils are on sideslopes of mountains. Slopes are 30 to 75 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, frigid Typic Argixerolls

**Typical pedon:** Squawtip very stony loam, in map unit 3420, woodland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent stones, 10 percent cobbles, and 15 percent pebbles.

Oi--2 to 0 inches; partly decomposed litter mixed with 10 percent stones, 10 percent cobbles, and 15 percent pebbles.

A1--0 to 2 inches; brown (10YR 4/3) very stony loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 15 percent

pebbles, 10 percent cobbles, 10 percent stones; neutral (pH 7.2); abrupt smooth boundary.

A2--2 to 6 inches; grayish brown (10YR 5/2) very stony loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial and tubular pores; 10 percent pebbles, 10 percent cobbles, 15 percent stones; neutral (pH 7.3); abrupt smooth boundary.

Bt1--6 to 12 inches; grayish brown (10YR 5/2) very stony loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine and medium coarse roots; many very fine and fine tubular pores; common thin clay films lining pores and few thin clay films on faces of peds; 25 percent pebbles, 5 percent cobbles, 10 percent stones; mildly alkaline (pH 7.6); abrupt smooth boundary.

Bt2--12 to 21 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine and medium coarse roots; many very fine and fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 35 percent pebbles, 5 percent cobbles, 10 percent stones; mildly alkaline (pH 7.6); abrupt wavy boundary.

Cr--21 inches; weathered tuffaceous rock.

**Type location:** 600 feet west and 1,500 feet north of the southeast corner of section 27, T.6 N., R.49 E.; (38 degrees, 19 minutes, 28 seconds north latitude and 116 degrees, 28 minutes, 36 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and early spring, dry summer and fall, but moist intermittently during summer and fall due to convection storms; dry in all parts at least 45 consecutive days following the summer solstice.

*Soil temperature:* 43 to 47 degrees F.

*Depth to soft rock (paralithic contact):* 20 to 40 inches.

*Depth to hard rock:* Greater than 40 inches.

*Mollic epipedon thickness:* 10 to 18 inches.

*Control section:*

Percent clay--18 to 25 percent.

Rock fragments--35 to 60 percent.

**A horizons:**

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Reaction--Slightly acid or neutral.

**Bt horizons:**

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture of fine earth--Loam, sandy loam, or sandy clay loam.

Reaction--Neutral or mildly alkaline.

Consistence--Soft to hard dry, very friable or friable moist.

## Stargo series

The Stargo series consists of very deep, somewhat excessively drained soils that formed in alluvium from mixed rocks. Stargo soils are on stream terraces and alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Durorthidic Torrifluvents

**Typical pedon:** Stargo gravelly loamy sand, in map unit 3241, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; pale brown (10YR 6/3) gravelly loamy sand, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine vesicular pores; 15 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C1--5 to 15 inches; very pale brown (10YR 7/3) sandy clay loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few fine tubular pores; 5 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Cqk--15 to 27 inches; light gray (10YR 7/2) loamy sand, grayish brown (10YR 5/2) moist; massive; hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 45 percent silica cemented durinodes; common soft lime masses; 10 percent pebbles; strongly effervescent; strongly alkaline (pH 9.0) clear smooth boundary.

2C'2--27 to 45 inches; light gray (10YR 7/2) loamy sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many very fine and fine interstitial pores; 10

percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

2C'3--45 to 60 inches; light gray (10YR 7/2) very gravelly loamy sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine interstitial pores; 40 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.2).

**Type location:** 2,450 feet east and 30 feet north of the southwest corner of section 3, T.1 N., R.63 E.; (37 degrees, 58 minutes, 10 seconds north latitude and 116 degrees, 00 minutes, 01 second west longitude.)

**Range in characteristics:**

*Soil moisture*: Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to strongly contrasting:* 11 to 17 inches.
*Reaction:* Mildly alkaline to strongly alkaline.
*Effervescence:* Noneffervescent to strongly effervescent.
*Organic matter:* Decreases irregularly with depth.
*Value:* 6 or 7 dry, 3 through 5 moist.
*Chroma:* 2 through 4.
*Control section:*
Clay content--27 to 35 percent in the upper part; averages 2 to 8 percent in the lower part.
Rock fragments--Average less than 15 percent, but thin strata with 15 to 55 percent pebbles are present in some pedons.

**C horizon:**
Structure--Platy.
Texture--Clay loam or sandy clay loam.
Consistence--Very friable or friable.
Effervescence--Slightly effervescent or strongly effervescent.

**2Cqk horizon:**
Consistence--Slightly hard to hard, very friable to friable.
Structure--Platy or massive.
Texture--Stratified, averages loamy sand or sand, includes strata of sand, loamy sandy, loamy fine sand, sandy loam, coarse sandy loam, fine sandy loam.
Effervescence--Slightly effervescent or strongly effervescent.
Cementation--Cemented plates, discontinuous weak cementation or 20 to 45 percent durinodes.

**Lower 2C horizons:**
Structure--Single grain or massive.
Consistence--Loose or soft dry, loose or very friable moist.
Texture--Stratified, averages loamy sand or sand, includes strata of sand, loamy sandy, loamy fine sand, sandy loam, coarse sandy loam, fine sandy loam.

## Stewval series

The Stewval series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium from rhyolite and related rock. Stewval soils are on hills, mountain slopes, mesas, and plateaus. Slopes are 8 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 51 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

**Typical pedon:** Stewval very gravelly fine sandy loam, in map unit 3226, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 45 percent pebbles.

A--0 to 1 inch; light brownish gray (10YR 6/2) very gravelly fine sandy loam, brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 40 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bt1--1 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial and tubular pores; few thin clay films on faces of peds, common thin clay films lining pores; 35 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bt2--3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine and medium roots; many very fine tubular pores; common thin clay films on faces of peds and lining pores; 45 percent pebbles, 10 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R--7 inches; hard tuffaceous rock, weathered in upper 2 inches.

**Type location:** 1,500 feet west and 2,000 feet south of the northwest corner of section 25, T.4 N., R.49 E.; (38 degrees, 10 minutes, 40 seconds north latitude and 116 degrees, 23 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to bedrock:* 4 to 14 inches.
*Reaction:* Mildly alkaline or moderately alkaline.
*Effervescence:* Slightly effervescent to violently effervescent.
*Control section:*
Clay content--18 to 27 percent.
Rock fragments--35 to 55 percent pebbles, 0 to 10 percent cobbles, 0 to 15 percent stones.

**A horizon:**
Hue--10YR or 7.5YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 or 3.

**Bt horizons:**
Hue--10YR, 7.5YR, or 5YR.
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 through 4.
Texture (less than 2mm)--Loam or clay loam.
Structure--Subangular blocky or granular.
Consistence--Soft or slightly hard dry.
Other features--Silica and lime pendants are present on rock fragments in some pedons.

## Stumble series

The Stumble series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Stumble soils mantle fan piedmonts. Slopes are 2 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Mixed, mesic Typic Torripsamments

**Typical pedon:** Stumble loamy sand, in map unit 3000 rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bw--3 to 13 inches; light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine interstitial pores; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

C1--13 to 27 inches; very pale brown (10YR 7/3) gravelly loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 20 percent pebbles, 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C2--27 to 60 inches; pale brown (10YR 6/3) gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine interstitial pores; 15 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2).

**Type location:** 1,000 feet west and 1,300 feet south of the northeast corner of section 12, T.4 N., R.53 E.; (38 degrees, 13 minutes, 53 seconds north latitude and 115 degrees, 57 minutes, 20 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring, and for 10 to 20 day cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Profile color:* Value--5.5 through 7 dry, 3.5 through 5 moist.
*Chroma:* 2 through 4.
*Structure:* Single grain, subangular blocky, or massive.
*Substratum:* Finer textured layers are at depths below 40 inches in some pedons.
*Control section:*
Rock fragments--Up to 35 percent, dominantly pebbles.

**A horizon:**
Reaction--Neutral to moderately alkaline.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.

**Bw horizon:**
Chroma--2 through 4.
Consistence--Soft or slightly hard.

**C1 horizon:**
Hue--10YR or 2.5Y.
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Texture--Loamy sand or loamy fine sand with strata of fine sand and sand.
Consistence--Loose to slightly hard dry, loose or very friable moist.
Effervescence--Slightly effervescent to violently effervescent.

**C2 horizon:**
Chroma--2 or 3.
Texture--Loamy sand or loamy fine sand with strata of fine sand and sand.
Consistence--Loose to slightly hard dry, loose or very friable moist.
Effervescence--Slightly effervescent to violently effervescent.
Reaction--Moderately alkaline or strongly alkaline.

## Suak series

The Suak series consists of moderately deep, well drained soils that formed in residuum and colluvium from quartzite, conglomerate sandstone, and mixed volcanic rocks. Suak soils are on mountain sideslopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, frigid Typic Argixerolls

**Typical pedon:** Suak very stony loam, in map unit 3442, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent stones, 20 percent cobbles, and 30 percent pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) very stony loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial and common very fine tubular pores; 30 percent pebbles, 15 percent cobbles, 3 percent stones; neutral (pH 6.8); clear smooth boundary.
A2--2 to 6 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 25 percent pebbles, 15 percent cobbles; neutral (pH 6.8); clear smooth boundary.
Bt1--6 to 13 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and medium roots; many very fine tubular and common very fine and fine interstitial pores; common thin clay films on faces of peds and lining pores; 15 percent pebbles, 50 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary.
Bt2--13 to 25 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist, moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and medium roots; many very fine tubular pores; common thin clay films on faces of peds and lining pores; 10 percent pebbles, 60 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary.
R--25 inches; hard, andesitic rock

**Type location:** 2,400 feet east and 2,100 feet north of the southwest corner of section 28, T.15 N., R.51 E.; (39 degrees, 08 minutes, 28 seconds north latitude and 116 degrees, 13 minutes, 59 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist in winter and early spring, dry in summer and fall.
*Soil temperature:* 42 to 47 degrees F.
*Mollic epipedon thickness:* 8 to 17 inches, includes the upper part of the Bt horizon.
*Depth to bedrock:* 20 to 40 inches.

**A horizons:**
Value--4 or 5 dry, 2 or 3 moist.
Chroma--2 or 3.

**Bt horizons:**
Value--4 through 6 dry, 3 or 4 moist.
Chroma--3 or 4.
Texture--Extremely cobbly loam or extremely gravelly loam.
Clay content--20 to 27 percent.
Rock fragments--60 to 85 percent.
Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic wet.
Other features--Some pedons have thin soft lime coatings on undersides of rock fragments.

## Sycomat series

The Sycomat series consists of very deep, well drained soils that formed in mixed alluvium. Sycomat soils are on stream terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 47 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Duric Calciorthids

**Typical pedon:** Sycomat sandy loam, in map unit 3211, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 5 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk--4 to 10 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine tubular pores; common fine lime filaments; 5 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk1--10 to 17 inches; white (10YR 8/2) loam, brown (10YR 5/3) moist; 20 percent of ped surfaces are light brown (7.5YR 6/4), brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, and brittle, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; weak continuous brittle matrix; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bqk2--17 to 26 inches; white (10YR 8/2) loam, brown (10YR 5/3) moist, 20 percent of ped surfaces are light brown (7.5YR 6/4), brown (7.5YR 4/4) moist; strong medium subangular blocky structure; hard, firm, and brittle, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; weak continuous brittle matrix; 40 percent durinodes; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bqk3--26 to 40 inches; white (10YR 8/2) loam, brown (10YR 5/3) moist; massive; hard, firm, and brittle, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; weak continuous brittle matrix; violently effervescent; very strongly alkaline (pH 9.6); abrupt wavy boundary.

2C--40 to 60 inches; light brownish gray (10YR 6/2) very gravelly sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 40 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

**Type location:** 1,000 feet east and 600 feet south of the northwest corner of section 26, T.9 N., R.61 E.; (38 degrees, 36 minutes, 57 seconds north latitude and 115 degrees, 05 minutes, 36 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, dry during summer and fall except for brief periods following summer convection storms, moist in winter and spring.
*Soil temperature:* 47 to 53 degrees F.
*Depth to calcic horizon:* 2 to 6 inches.
*Effervescence:* Strongly effervescent through violently effervescent.
*Depth to continuous weak brittle matrix:* 10 to 23 inches.
*Control section:*
Clay content--5 to 18 percent.
Rock fragments--0 to 35 percent.
Calcium carbonate equivalent of the less than 20 millimeter fraction--15 to 30 percent.

**A horizon:**
Value--5 or 6 dry, 4 or 5 moist.
Chroma--2 or 3.

**Bk horizon:**
Value--6 or 7 dry, 4 through 6 moist.
Chroma--3 or 4.
Texture of fine earth--Sandy loam, loam, or silt loam.
Clay content--5 to 18 percent.
Rock fragments--0 to 35 percent.
Structure--Weak to moderate subangular blocky or massive.
Consistence--Very friable or friable, moist; nonsticky or slightly sticky wet.
Reaction--Moderately alkaline to very strongly alkaline.
Other features--Lime cemented soil masses may be absent in some pedons.

**Bqk horizons:**
Hue--10YR or 7.5YR.
Value--6 through 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Sandy loam or loam.
Clay content--5 to 18 percent.

Rock fragments--0 to 35 percent.
Structure--Medium or coarse subangular blocky or platy or is massive.
Consistence--Slightly hard or hard dry; slightly brittle or brittle moist; nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Reaction--Moderately alkaline through very strongly alkaline.
Other features--Continuous weak brittle matrix with 20 to 80 percent weakly to strongly cemented plates and durinodes. Some subhorizons are continuously silica and lime cemented.

**2C horizon:**
Hue--10YR or 7.5YR.
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Loamy sand or sand.
Clay content--2 to 5 percent.
Rock fragments--Average 35 to 60 percent, mainly pebbles.
Structure--Massive or single grain.
Consistence--Loose to slightly hard dry, loose to friable moist.
Other features--Some pedons have thin strata of nongravelly sand or sandy loam.

## Titiack series

The Titiack series consists of very deep, well drained soils that formed in cinder deposits. Titiack soils are on cinder cones and associated cinder deposits. Slopes are 8 to 50 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 52 degrees F.

**Taxonomic class:** Cindery, mesic Vitrandic Torriorthents

**Typical pedon:** Titiack very gravelly sandy loam, in map unit 3660, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 15 percent cinder cobbles and 55 percent cinder pebbles.

A1--0 to 2 inches; grayish brown (10YR 5/2) very gravelly sandy loam, dark brown (7.5YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine and common medium interstitial pores; 40 percent cinder pebbles, 5 percent cinder cobbles; moderately alkaline (pH 8.4); clear smooth boundary.
A2--2 to 10 inches; brown (10YR 5/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine and fine and few medium tubular pores; 45 percent cinder pebbles, 1 percent cinder cobbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
Bqk--10 to 15 inches; very pale brown (10YR 7/3) very cobbly sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, nonsticky and nonplastic; few very fine, fine and medium roots; few fine tubular, many very fine and fine, and common medium and few coarse interstitial pores; 20 percent cinder cobbles; continuous weak lime and silica cementation; 20 percent durinodes; lime and silica coatings on cinder rock fragments; 35 percent cinder pebbles, violently effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary.
2C--15 to 60 inches; weak red (2.5YR 5/2) cinders; hard, firm.

**Type location:** 2,100 feet east and 1,800 feet north of the southwest corner of section 16, T.7 N., R.53 E.; (38 degrees, 27 minutes, 53 seconds north latitude and 116 degrees, 01 minute, 08 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods in winter and spring, dry in summer and fall except for 10 to 20 days between July and October due to convection storms.
*Soil temperature:* 53 to 57 degrees F.
*Depth to cinders:* 15 to 20 inches.
*Control section:*
Clay content--3 to 8 percent.
Rock fragments--60 to 85 percent.

**A horizons:**
Hue--10YR or 7.5YR.
Value--5 through 7 dry, 3 through 5 moist.
Chroma--2 through 4.
Reaction--Moderately alkaline or strongly alkaline.

**Bqk horizon:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Rock fragments--Average 45 to 80 percent.
Durinodes--0 to 20 percent or continuous weak cementation. Some pedons do not have durinodes or cementation.

**2C horizon:**
Hue--2.5YR or 10YR.
Value--5 through 7 dry.

Chroma--2 through 4.
Rock fragments--90 to 100 percent cinders; 0 to 25 percent cobbles.
Durinodes--0 to 15 percent.

## Tokoper series

The Tokoper series consists of very shallow and shallow over an indurated duripan, well drained soils that formed in residuum and colluvium from tuff, rhyolite, and basalt. Tokoper soils are on summits and shoulders of mesas, plateaus, and hills. Slopes are 2 to 15 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 56 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Typic Durargids

**Typical pedon:** Tokoper very cobbly sandy loam, in map unit 3610, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 30 percent cobbles and 25 percent pebbles.

A--0 to 2 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak moderately thick and thick platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine interstitial pores; 20 percent pebbles and 15 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
Bt1--2 to 5 inches; brown (10YR 5/3) very gravelly sandy clay loam, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate, fine and medium subangular blocky; slightly hard, very friable, sticky and plastic; common fine and very fine roots; many fine and medium vesicular pores; common moderately thick clay film on faces of peds and lining pores; 35 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
Bt2--5 to 9 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine common medium roots; many and medium tubular pores; common moderately thick clay film on faces of peds and lining pores; 40 percent pebbles, 10 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
Bqkm--9 to 15 inches; indurated duripan
R--15 inches; hard bedrock.

**Type location:** 100 feet south and 2,600 feet east of northwest corner section 20, T.2 N., R.51 E.; (38 degrees, 00 minutes, 54 seconds north latitude and 116 degrees, 17 minutes, 52 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during the winter and early spring months and for short intermittent periods following summer convection storms.
*Soil temperature:* 53 to 57 degrees F.
*Depth to duripan:* 8 to 14 inches.
*Depth to bedrock:* 8 to 15 inches.
*Effervescence:* Slightly effervescent to violently effervescent.
*Control section:*
Clay content--Averages 18 to 27 percent.
Rock fragments--Average 40 to 60 percent.

**A horizon:**
Hue--7.5YR or 10YR.
Value--6 or 7 dry, 4 through 6 moist.
Chroma--2 or 3, dry or moist.

**Bt horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 through 4, dry or moist.
Texture of fine earth--Sandy clay loam or clay loam in upper part; loam or sandy loam in lower part.
Rock fragments--35 to 55 percent in upper part 50 to 75 percent in lower part.
Consistence--Soft or slightly hard dry, slightly sticky or sticky and slightly plastic or plastic wet.
Reaction--Moderately alkaline or strongly alkaline.

## Ubehebe series

The Ubehebe series consists of shallow, well drained soils that formed in residuum and colluvium from siltstone and related sedimentary and metamorphic rock. Ubehebe soils are on hill and mountain slopes. Slopes are 30 to 50 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Aridic Argixerolls

**Typical pedon:** Ubehebe very gravelly sandy loam, in map unit 3560, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 40 percent pebbles.

A1--0 to 1 inch; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine vesicular pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

A2--1 to 4 inches; brown (10YR 4/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine tubular pores; 35 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1--4 to 8 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common moderately thick clay films on faces of peds, lining pores and coating sand grains; 40 percent pebbles, 10 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bt2--8 to 15 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine tubular pores; common moderately thick clay films on faces of peds, lining pores, and coating sand grains; 40 percent pebbles, 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cr--15 inches; weathered, altered sedimentary rock.

**Type location:** 600 feet south and 800 feet east of the northwest corner of section 24, T.6 N., R.49 1/2 E.; (38 degrees, 22 minutes, 14 seconds north latitude and 116 degrees, 24 minutes, 43 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall except for 10 to 20 days during July to October due to convection storms.

*Soil temperature:* 47 to 57 degrees F.

*Mollic epipedon thickness:* 7 to 12 inches (includes the upper part of the Bt1 horizon).

*Depth to paralithic contact:* 14 to 20 inches.

*Depth to hard bedrock:* 20 to 40 inches.

*Control section:*

Clay content--18 to 27 percent.

Rock fragments--35 to 55 percent, mainly 1/2 to 3 inches across.

**A horizons:**

Value--4 or 5 dry.

Chroma--2 or 3.

**Bt1 horizon:**

Value--4 or 5 dry.

Chroma--2 or 3.

Consistence--Soft or slightly hard dry, very friable or friable moist, slightly sticky or sticky and nonplastic or slightly plastic wet.

Effervescence--Slightly effervescent or strongly effervescent.

**Bt2 horizon:**

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Consistence--Slightly sticky or sticky and nonplastic or slightly plastic wet.

Effervescence--Strongly effervescent or violently effervescent.

## Univega series

The Univega series consists of very shallow and shallow over an indurated duripan, well drained soils that formed in mixed alluvium from quartzite and volcanic sources. Univega soils are on fan piedmonts. Slopes are 0 to 8 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Typic Durorthids

**Typical pedon:** Univega gravelly fine sand, in map unit 3810, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 30 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) gravelly fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many fine interstitial pores; 25 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.4) clear smooth boundary.

A2--2 to 5 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak moderately thick and thick platy structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bw--5 to 8 inches; light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine, fine and medium roots; 5 percent

pebbles, 5 percent cobbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bqkm1--8 to 10 inches; pale brown (10YR 6/3) fractured duripan, brown (10YR 4/3) moist; massive; soft to brittle, brittle nonsticky and nonplastic; common very fine, fine and medium roots; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2Bqkm2--10 to 31 inches; white (10YR 8/1) indurated duripan; massive; brittle; violently effervescent; abrupt wavy boundary.

3Bqk--31 to 60 inches; white (10YR 8/1) gravelly sand; massive; very hard, firm, nonsticky and nonplastic; 25 percent pebbles; continuous weak silica and lime cementation; violently effervescent; strongly alkaline (pH 8.9).

**Type location:** 1,500 feet west and 1,300 feet north of the northwest corner of section 3, T.6 N., R.52 E.; (38 degrees, 24 minutes, 43 seconds north latitude and 116 degrees, 06 minutes, 50 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods in winter and early spring and for 10 to 20 days cumulative between July and September following convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to duripan:* 8 to 20 inches.
*Reaction:* Moderately alkaline or strongly alkaline.

**A horizons:**
Value--6 or 7 dry, 3 or 4 moist.
Chroma--2 or 3 dry and moist.

**Bw horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4, dry and moist.
Clay content--8 to 18 percent.
Rock fragments--0 to 15 percent, mainly pebbles.
Texture--Fine sandy loam or sandy loam.
Structure--Platy or subangular blocky.
Consistence--Nonsticky or slightly sticky wet.

**Bqkm horizons:**
Silica cementation--Interbedded strong and weak cementation with thin continuous indurated laminae.

**Bqk horizon:**
Value--7 or 8 dry, 6 or 7 moist.
Chroma--1 or 2 dry, 3 or 4 moist.
Texture--Coarse sand or sand.
Rock fragments--15 to 35 percent, mainly pebbles.

## Unsel series

The Unsel series consists of very deep, well drained soils that formed in mixed alluvium. Unsel soils are on fan remnants. Slopes are 0 to 8 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is 53 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Duric Haplargids

**Typical pedon:** Unsel gravelly sandy loam, in map unit 3130, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A1--0 to 2 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; many fine and medium vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--2 to 4 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine and medium vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt--4 to 11 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine, common fine and medium roots; common fine and medium tubular pores; common thin and moderately thick clay films on faces of peds and lining pores; 25 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bqk1--11 to 16 inches; light brownish gray (10YR 6/2) gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common fine roots; few fine and medium tubular pores; 30 percent discontinuous strong silica cemented strata with discontinuous laminae; lime and silica coatings on undersides of pebbles; 30 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk2--16 to 34 inches; light gray (10YR 7/2) gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; hard, firm, nonsticky and nonplastic;

common fine, few medium and roots; 30 percent discontinuous strong silica cemented strata with discontinuous laminae; lime and silica coatings on undersides of pebbles; 30 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2C--34 to 60 inches; pale brown (10YR 6/3) extremely gravelly sand, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few medium roots; 60 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6).

**Type location:** 500 feet east and 1,600 feet north of the southwest corner of section 10, T.3 N., R.49 E.; (38 degrees, 07 minutes, 14 seconds north latitude and 116 degrees, 29 minutes, 15 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to Bqk horizon:* 10 to 22 inches.
*Effervescence:* Noneffervescent to violently effervescent.
*Depth to 2C horizon:* 20 to 36 inches.
*Control section:*
Clay content--27 to 35 percent.
Rock fragments--15 to 30 percent.

**A horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 through 4 dry or moist.
Reaction--Moderately alkaline or strongly alkaline.

**Bt horizon:**
Value--5 through 7 dry, 3 through 6 moist.
Chroma--2 through 4.
Texture--Clay loam or sandy clay loam.
Clay content--27 to 35 percent.
Rock fragments--15 to 30 percent.
Structure--Weak or moderate, fine or medium subangular blocky, and weak medium or coarse prismatic or massive.
Consistence--Very friable or friable moist.
Reaction--Mildly alkaline to strongly alkaline.

**Bqk horizons:**
Value--6 through 8 dry, 4 through 6 moist.
Chroma--2 through 4.
Texture--Sandy loam, loam, or sandy clay loam.
Consistence--Soft or hard dry, very friable or firm moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.

**2C horizon:**
Value--6 through 8 dry, 3 through 5 moist.
Chroma--2 through 4.
Rock fragments--50 to 70 percent.
Consistence--Soft or slightly hard, very friable or friable moist.
Other features--20 to 65 percent discontinuous strongly silica and lime cementation.

## Ursine series

The Ursine series consists of shallow over an indurated duripan, well drained soils that formed in mixed alluvium Ursine soils are on fan remnants. Slopes are 2 to 18 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, carbonatic, mesic, shallow Xerollic Durorthids

**Typical class:** Ursine very gravelly loam, in map unit 3311, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 45 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine vesicular pores; 40 percent pebbles; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk1--3 to 7 inches; pale brown (10YR 6/3) very gravelly loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, medium and coarse roots; common fine tubular pores; common thin lime coats on undersides of rock fragments; 30 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2--7 to 19 inches; very pale brown (10YR 7/3) very gravelly loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine, medium and

coarse roots; few fine tubular pores; thin lime coats on rock fragments; 35 percent pebbles; 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bqkm--19 to 23 inches: white (10YR 8/2) indurated duripan with a continuous 3mm laminar cap; extremely hard; stratified with lenses of strongly lime and silica cemented gravelly loamy sand to gravelly sandy loam

**Type location:** 800 feet south and 2,200 feet east of the northwest corner of section 8, T.3 N., R.59 E.; (38 degrees, 10 minutes, 08 seconds north latitude and 116 degrees, 26 minutes, 31 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in the winter and early spring months and for short intermittent periods, 10 to 20 days cumulative, from mid July through early September due to convection storms.
*Soil temperature:* 54 to 59 degrees F.
*Depth to hardpan:* 14 to 20 inches.
*Reaction:* Moderately alkaline through very strongly alkaline.
*Control section:*
Clay content--Averages 15 to 20 percent.
Rock fragments--35 to 50 percent, mainly pan fragments.
Calcium carbonate equivalent--40 to 60 percent.

**A horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 through 4.

**Bk horizons:**
Hue--10YR or 7.5YR.
Value--6 through 8 dry, 4 through 7 moist.
Chroma--2 through 4.
Texture of fine earth--Loam, sandy loam, or silt loam.
Clay content--15 to 20 percent.
Rock fragments--35 to 55 percent, mainly pan fragments
Consistence--Soft or slightly hard dry, very friable or friable moist, nonsticky to sticky and nonplastic to plastic wet.

**Bqkm horizon:**
Value--6 through 8 dry, 5 through 7 moist.
Chroma--1 through 3.
Other features--The silica laminar cap ranges from 1 to 5 mm thick, with strongly cemented lime and silica lenses decreasing with depth.

## Veet series

The Veet series consists of very deep, well drained soils that formed in mixed alluvium. Veet soils are on fan piedmonts, fan skirts, and axial stream terraces. Slopes are 0 to 15 percent. The mean annual precipitation is about 9 inches and mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic Xerollic Camborthids

**Typical pedon:** Veet very gravelly sandy loam, in map unit 3481, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 40 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many fine interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw--4 to 12 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine and medium roots; common fine tubular pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk--12 to 60 inches; pale brown (10YR 6/3) stratified extremely gravelly sandy loam to very gravelly loamy coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky to nonsticky and slightly plastic to nonplastic; common very fine, fine and medium roots; common fine tubular pores; lime coatings on undersides of rock fragments; 55 percent pebbles, 10 percent cobbles; violently effervescent; strongly alkaline (pH 8.5).

**Type location:** 2,200 feet west and 1,100 feet north of the southeast corner of section 27, T.3 N., R.49 E.; (38 degrees, 04 minutes, 35 seconds north latitude and 116 degrees, 28 minutes, 44 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 53 to 59 degrees F.
*Depth to lime:* 10 to 20 inches.
*Control section:*
Clay content--8 to 15 percent.
Rock fragments--35 to 65 percent.

**A horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 or 3.
Reaction--Mildly alkaline or moderately alkaline.
Effervescence--Noneffervescent or slightly effervescent.

**Bw horizon:**
Value--5 or 6 dry, 3 or 4 moist.
Chroma--2 through 4.
Structure--Weak or moderate, fine or medium subangular blocky.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic or slightly plastic, wet.
Reaction--Mildly alkaline to strongly alkaline.
Effervescence--Noneffervescent or slightly effervescent.

**Bk horizon:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--2 through 4.
Texture--Stratified extremely gravelly sandy loam to very gravelly loamy coarse sand.
Structure--Massive or subangular blocky.
Consistence--Soft or slightly hard dry, nonsticky or slightly sticky nonplastic or slightly plastic wet.
Reaction--Moderately alkaline or strongly alkaline.
Effervescence--Strongly effervescent or violently effervescent.
Other features--Very thin lime coatings on the undersides of rock fragments.

## Vindicator series

The Vindicator series consists of shallow and very shallow, well drained soils that formed in residuum and colluvium from volcanic rocks. Vindicator soils are on hills. Slopes are 8 to 30 percent. Mean annual precipitation is about 7 inches and mean annual temperature is about 53 degrees F.

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Typic Haplargids

**Typical pedon:** Vindicator very gravelly sandy loam, in map unit 3760, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 70 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few fine roots; many fine interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
Bt1--3 to 7 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; common thin clay films on faces of peds and lining pores; 30 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.
Bt2--7 to 13 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; common thin clay films on faces of peds and lining pores; 35 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.3); clear wavy boundary.
Cr--13 to 17 inches; weathered volcanic rock.

**Type location:** 1,600 feet south and 100 feet east of the northwest corner of the section 33, T.3 N., R.54 E.; (38 degrees, 04 minutes, 59 seconds north latitude and 115 degrees, 56 minutes, 03 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Depth to soft rock:* 4 to 14 inches.
*Reaction:* Mildly alkaline or moderately alkaline.
*Effervescent:* Slightly effervescent to violently effervescent.
*Control section:*
Clay content--18 to 27 percent.
Rock fragments--35 to 50 percent, mainly pebbles.

**A horizon:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--3 or 4.

**Bt horizons:**
Value--6 or 7 dry, 4 or 5 moist.

Chroma--3 or 4.
Texture (less than 2mm)--Clay loam or loam.
Clay content--20 to 30 percent.
Rock fragments--35 to 50 percent, mainly pebbles.
Consistence--Soft or slightly hard dry, very friable or friable moist, nonplastic to plastic wet.
Other features--Normally contains 5 to 15 percent soft rock fragments that break down when shaken in water.

## Wardenot series

The Wardenot series consists of very deep, excessively drained soils that formed in alluvium from mixed rocks. Wardenot soils are on fan skirts. Slopes are 0 to 4 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Sandy-skeletal, mixed, mesic Typic Torriorthents

**Typical pedon:** Wardenot gravelly sandy loam, in map unit 3250, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 25 percent pebbles.

A1--0 to 6 inches; pale brown (10YR 6/3) gravelly sandy loam; brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few fine roots; many fine interstitial pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
A2--6 to 12 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive, soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 35 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.
Bqk--12 to 60 inches; pale brown (10YR 6/3) stratified very gravelly loamy sand to very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 15 percent weak lime and silica cementation; 50 percent pebbles; violently effervescent; strongly alkaline (pH 8.8).

**Type location:** 2,500 feet west and 400 feet north of the southeast corner of section 19, T.7 N., R.55 E.; (38 degrees, 26 minutes, 45 seconds north latitude and 115 degrees, 49 minutes, 40 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winter and early spring months and for 10 to 20 days cumulative between July and October due to convection storms.
*Soil temperature:* 53 to 59 degrees F.
*Reaction:* Mildly alkaline to strongly alkaline, commonly increases with depth.

**A horizons:**
Value--6 or 7 dry, 4 or 5 moist.
Chroma--2 or 3.
Effervescence--Noneffervescent to strongly effervescent, may be violently effervescent where influenced by eolian depositions.

**Bqk horizon:**
Value--5 through 7 dry, 3 through 5 moist.
Chroma--2 through 4.
Texture--Stratified extremely gravelly fine sandy loam to cobbly loamy sand. Strata of very gravelly or cobbly sandy loam or fine sandy loam are present in upper part of substratum.
Rock fragments--40 to 75 percent average. individual strata have as few as 25 percent.
Effervescence--Strongly effervescent or violently effervescent.
Structure--Single grain or massive.
Other features--Lime and silica pendants commonly are present in some part of the B horizon.

## Watoopah series

The Watoopah series consists of very deep, well drained soils that formed in mixed alluvium. Watoopah soils are on fan piedmonts. Slopes are 0 to 8 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 53 degrees F.

**Taxonomic class:** Coarse-loamy, mixed, mesic Durixerollic Haplargids

**Typical pedon:** Watoopah gravelly loamy sand in map unit 3410, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 15 percent pebbles.

A1--0 to 2 inches; light brownish gray (10YR 6/2)

gravelly loamy sand, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial and few fine vesicular pores; 10 percent pebbles, 5 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

A2--2 to 6 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and common fine vesicular pores; 5 percent pebbles, 5 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bt--6 to 12 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and few fine tubular pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles, 2 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bq--12 to 18 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and few fine tubular pores; few soft lime masses and lime coats on underside of rock fragments; 15 percent weakly cemented durinodes; 20 percent pebbles, 2 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bqk--18 to 60 inches; light yellowish brown (10YR 6/4) gravelly loamy sand, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine and few fine interstitial pores; 20 percent strongly silica and lime cemented durinodes; discontinuous silica cementation; few soft lime masses; 15 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0).

**Type location:** 200 feet north and 100 feet west of the southeast corner of section 24, T.9 N., R.51 E.; (38 degrees, 37 minutes, 15 seconds north latitude and 116 degrees, 10 minutes, 26 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring and for 10 to 20 days cumulative in the upper part, between June and September due to convection storms.
*Soil temperature:* 53 to 59 degrees F
*Depth to Bq horizon:* 10 to 24 inches.
*Control section:*
Clay content--10 to 18 percent.
Rock fragments--5 to 25 percent, mainly pebbles.

**A horizons:**
Value--6 or 7 dry, 3 or 4 moist.
Chroma--2 or 3.
Reaction--Neutral or mildly alkaline.

**Bt horizon:**
Hue--10YR or 7.5YR.
Value--5 or 6 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Averages sandy loam, subhorizons of sandy clay loam or fine sandy loam are in some pedons.
Reaction--Neutral or mildly alkaline.

**Bq and Bqk horizons:**
Value--5 through 7 dry, 4 or 5 moist.
Chroma--3 or 4.
Texture--Loamy sand or sandy loam.
Rock fragments--5 to 35 percent, mainly pebbles.
Structure--Massive or subangular blocky.
Consistence--Soft or slightly hard dry, very friable or friable moist, nonsticky or slightly sticky and nonplastic or slightly plastic wet.
Reaction--Mildly alkaline to moderately alkaline.
Effervescence--Noneffervescent to strongly effervescent.
Other features--Discontinuous weak cementation, some pedons contain 5 to 25 percent strongly cemented durinodes.

## Winu series

The Winu series consists of moderately deep, well drained soils that formed in residuum and colluvium from mixed volcanic rocks. Winu soils are on mountain sideslopes. Slopes are 8 to 50 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 42 degrees F.

**Taxonomic class:** Fine-loamy, mixed Argic Pachic Cryoborolls

**Typical pedon:** Winu gravelly loam, in map unit 3442, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 10 percent cobbles and 15 percent pebbles.

A1--0 to 5 inches; grayish brown (10YR 5/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine

and fine roots; common very fine tubular pores; 25 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

A2--5 to 10 inches; brown (10YR 5/3) gravelly sandy clay loam; dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 25 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt--10 to 19 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; common moderately thick clay films lining pores; 20 percent pebbles, 10 percent cobbles; neutral (pH 7.2); clear smooth boundary.

2Bt1--19 to 31 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; many very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 25 percent pebbles, 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

2Bt2--31 to 39 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 20 percent pebbles, 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

R--39 inches; welded tuff bedrock.

**Type location:** 1,400 feet west and 2,500 feet south of the northeast corner of section 20, T.15 N., R.51 E.; (39 degrees, 09 minutes, 26 seconds north latitude and 116 degrees, 14 minutes, 47 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually moist, moist in winter and spring, dry late summer and fall.
*Soil temperature:* 42 to 47 degrees F.
*Summer soil temperature:* 58 to 59 degrees F.
*Mollic epipedon thickness:* 18 to 30 inches, includes the upper part of the Bt horizon.
*Depth to bedrock:* 24 to 40 inches.
*Reaction:* Slightly acid or neutral.
*Other features:* Some pedons do not have 2Bt horizon and have the Bt horizon continuous to bedrock.
*Control section:*
Clay content--20 to 30 percent.
Rock fragments--15 to 35 percent.

**A horizons:**
Value--3 through 5 dry, 2 or 3 moist.
Chroma--1 through 3.

**Bt horizon:**
Hue--7.5YR or 10YR.
Value--4 or 5 dry, 2 through 4 moist.
Chroma--2 or 3.
Texture--Loam, clay loam, or sandy clay loam in upper part, sandy loam or loam in lower part.
Rock fragments--15 to 35 percent in upper part, mainly pebbles with some cobbles and stones. Up to 50 percent rock fragments in lower part of some pedons.
Structure--Moderate or strong, fine to coarse subangular or angular blocky.
Consistence--Soft to hard dry, very friable, or friable moist, slightly sticky or sticky and nonplastic to plastic wet.

**2Bt1 horizon:**
Hue--7.5YR or 10YR.
Value--5 or 6 dry.
Chroma--4 through 6.
Texture--Sand clay loam, sandy loam or loam.
Rock fragments--0 to 35 percent.
Structure--Massive or subangular blocky.
Consistence--Slightly hard or hard dry, very friable or friable moist, slightly sticky or very sticky and slightly plastic or plastic wet.

## Yody series

The Yody series consists of moderately deep over a duripan, well drained soils that formed in alluvium from andesite, dacite, and tuff. Yody soils are on fan remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 46 degrees F.

**Taxonomic class:** Fine-loamy, mixed, mesic Haploxerollic Durargids

**Typical pedon:** Yody gravelly sandy loam, in map unit 3770, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent pebbles.

A--0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, friable, nonsticky and nonplastic; few fine and medium roots;

common fine vesicular pores; 15 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt--3 to 11 inches; brown (7.5YR 5/4) sandy clay loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine, medium and coarse roots; common fine tubular and interstitial pores; few thin clay films on faces of peds; 10 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

Btk--11 to 16 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine roots; common fine tubular and interstitial pores; few thin clay films on faces of peds; few films of lime; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bqk1--16 to 26 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine, medium and coarse roots; common fine tubular and interstitial pores; weakly cemented with silica and lime; 25 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk2--26 to 38 inches; very pale brown (10YR 7/3) gravelly loamy sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; common very fine and fine tubular and interstitial pores; few discontinuous strongly cemented silica and lime layers 1 to 3 inches thick; 30 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bqkm--38 to 60 inches; very pale brown (10YR 7/3) strongly lime and silica cemented duripan, dark yellowish brown (10YR 4/4) moist; massive; strongly cemented strata are very hard and very firm and average 2 to 3 inches thick; remainder of horizon is weakly cemented very gravelly loamy sand that is hard, firm, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.4).

**Type location:** 1,000 feet west and 1,500 feet north of the southeast corner of section 19, T.13 N., R.53 E.; (38 degrees, 56 minutes, 44 seconds north latitude and 116 degrees, 03 minutes, 43 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in winter and spring, dry in summer and fall.
*Soil temperature:* 47 to 52 degrees F.
*Thickness of A and Bt horizons:* 14 to 30 inches.
*Depth to calcic horizon:* 14 to 30 inches.
*Depth to strongly cemented duripan:* 30 to 40 inches.
*Control section:*
Clay content--Averages 20 to 35 percent.
Rock fragments--10 to 35 percent, when mixed.

**A horizon:**
Value--6 or 7 dry.
Chroma--2 or 3.
Other features--Commonly has polygonal surface with vesicular pores.

**Bt horizon:**
Hue--10YR or 7.5YR.
Value--3 or 4 moist.
Chroma--3 or 4.
Texture of fine earth--Sandy clay loam or clay loam.
Consistence--Slightly hard or hard dry, friable or firm moist.
Other features--Contains more than 35 percent sand.

**Bqk horizons:**
Value--6 through 8 dry.
Chroma--2 through 4.
Texture of fine earth--Loam, sandy loam, or loamy sand.
Rock fragments--15 to 35 percent.
Consistence--Slightly hard or hard dry, very friable to firm moist.
Reaction--Moderately alkaline or strongly alkaline.

## Yomba series

The Yomba series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Yomba soils are on alluvial flats. Slopes are 0 to 2 percent. Mean annual precipitation is about 6 inches and mean annual temperature is about 53 degrees F.

**Taxonomic class:** Sandy-skeletal, mixed, mesic Duric Camborthids

**Typical pedon:** Yomba gravelly fine sandy loam, in map unit 3910, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is covered with 40 percent pebbles.

A--0 to 4 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots;

many very fine and fine vesicular pores; 15 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw--4 to 10 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; 5 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk--10 to 12 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; lime coats on undersides of pebbles; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bqk--12 to 19 inches; pale brown (10YR 6/3) gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; hard, brittle, firm, nonsticky and nonplastic; common fine roots; few fine tubular pores; continuous weak silica cementation; common fine lime coats on pebbles; 30 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

3C--19 to 60 inches; pale brown (10YR 6/3) extremely gravelly sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots in pockets; many very fine and fine interstitial pores; 55 percent pebbles, 5 percent cobbles; slightly effervescent; strongly alkaline (pH 8.6).

**Type location:** 2,600 feet east and 300 feet south of the northwest corner of section 5, T.3 N., R.53 E.; (38 degrees, 09 minutes, 37 seconds north latitude and 116 degrees, 02 minutes, 11 seconds west longitude.)

**Range in characteristics:**

*Soil moisture:* Usually dry, moist in some part for short periods during winters and early spring months, and for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 53 to 59 degrees F.

*Depth to 2Bqk horizon:* 10 to 23 inches.

*Depth to 3C horizon:* 18 to 26 inches.

*Control section:*

Textures (less than 2 mm fraction)--Averages loamy sand.

Rock fragments--Average 40 to 60 percent.

**A horizon:**

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 3 or 4 moist.

Chroma--2 or 3.

Effervescence--Noneffervescent or slightly effervescent.

Reaction--Mildly alkaline or moderately alkaline.

**Bw and Bk horizons:**

Hue--10YR or 2.5Y.

Value--6 or 7 dry, 3 or 4 moist.

Chroma--2 or 3.

Texture--Sandy loam, fine sandy loam, or loam.

Clay content--10 to 20 percent.

Rock fragments--0 to 15 percent, mainly pebbles.

Structure--Platy, prismatic, or subangular blocky.

Consistence--Nonsticky or slightly sticky wet.

Effervescence--Strongly effervescent or violently effervescent.

Reaction--Moderately alkaline or strongly alkaline.

**2Bqk horizon:**

Value--6 or 7 dry, 4 through 6 moist.

Chroma--2 through 4.

Texture (less than 2 millimeter)--Coarse sandy loam, sandy loam.

Rock fragments--30 to 50 percent, dominantly pebbles.

Effervescence--Strongly effervescent or violently effervescent.

Reaction--Moderately alkaline or strongly alkaline.

Other features--Has laminae with cementation that ranges from weak with only a few thin silica bridges to strong with 1/4 inch thick discontinuous layers in pockets and seams.

**3C horizon:**

Value--6 or 7 dry, 3 through 5 moist.

Chroma--1 through 3.

Rock fragments--50 to 70 percent.

Effervescence--Noneffervescent or slightly effervescent.

Reaction--Mildly alkaline to strongly alkaline.

## Zadvar series

The Zadvar series consists of shallow over a duripan, well drained soils that formed in mixed alluvium from volcanic rock sources. Zadvar soils are on fan piedmonts and mountain valley fan remnants. Slopes are 2 to 30 percent. Mean annual precipitation is about 9 inches and mean annual temperature is about 52 degrees F.

**Taxonomic class:** Loamy, mixed, mesic, shallow Haploxerollic Durargids

**Typical pedon:** Zadvar very gravelly sandy loam in map unit 3463, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 5 percent cobbles and 45 percent pebbles.

A1—0 to 1 inch; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 30 percent pebbles, 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—1 to 3 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 25 percent pebbles, 5 percent cobbles; moderately alkaline (pH8.2); abrupt smooth boundary.

Bt—3 to 10 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard friable, sticky and plastic; common very fine, fine and medium roots; many very fine and fine tubular pores; common thin clay films lining pores and on faces of peds; 20 percent pebbles; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bqkm—10 to 14 inches; light gray (10YR 7/1) continuous strongly silica cemented hardpan; few fine roots along cracks; clear wavy boundary.

Bqk—14 to 30 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; common silica and lime coatings on rock fragments; 60 percent pebbles, 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

B'qkm—30 to 41 inches; light gray (10YR 7/1) continuous strongly lime and silica cemented hardpan; discontinuous indurated laminae; clear wavy boundary.

B'qk--41 to 60 inches; pale brown (10YR 6/3) stratified extremely gravelly sandy loam to very gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; silica and lime coatings on rock fragments; 60 percent pebbles, 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4).

**Type location:** 2,000 feet south and 2,000 feet west of the northeast corner of section 25, T.4 N., R.49 E., (38 degrees, 10 minutes, 08 seconds north latitude and 116 degrees, 26 minutes, 31 seconds west longitude.)

**Range in characterisitics:**

*Soil moisture:* Usually dry, moist in winter and spring months, dry in summer and fall except for 10 to 20 days cumulative between July and October due to convection storms.

*Soil temperature:* 53 to 59 degrees F.

*Depth to hardpan:* 10 to 14 inches.

*Control section:*

Clay content--Averages 18 to 27 percent.

Rock fragments--Averages 20 to 35 percent.

**A horizons:**

Value--6 or 7 dry, may be 5 in upper part; 4 or 5 moist.

Chroma--2 or 3.

Reaction--Mildly alkaline or moderately alkaline.

**Bt horizon:**

Value--5 or 6 dry, 4 or 5 moist.

Chroma--3 or 4.

Texture of fine earth--Clay loam or sandy clay loam.

Clay content--Averages 27 to 35 percent, but may have more than 35 percent.

Rock fragments--10 to 30 percent, mainly pebbles.

Structure--Prismatic or subangular blocky.

Consistence--Slightly hard or hard dry.

Reaction--Mildly alkaline or moderately alkaline.

Effervescence--Noneffervescent; some pedons may be slightly effervescent to strongly effervescent in the lower part.

**Bqk horizon:**

Chroma--2 or 3.

Texture of fine earth--Stratified sand, loamy sand, sandy loam.

Rock fragments--35 to 65 percent, mainly pebbles.

Consistence--Soft to hard dry, very friable to brittle moist.

Reaction--Moderately alkaline or strongly alkaline.

Effervescence--Strongly effervescent or violently effervescent.

# Formation of the Soils

Soil is a natural, three dimensional body at the earth's surface, which is capable of supporting plants. It is a dynamic mixture of mineral material, organic matter, air, and water. Each soil has distinctive properties that are the product of environmental forces acting upon earthy material over a period of time.

Many different kinds of soils exist in Northeast Nye County within relatively short distances. These differences are the result of the interaction of; (1) parent material, including its physical characteristics, as well as its mineralogical and chemical composition; (2) climate, mainly temperature and precipitation, both in terms of the average as well as the variation throughout the year; (3) relief, which influences the internal and external environment of the soil such as drainage, aeration, susceptibility to erosion and exposure to the sun and wind; (4) biological forces, mainly the plant cover and the organisms living in and on the soil; and (5) the length of time these environmental forces have had to act on the soil material.

Northeast Nye County falls in the Great Basin and the eastern edge is part of the Colorado drainage. Many of the present landforms are a result of events that took place during quaternary times.

## Climate

Climate affects soil formation through its effect on vegetation, weathering, water transport, and erosion. The main climatic factors that influence soil formation in this area are precipitation, wind, and temperature.

The climate of the survey area is essentially continental, with warm dry summers and cool, moist winters. Temperatures and precipitation throughout the area vary considerably with elevation, aspect, and to some degree, storm track patterns. The average annual air temperature ranges from 57 degrees F. at lower elevations in the extreme southern parts of the survey area to 45 degrees F. or less on high mountain slopes. The average annual precipitation ranges from about 5 inches at the lowest elevation to over 16 inches at the higher elevations. Precipitation patterns, particularly as they relate to time of the year and intensity of storms, play an important role in the formation of soils in this area. The soils in the survey area reflect a general zonation with respect to elevation.

The summer convection storms do not account for a very large amount of the total precipitation. However, due to their intensity and their frequency of pattern, over the years, these storms play an extremely important role in soil formation in this area. Unless protected by cover or in a position with favorable relief, the soils are subject to erosion.

In the lower elevations of the survey area, the average annual precipitation is about 5 to 8 inches. In this arid part of the area, weathering of parent material is slow, leaching is incomplete, and eluviation and illuviation proceed at a very slow rate. The plant cover is sparse and consists mainly of drought- and salt-tolerant shrubs. Typically, the soils are low in content of organic matter and have thin, light colored A horizons. Soluble salts and calcium carbonate often accumulate in the soil profile at a relatively shallow depth. Typic Torriorthents (Leo series) characterize soils that reflect soil formation in this arid part of the area.

In the mid-elevations of the survey area, the average annual precipitation is about 8 to 12 inches. With increasing elevation there is an accompanying increase in precipitation, which results in deeper leaching of salts and calcium carbonate, decreased reaction, changes in the kind and density of vegetation, and a thicker and darker A horizon. Xerollic Haplargids (Breko series) represents soils formed at the lower elevations where precipitation is about 10 inches. Aridic Argixerolls (Ubehebe series) are examples of soils that have formed at the higher elevations in this zone.

At the higher elevations of the survey area, the precipitation is 12 to 16 inches. The vegetation is mostly pinyon-juniper or, in the highest elevations, sagebrush with a greater amount and variation in kinds of grasses. Leaching of salts and carbonates has been more intensive, the soils are neutral or slightly acid, and the A horizon is thick, and is high in organic matter. Typic Argixerolls (Ravenswood series) are typical of these soils.

The affect of wind on the soil formation in this area is exhibited in several ways. The presence of a desert pavement is common on stable fan remnants. Typic Durargids (Tokoper series) is typical of soils with desert pavement. Wind is the primary factor in the movement and deposition of sand in sand sheets and sand dunes. Typic Torripsamments (Stumble and Kawich series) are common to areas of wind-blown sand.

In winter, freezing and thawing generally occur throughout most of the survey area, except in the southern part of the area. The affects of frost action are discernible by the heaving of plants, and movement of the surface soil resulting from solifluction. At some of the higher elevations, freezing and thawing has fractured and displaced the bedrock. Argic Cryoborolls (Packer series) with loamy-skeletal control sections are examples of soils at high elevations which have been affected by frost action.

In summer, the hot sun and lack of moisture drastically affect plant growth, especially in the southern part of the area. This affect is shown in both the lack of variety of plants and their root distribution. The scarcity of roots in the surface layer and sparse vegetative cover provides only very low amounts of organic matter in these soils. Typic Torriorthents (Izo series) is an example of soils with low organic matter.

## Relief

Relief, through its affects on drainage, runoff, erosion, and exposure to the sun and wind, has had an important affect on soil formation in the survey area. The mountain ranges, valleys, and flood plains reflect the gross variations in relief within the area.

The mountain ranges are mainly characterized by steep relief. Runoff is rapid, and hazard of erosion is high. The removal of material by erosion inhibits or prevents soil development. On unstable mountain surfaces that are subject to a high rate of geologic erosion, soil development is primarily limited to accumulation of organic matter to form a dark-colored horizon. A cambic or an argillic horizon has formed in the soils on more stable mountain surfaces where the rate of geologic erosion has been slower. Lithic Xerollic Haplargids (Stewval series) and Aridic Argixerolls (Ubehebe series) are examples of soils that formed on the more stable mountain slopes and have an argillic horizon. Lithic Xeric Torriorthents (Beelem series) are examples of soils on less stable mountain slopes where soil formation has been unable to act on parent material long enough for argillic or cambic horizons to have developed.

Soils on concave and north-facing slopes, where snow accumulates and remains into early summer, support dense stand of shrubs and grass. The soils in these areas have developed a thick, dark-colored A horizon with a high content of organic matter. Argic Pachic Cryoborolls (Foxfire series) is an example of these soils.

The upper piedmont slopes are usually dissected to form stable interfluvial surfaces on the fan remnants and narrow drainages. The fan remnant surfaces have usually been stable for sufficient time to allow strong development to occur. Duric Haplargids (Ardivey series) and Typic Durargids (Lyda series) are examples of soils that formed on these surfaces. These upper piedmont slopes may be overlain locally by more recent alluvium, a fan apron originating from the bordering mountains (12). These soils generally lack strong development. Typic Camborthids (Koyen series) is an example of these soils.

The lower portions of the piedmont slopes are more gently sloping and not as sharply dissected. These soils generally have fewer rock fragments throughout the profile due to the increased distance from the bordering mountains. The broad summits of the fan remnants are typically stable and have well-developed profiles. Duric Haplargids (Unsel series) is an example of these soils.

On the alluvial flats and on axial stream flood plains, are nearly level, well drained soils that carry very low velocity floodwater and runoff allowing some amount of deposition (12). These areas are represented by Typic Torrifluvents (Slaw and Cirac series). At the end of the alluvial flats and flood plains, adjacent to the playa, drainage is restricted, runoff is very slow, and salts accumulate. Aeric Halaquepts (Nuyobe series) typify these areas.

## Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in the survey area. Although animals, such as badgers and ground squirrels, and insects, such as cicadas, have had some affect on soil development, plants appear to have had the major biological influence on the soils in this survey area.

Due to the intensity of the summer storms, the vegetation is particularly important in this area as it affects soil erosion. Where vegetation is sparse, there is little cover and high rate of geologic erosion occurs. Typic Torriorthents (Izo series) are examples. In areas where the vegetative cover is thick, there is protection from the intense rains and the many roots help protect the soil from erosion. Typic Argixerolls (Ravenswood series) is an example.

Because of climatic differences, plants vary considerably in kinds and amounts as elevation increases. On alluvial flats, fan piedmonts and hills at low elevations, the main plants are drought-and salt-tolerant shrubs. Because of the scarcity of available moisture, plants cover only a small part of the surface. They add little organic matter to the soils and provide little protection from the wind and sun. Salt-tolerant shrubs also tend to recycle salts from the deeper layers to the surface soil.

The mountainous areas support a denser stand of shrubs, grasses, and in some place, trees. Because of the more abundant vegetation, the A horizon of the soils in these areas is thick, is high in organic matter, and is dark in color.

## Parent Material

Parent material is the earthy material from which soils are formed. The physical and chemical composition of the parent material greatly influences the formation of soils. The main sources of parent material in this survey area are volcanic and sedimentary rocks, alluvium, and eolian deposits. The volcanic rock, including basalt, rhyolite, and silica tuff is the main source of parent material in the Kawich, Hot Creek, Antelope, Revielle, Pancake, Horse, Quinn Canyon and Park ranges. Volcanic rocks generally contain minerals which may weather into clay when time and climatic conditions are favorable. For this reason, soils which formed in residuum and colluvium from this parent material and are on stable slopes form argillic horizons. Lithic Haplargids (Downeyville series) and Lithic Argixerolls (Bellehelen series) are examples of these soils.

The sedimentary formations, including sandstone, siltstone, dolomite, limestone, and quartzite, all exhibiting varying degrees of metamorphism, are the main source of parent material in the Egan, Grant, and Seaman ranges and in the area of Tybo and Revielle. There are two main characteristics which serve to separate the sedimentary parent materials: those which are high in carbonates, such as limestone and dolomite and those with none or little carbonate, such as siltstone, sandstones, and quartzite. Carbonates have a tendency to disrupt the formation of argillic horizons and those soils with high amounts of carbonate in the parent material lack argillic horizons. Lithic Xeric Torriorthents (Kyler and Logring series) and Lithic Haploxerolls (Hymas series) are examples of these soils.

Alluvium deposited as alluvial fans, fan piedmonts, fan skirts and alluvial flats, consists of sandy, loamy, silty or clayey material of generally mixed mineralogy that has been eroded from the adjacent mountains. Alluvium deposited on fans and fan piedmonts is mostly loamy or sandy textured with varying amounts of pebbles, cobbles, and stones. Duric Haplargids (Unsel series) is an example of these soils.

Eolian material consisting mainly of sand has been deposited in large areas of Railroad Valley, Hot Creek Valley and Sand Springs Valley. These deposits occur as sand sheets, most of which have been wind and water reworked, and as dunes. Examples of these soils are the Typic Torripsamments (Stumble and Kawich series).

## Time

Time is required for the formation of soils. The time available for a soil to develop in unconsolidated material is the time that has elapsed since the last deposits were laid down. Soils on sedimentary or igneous rocks began to develop after the parent rock weathered into permeable material. The thickness and other characteristics of the A and B horizons reflect the relative age of the soil.

The soils in this survey area range from a few years old to possibly a few hundred thousand years in age. This range in age is a major reason for the many kinds of soils in the survey area.

The interrelations between time and the other soil-forming factors are not well understood by soil scientists and geologists working in this field. Many soil scientists and geologists feel that weathering of parent material and soil profile development has been essentially continuous, with little change in rate throughout Quaternary time (10, 11, 14, 20). Recently, earth scientists concerned with differentiating Quaternary deposits have proposed that soil development has not proceeded continuously at the same rate, but has taken place intermittently at rapid rates (7, 8, 9, 13). Concepts of soil stratigraphy use weathering profiles as stratigraphic markers to differentiate and correlate Quaternary deposits. These concepts of soil development are based on the assumption that weathering profiles formed in response to infrequent combinations of climatic factors that induced minimal erosion and deposition and a greatly accelerated rate of chemical weathering.

Although disagreements exist in regard to the relative influences of time and other soil-forming factors, the concept of intermittence of soil formation has been supported by numerous studies and provides a practical technique to discuss the age of soils in this survey area in relation to geologic and climatic factors in the Quaternary.

The kinds of diagnostic subsurface horizons and other subsurface diagnostic properties, together with their strength of expression, provide general clues to the age

of the soils in the area (17, 19). Important subsurface diagnostic horizons present in soils within the area include argillic, natric, cambic, calcic, and petrocalcic horizons, and horizons exhibiting silica cementation.

Prominent argillic horizons in this area generally occur only in soils formed primarily during the Pleistocene. This concept has been established by studies in the Southwest (4, 5) and is further supported in Soil Taxonomy (19). With increasing age and constancy of other conditions, argillic horizons become finer in texture, become somewhat thicker, and tend to develop abrupt upper boundaries. Weakly expressed, thin argillic horizons may have formed during very late Pleistocene or early Holocene time.

Natric horizons are special kinds of argillic horizons that formed under the influence of high exchangeable sodium. The effect of sodium on the dispersion of clay may tend to accelerate the rate of formation of argillic horizons. This is not believed to be significant, however, except in weakly expressed natric horizons that formed on Holocene surfaces. Following the formation of argillic horizons, prominent natric horizons may have developed as a result of sodium supplied by deposition of surficial loess.

Cambic horizons in soils within the area formed mainly on Holocene surfaces. Original stratification is absent, and carbonates have been removed and re-deposited in underlying horizons. Investigations in southern New Mexico indicate that cambic horizons in that region are less than about 5,000 years old (5). Cambic horizons in the survey area and in other areas in northern Nevada have been generally thought to be less than 10,000 years old, and possibly less than 7,000 years. This age has been determined mostly as a result of soil mapping in areas below the last high stage of Pleistocene Lake Lahontan (7, 8, 9).

The youngest soils in the area are those which formed in recently transported alluvium or material which has been recently exposed by erosion. Typic Torriorthents (Izo series) is an example of soils which formed in recent alluvium. Typic Torrispamments (Kawich series) were formed in recently deposited eolian sands. These soils have little or no profile development.

Somewhat older than the youngest soils are soils on fan skirts and alluvial flats that have developed weakly expressed horizons. These may have cambic or thin argillic horizons. The lower horizons have an accumulation of calcium carbonate and silica in the form of pendants on the rock fragments. Examples of these soils are Duric Camborthids (Keefa series).

Soils of intermediate age are more strongly developed and have distinctive horizons. These soils have thicker, well developed argillic horizons and may have durinodes, strongly developed silica-lime cemented hardpans, or calcic horizons. Duric Haplargids, (Unsel series) and Xerollic Haplargids (Abgese) are examples of these soils.

Soils on the oldest, most stable surfaces are the most strongly developed. These soils have strong profile development and have more distinct horizons. Xerollic Durargids (Chuckridge and Handpah series) are examples of these soils.

# References


1) American Association of State Highway (and Transportation) Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vols., illus.

2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM stand. D 2487-69. In 1974 annual book of ASTM standards, pt. 19, 464 pp., illus.

3) Carlson, Helen S. 1917. Nevada Place Names: A geographical dictionary.

4) Gile, L.H. and R.B. Grossman. 1968. Morphology of the argillic horizon in desert soils of southern New Mexico, Soil Sci. 106: 6-15.

5) Gile, L.H. and J.W. Hawley. 1966. Periodic sedimentation and soil formation on an alluvial fan piedmont in southern New Mexico. Soil Sci. Soc. Am. Proc. 30: 261-268.

6) Kleinhampl, Frank J. and Ziony, Joseph I. 1985. Geology of Northern Nye County, Nevada. Nevada Bureau of Mines and Geology, University of Nevada, Reno. Bulletin 99A. 172 pp., illus.

7) Morrison, R.B. 1964. Lake Lahontan: Geology of Southern Carson Desert, Nevada. U.S. Geol. Surv. Prof. pap. 401, 156 pp., illus.

8) Morrison, R.B. 1964, Soil stratigraphy: Principles, applications to differentiation and correlations of Quarternary deposits and landforms, and applications to soil science, Ph.D. thesis, Univ. Nev.

9) Morrison, R.B. 1965. Principles of Quaternary soil stratigraphy. In Quaternary soils, INQA Proc., vol. 9, VII Congress: 1-69.

10) Nikiforoff, C.C. 1942. Fundamental formula of soil formation. Am. J. Sci. 240: 847-866.

11) Nikiforoff, C.C. 1949. Weathering and soil evolution. Soil Sci. 67: 219-223.

12) Peterson, Frederick F. 1981. Landforms of the Basin and Range province defined for soil survey. Nevada Agric. Exp. Stn. Max C. Fleischmann Coll. Argic., Univ. Nev., Reno Tech. Bull. 28, 52 pp., illus.

13) Richmond, G.M. 1962. Quaternary geology of the LaSal Mountains, Utah. U.S. Geol. Surv. Prof. pap. 324, 135 pp., illus.

14) Springer, M.E. 1953. Soil formation in the desert of the Lahontan Basin, Nevada. Ph.D. thesis. Univ. Calif.

15) United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210.

16) United States Department of Agriculture, Soil Conservation Service. 1981. Land Resource Regions and Major Land Resource Areas of the United States. U.S. Dep. Agric. Handb. 296.

17) United States Department of Agriculture, Soil Conservation Service. 1993. Soil survey manual. U.S. Dep. Agric. Handb. 18.

18) United States Department of Agriculture, Soil Conservation Service, 1980. Soil survey of Big Smoky Valley.

19) United States Department of Agriculture, Soil Conservation Service. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. U.S. Dep. Agric. Handb. 436.

20) Ward, W.T. 1965. Soils of the Adelaide Area, South Australia, in relation to time. In Quaternary soils, INQA Proc., vol. 9., VII Congress: 293-306.

# Glossary

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial cone.** The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a narrow valley upon a plain, or of a tributary stream near or at its junction with its main stream.

**Alluvial flat.** A nearly level, graded, alluvial surface in bolsons and semi-bolsons. Commonly, an alluvial flat does not manifest terraces or floodplain levels.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Argillite.** Weakly metamorphosed mudstone or shale.

**Arroyo.** The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

| | |
|---|---|
| Very low | 0 to 3.5 |
| Low | 3.5 to 5 |
| Moderate | 5 to 7.5 |
| High | more than 7.5 |

**Avalanche chute.** The track or path formed by an avalanche.

**Back slope.** The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

**Backswamp.** A floodplain landform of extensive, marshy, or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

**Badland.** Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

**Ballena.** A fan remnant having a distinctively-rounded surface of fan alluvium. The ballena's broadly rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave, short pediments which form smoothly-rounded drainageways between adjacent ballenas. A partial ballena is a fan remnant large enough to retain some relict fan surface on a remnant summit.

**Barrier beach.** A wide gently sloping portion of a bolson floor comprising numerous, parallel, relict longshore-bars and lagoons built by a receding pluvial lake.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

**Basin floor.** A general term for the nearly level, lowermost part of intermontane basins (i.e., bolson, semi-bolsons). The basin floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope.

**Beach terrace.** The relict shorelines from pluvial lakes, generally restricted to valley sides.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts, the water table is exposed.

**Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing.

**Bolson.** A landscape term for an internally drained intermontane basin into which drainages from surrounding mountains converge inward toward a central depression.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Caldera.** A large, more or less circular depression, formed by explosion and/or collapse, which surrounds a volcanic vent or vents, and whose diameter is much greater than that of the included vent, or vents.

**Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.

**California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

**Canopy.** The leafy crown of trees or shrubs. (See Crown.)

**Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

**Channery soil material.** Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

**Chemical treatment.** Control of unwanted vegetation through the use of chemicals.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

**Clayey soil.** Silty clay, sandy clay, or clay.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Clearcut.** A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Closed depression.** A low area completely surrounded by higher ground and having no natural outlet.

**Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded, partly rounded, or angular fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

**Codominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

**Colluvium.** Unconsolidated, unsorted earth material moved and deposited by mass movement on sideslopes and at the base of slopes.

**Commercial forest.** Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Compressible** (in tables). Excessive decrease in volume of soft soil under load.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane that typically takes the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Conglomerate.** A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but, for many, it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Cuesta.** A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

**Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deep soil.** A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Delta.** A body of alluvium having a surface that is nearly flat and fan shaped, deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

**Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Desert pavement.** On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

**Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

**Dominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

**Drainage class (natural).** Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

**Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Dune.** A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

**Ecological Site.** A distinctive kind of rangeland or grazed forestland that has a unique historic potential native plant community. Ecological sites are the products of all the environmental factors that affect their development. An ecological site is capable of supporting a native plant community that has a unique kind and/or proportion of species or total vegetative production. Ecological sites in grazed forestland include both overstory and understory vegetation.

**Effervescence.** The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCL) are added to the soil. The ratings are as follows:

Very slightly effervescent ..... few bubbles
Slightly effervescent ..... bubbles readily
Strongly effervescent ..... bubbles form low foam
Violently effervescent ..... bubbles form thick foam quickly

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Even aged.** Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.

**Excess alkali** (in tables). Excess exchangeable sodium in

the soil. The resulting poor physical properties restrict the growth of plants.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

**Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

**Excess sulfur** (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

**Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**Fan apron.** A sheet-like mantle of relatively young alluvium covering part of an older fan piedmont surface. It somewhere buries a soil that can be traced to the edge of the fan apron.

**Fan piedmont.** The most extensive landform on piedmont slopes, formed by the coalescence of alluvial fans or accretions of fan aprons into one generally smooth slope.

**Fan remnant.** A general term for landforms that are remaining parts of older fan-landforms, that either have been dissected or partially buried.

**Fan skirt.** The zone of smooth, laterally-coalescing, small alluvial fans that issue from gullies cut into the fan piedmont or that are the coalescing extensions of inset fans of the fan piedmont, and that merge with the basin floor.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

**Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.

**First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.

**Flaggy soil material.** Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.

**Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

**Foot slope.** The inclined surface at the base of a hill.

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Fragile** (in tables). A soil that is easily damaged by use or disturbance.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Gilgai.** The microrelief of clayey soils that shrink and swell considerably with changes in moisture content. Usually manifested as a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water.** Water filling all the unblocked pores of underlying material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Gypsum.** A mineral consisting of hydrous calcium sulfate.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

**Heavy metal.** Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Holocene.** The epoch of the Quaternary Period of geologic time, extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

*O horizon.*--An organic layer of fresh and decaying plant residue.

*A horizon.*--The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*--The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*--The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*--The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*--Soft, consolidated bedrock beneath the soil.

*R layer.*--Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant

cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Inset fan.** A special case of the flood plain of an ephemeral stream that is confined between fan remnants, basin-floor remnants, ballenas, or closely opposed fan toeslopes.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

| | |
|---|---|
| Less than 0.2 | very low |
| 0.2 to 0.4 | low |
| 0.4 to 0.75 | moderately low |
| 0.75 to 1.25 | moderate |
| 1.25 to 1.75 | moderately high |
| 1.75 to 2.5 | high |
| More than 2.5 | very high |

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives groundwater discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Intermontane basin.** A generic term for wide structural depressions between mountain ranges that are partly filled with alluvium. They may be drained internally (bolsons) or externally (semi-bolsons).

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin.*--Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border.*--Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes or borders.

*Controlled flooding.*--Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*--Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*--Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*--Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*--Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*--Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*--Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Lagoon.** The nearly level, filled depression behind the longshore bar on a barrier beach.

**Lake plain.** A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

**Lake terrace.** The narrow shelf produced along a lake shore and later exposed when the water recedes.

**Lamella.** A thin, generally horizontal layer of fine material illuviated within a very much thicker, coarser, eluviated layer.

**Landform.** Any recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes that provide an empirical description of similar portions of the earth's surface.

**Landscape.** A collection of related, natural landforms.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loamy soil.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Longshore bar.** A narrow, elongate, coarse-textured ridge, built by the wave action of a pluvial lake, that extends parallel to the shore and separated it from a lagoon; both the bar and lagoon are now relict features.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Low strength.** The soil is not strong enough to support loads.

**Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mean annual increment (MAI).** The average annual increase in volume of a tree during the entire life of the tree.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Merchantable trees.** Trees that are of sufficient size to be economically processed into wood products.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately deep soil.** A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance--*few, common,* and *many*; size--*fine, medium,* and *coarse*; and contrast--*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

**Munsell notation.** A designation of color by degrees of three simple variables--hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Observed rooting depth.** Depth to which roots have been observed to penetrate.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition.

**Overstory.** The trees in a forest that form the upper crown cover.

**Oxbow.** The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Parna dune.** An eolian dune built of sand size aggregates of clayey material that commonly occurs leeward of a playa.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pediment.** A gently sloping erosional surface developed at the foot of a receding hill or mountain slope.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

| | |
|---|---|
| Extremely slow | 0.00 to 0.01 inch |
| Very slow | 0.01 to 0.06 inch |
| Slow | 0.06 to 0.2 inch |
| Moderately slow | 0.2 to 0.6 inch |
| Moderate | 0.6 inch to 2.0 inches |
| Moderately rapid | 2.0 to 6.0 inches |
| Rapid | 6.0 to 20 inches |
| Very rapid | more than 20 inches |

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piedmont slope.** The dominant slope at the foot of a mountain. Main components of the piedmont slope include pediments, alluvial fans, fan piedmonts, fan skirts and inset fans.

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Playa.** The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

**Pleistocene.** The epoch of the Quaternary Period of geologic time preceding the Holocene (from aproximately 2 million to 10 thousand years ago).

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Pluvial.** Relating to former periods of abundant rains.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Poor outlets** (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Quartzite, metamorphic.** Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

**Quaternary.** The period of geologic time, extending from about 2 million years ago to the present and comprising two epochs, the Pleistocene (Ice Age) and Holocene (Recent).

**Quartzite, sedimentary.** Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

**Range condition.** The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Range site.** An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

| | |
|---|---|
| Ultra acid | less than 3.5 |
| Extremely acid | 3.5 to 4.4 |
| Very strongly acid | 4.5 to 5.0 |
| Strongly acid | 5.1 to 5.5 |
| Moderately acid | 5.6 to 6.0 |
| Slightly acid | 6.1 to 6.5 |
| Neutral | 6.6 to 7.3 |
| Slightly alkaline (mildly alkaline) | 7.4 to 7.8 |
| Moderately alkaline | 7.9 to 8.4 |
| Strongly alkaline | 8.5 to 9.0 |
| Very strongly alkaline | 9.1 and higher |

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regeneration.** The new growth of a natural plant community, developing from seed.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relict stream terrace.** One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

**Riverwash.** Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Rock outcrop.** Exposures of bare bedrock other than lava flows and rock-lined pits.

**Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Rubble land.** Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

**Salinity.** The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

| | |
|---|---|
| Nonsaline | 0 to 2 |
| Very slightly saline | 2 to 4 |
| Slightly saline | 4 to 8 |
| Moderately saline | 8 to 16 |
| Strongly saline | More than 16 |

**Salty water** (in tables). Water that is too salty for consumption by livestock.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sand sheet.** A large, irregularly shaped, surficial mantle of eolian sand.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sandy soil.** Sand or loamy sand.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Sawlogs.** Logs of suitable size and quality for the production of lumber.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Scribner's log rule.** A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Semi-bolson.** An intermontane basin that is drained externally by an intermittent stream.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Shallow soil.** A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shelterwood system.** A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

**Shoulder slope.** The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Shrub-coppice dune.** A small dune that forms around shrubs or small trees.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Site class.** A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

**Site curve (50-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height

**Site curve (100-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Skid trails.** Pathways along which logs are dragged to a common site for loading onto a logging truck.

**Slash.** The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

**Slickens.** Accumulations of fine-textured material, such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

**Slippage** (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the following slope classes are recognized:

| | |
|---|---|
| Nearly level | 0 to 2 percent |
| Gently sloping | 2 to 4 percent |
| Moderately sloping | 4 to 8 percent |
| Strongly sloping | 8 to 15 percent |
| Moderately steep | 15 to 30 percent |
| Steep | 30 to 50 percent |
| Very steep | 50 to 75 percent |
| Extremely steep | 75 percent and higher |

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of $NA^{+}$ to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

| | |
|---|---|
| Very slight | 5-12:1 |
| Slight | 13-30:1 |
| Moderate | 31-45:1 |
| Strong | 46-90:1 |
| Very strong | more than 90:1 |

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

| | |
|---|---|
| Very coarse sand | 2.0 to 1.0 |
| Coarse sand | 1.0 to 0.5 |
| Medium sand | 0.5 to 0.25 |
| Fine sand | 0.25 to 0.10 |
| Very fine sand | 0.10 to 0.05 |
| Silt | 0.05 to 0.002 |
| Clay | less than 0.002 |

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Species.** A single, distinct kind of plant or animal having certain distinguishing characteristics.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Strath terrace.** A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

**Stream channel.** The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

**Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

**Summit.** A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer" or the "Ap horizon."

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Tailwater.** The water directly downstream of a structure.

**Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geologic). A step-like surface, ordinarily flat or undulating, bordering a river, a lake, or the sea representing a former flood plain.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

**Thin layer** (in tables). Otherwise suitable soil material too thin for the specified use.

**Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toe slope.** The outermost inclined surface at the base of a hill; part of a foot slope

**Too arid** (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

**Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Trafficability.** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

**Tread.** The relatively flat terrace surface that was cut or built by stream or wave action.

**Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.

**Understory.** Any plants in a forest community that grow to a height of less than 5 feet.

**Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.

**Upland** (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley.** An elongated depressional area primarily developed by stream action.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Waterspreading.** Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

**Water supplying capacity.** The total amount of water available in the soil for plant growth in a normal year

from precipitation and from runon from higher areas. Runoff and water lost to deep percolation are not included.

**Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an ovendry basis, at which a plant (specifically, a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The uprooting and tipping over of trees by the wind.

USDA United States
Department of
Agriculture

Natural
Resources
Conservation
Service

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

# Soil Survey of Nye County, Nevada, Northeast Part

## Part II

# Contents

Part I


**Index to map units** ..... v
**Summary of tables** ..... ix
**Foreword** ..... xi
How this survey was made ..... 1
General nature of the survey area ..... 2
History ..... 2
Industry and transportation ..... 2
Physiography, drainage, and geology ..... 2
Climate ..... 3
**Detailed Soil Map Units** ..... 5
Map unit descriptions ..... 6
**Prime farmland** ..... 199
Prime farmland and other important farmland ..... 199
Prime farmland map units ..... 200
**Classification of the soils** ..... 201
Taxonomic units and their morphology ..... 201
Abgese series ..... 201
Allker series ..... 202
Amelar series ..... 204
Ardivey series ..... 205
Argalt series ..... 206
Armespan series ..... 207
Beelem series ..... 208
Bellehelen series ..... 208
Belted series ..... 209
Blueagle series ..... 210
Breko series ..... 211
Candelaria series ..... 212
Cath series ..... 213
Chuckridge series ..... 214
Cirac series ..... 216
Clanalpine series ..... 216
Cliffdown series ..... 217
Clowfin series ..... 218
Cropper series ..... 219
Delacit series ..... 220
Delamar series ..... 220
Downeyville series ..... 222
Drewing series ..... 222
Duffer series ..... 223
Eaglepass series ..... 224
Easychair series ..... 225
Eganroc series ..... 226
Eoj series ..... 227
Equis series ..... 228
Foxvire series ..... 229
Gabbvally series ..... 230
Ganaflan series ..... 230
Garhill series ..... 231
Geer series ..... 232
Grassval series ..... 233
Hackwood series ..... 234
Handpah series ..... 235
Hardhat series ..... 236
Hardol series ..... 237
Haunchee series ..... 238
Hodedo series ..... 238
Hollywell series ..... 239
Hopeka series ..... 240
Hymas series ..... 240
Hyzen series ..... 241
Izar series ..... 242
Izo series ..... 242
Jarab series ..... 243
Jotava series ..... 244
Kawich series ..... 245
Keefa series ..... 246
Koyen series ..... 247
Kunzler series ..... 248
Kyler series ..... 249
Labshaft series ..... 250
Layview series ..... 250
Leo series ..... 251
Lien series ..... 252
Linoyer series ..... 253
Logring series ..... 253
Lyda series ..... 254
Lyx series ..... 255
Mijay series ..... 256
Molion series ..... 257
Morbench series ..... 258
Mosida series ..... 259
Nuc series ..... 260
Nuyobe series ..... 261
Nyserva series ..... 262
Packer series ..... 263
Palinor series ..... 264
Parisa series ..... 265

Peeko series ..... 266
Penelas series ..... 267
Penoyer series ..... 268
Pharo series ..... 269
Portmount series ..... 270
Puett series ..... 270
Raster series ..... 271
Ravenswood series ..... 272
Rebel series ..... 273
Roden series ..... 274
Rustigate series ..... 274
Segura series ..... 275
Slaw series ..... 276
Solak series ..... 277
Spager series ..... 278
Springwarm series ..... 278
Squawtip series ..... 279
Stargo series ..... 280
Stewval series ..... 281
Stumble series ..... 282
Suak series ..... 283
Sycomat series ..... 284
Titiack series ..... 285
Tokoper series ..... 286
Ubehebe series ..... 286
Univega series ..... 287
Unsel series ..... 288
Ursine series ..... 289
Veet series ..... 290
Vindicator series ..... 291
Wardenot series ..... 292
Watoopah series ..... 292
Winu series ..... 293
Yody series ..... 294
Yomba series ..... 295
Zadvar series ..... 296
**Formation of the soils** ..... 299
Climate ..... 299
Relief ..... 300
Biological forces ..... 300
Parent material ..... 301
Time ..... 301
**References** ..... 303
**Glossary** ..... 305

Part II

**Summary of tables** ..... iii
**Crops and pasture** ..... 3
Yields per acre ..... 3
Land capability classification ..... 3
Erosion factors ..... 4
**Rangeland and grazeable woodland resource management** ..... 7
Rangeland management ..... 8
Plant communities of Nye County ..... 10
Rangeland seeding ..... 14
**Forest land** ..... 15
Woodland ordination system ..... 15
Forest land management and productivity ..... 16
**Engineering** ..... 17
Building site development ..... 17
Sanitary facilities ..... 18
Waste management ..... 19
Construction materials ..... 19
Water management ..... 20
**Soil properties** ..... 23
Engineering index properties ..... 23
Physical and chemical properties ..... 24
Water features ..... 26
Soil features ..... 27
**References** ..... 29
**Glossary** ..... 31
**Tables** ..... 49
**Rangeland plants and woodland understory** ..... 339

Issued 2002

# Summary of Tables

**Part II**


Temperature and precipitation (table 1) ..... 49

Freeze dates in spring and fall (table 2) ..... 55

Growing season (table 3) ..... 57

Acreage and proportionate extent of the soils (table 4) ..... 59

Land capability and yields per acre of crops (table 5) ..... 62

Suitability for rangeland seeding (table 6) ..... 63

Woodland management and productivity (table 7) ..... 76

Building site development (table 8) ..... 79

Sanitary facilities (table 9) ..... 106

Construction materials (table 10) ..... 133

Water management (table 11) ..... 161

Engineering index properties (table 12) ..... 192

Physical properties of the soils (table 13) ..... 258

Chemical properties of the soils (table 14) ..... 281

Water features (table 15) ..... 309

Soil features (table 16) ..... 322

Classification of the soils (table 17) ..... 335

# Soil Survey of
# Nye County, Nevada, Northeast Part

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

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

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

Interpretative ratings help engineers, planners, and others to understand how soil properties influence important nonagricultural uses, such as building site development and construction materials. The ratings indicate the most restrictive soil features affecting the suitability of the soils for these uses.

Soils are rated in their natural state. No unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most of the limitations. Many of these practices, however, are costly. The final decision in selecting a site for a particular use generally involves weighing the costs of site preparation and maintenance.

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

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

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

# Crops and Pasture

General management needed for crops and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained. The estimated yields of the main crops and pasture plants are listed for each soil in table 5 at the back of this publication.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units" in Part I of this Publication and in the "Soil Properties" portion of Part II. Specific information can be obtained from the local office of the Natural Resources Conservation Service or Cooperative Extension.

## Yields per Acre

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in table 5, "Land Capability and Yields per Acre of Crops." In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or Cooperative Extension can provide information about the management and productivity of the soils for those crops.

### Pasture and Hayland Interpretations

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often provided in animal unit months (AUM), the amount of forage or feed required too feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Information about forage yields other than those shown in table 5, "Land Capability and Yields per Acre of Crops" can be provided by the local office of the Natural Resources Conservation Service or Cooperative Extension.

## Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land

forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, as described in "Land Capability Classification" (15), soils generally are grouped at three levels: capability class, subclass, and unit. These levels indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, cotton, hay, and field-grown vegetables. Only class and subclass are used in this survey.

*Capability classes*, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes I, II, III, and IV are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class I to class IV. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes V, VI, and VII are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class V to class VII. The local office of the Cooperative Extension or Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class VIII are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

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

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

The irrigated capability classification of each farmland map unit is given in table 5, "Land Capability and Yields per Acre of Crops."

## Erosion Factors

Soil erodibility factors Kw and Kf quantify the susceptibility of soil to detachment by water. A wind erodibility group (WEG) is a grouping of soils that have similar properties affecting their resistance to soil blowing. The Wind Erodibility Index (I) is based on the WEG and is used in the wind erosion equation. Soil erodibility factors Kw and Kf are used in the Revised Universal Soil Loss Equation. The procedure for predicting soil loss is useful in guiding the selection of soil and water conservation practices.

### Soil Erodibility Factors Kw and Kf

Factor Kw shows the erodibility of the whole soil, and factor Kf shows the erodibility of only the fine-earth fraction, the material less than 2.0 millimeters in diameter. The soil erodibility factor indicates the susceptibility of a soil to sheet and rill erosion by water. The soil properties that influence erodibility are those that affect the infiltration rate, the movement of water through the soil, and the water storage capacity of the soil and those that allow the soil to resist dispersion, splashing, abrasion, and the transporting forces of rainfall and runoff. The most important soil properties are the content of silt plus very fine sand, the content of sand coarser than very fine sand, the content of organic matter, soil structure, and permeability.

### Wind Erodibility Groups

Soils are assigned wind erodibility groups on the basis of the properties of the surface layer. The properties that are most important with respect to soil blowing are soil texture, content of organic matter, calcium carbonate, reaction, content of rock fragments, and aggregate stability. Wind erodibility is inversely related to the percentage of dry surface soil aggregates larger than 0.84 millimeter in diameter. From this percentage, the wind erodibility index factor (I) is determined.

## Soil Loss Tolerance (T) Factor

The annual Soil Loss Tolerance (T) is an estimate of the maximum rate of erosion that can occur without affecting crop productivity. The T factor is expressed in tons of soil loss per acre per year. Values of 1 to 5 are used. T values are assigned according to properties of limiting subsurface soil layers. The designation of a limiting layer implies that the material above the layer has more favorable properties for crop production. The criteria for assigning T are based on the severity of physical or chemical properties of subsurface layers, the climatically influenced properties of soil moisture and temperature, the economic feasibility of utilizing management practices to overcome limiting layers or conditions, and the depth to the limiting layer.

Additional information about wind erodibility groups and I, Kw, Kf, and T factors can be obtained from local offices of the Natural Resources Conservation Service or Cooperative Extension.

# Rangeland And Grazeable Woodland Resource Management

This section was written by Gary K. Brackley, State Range Conservationist, Natural Resources Conservation Service.

Rangeland, within this report, is considered a "kind of land" rather than a particular kind of land use. Rangelands provide many important resource values, acting as vast watersheds, providing habitat for wildlife, offering forage to livestock, and space and beauty for recreational pursuits. The resource values of rangelands are intricately related to each other and are often directly affected by rangeland management actions. Because of the interrelation between rangeland resources, it is appropriate that rangeland managers consider all resource values when planning range improvements. The following discussions on rangeland management include comments on how rangeland resource values are affected by these management actions.

About 99 percent of the land in the survey area is rangeland. Livestock grazing is the principle agricultural use of the rangelands. Livestock operations are mostly cow-calf or cow-calf-sheep. Ranches are a few hundred acres and rely heavily on permitted grazing use of public lands. Most of the rangelands within the survey area is administered by the Bureau of Land Management. Oil exploration and mining is the major industrial use of rangelands in the survey area and has played an important role in the history of this area.

During the mining booms of the 1860's, herds of cattle, sheep, oxen, horses, and burros, were brought to Nye County to power and feed the developing mining communities. Heavy grazing pressure during these boom-periods depleted native stands of forage over much of the survey area. The early devastation of rangeland plant communities through uncontrolled livestock grazing has long ended. However, severely depleted ranges still reflect the impacts of historical abusive grazing use and other disturbances associated with early settlement. Where disturbance has been most severe, palatable shrubs have generally been replaced by less desirable shrubs and many native perennial grasses and forbs have been eliminated and replaced by alien or introduced annual grasses and forbs. Recovery has been most evident where previous abuses were limited. It is axiomatic that the greater the level of deterioration the longer the period of recovery is for native plant communities. It is important to recognize that although present day rangeland production and plant diversity in the survey area is generally less than what is potentially achievable, the overall health or condition of rangelands in the survey area today is much improved from what was commonplace in the early 1900's.

For most rangeland plant communities, good management can improve present range condition and productivity while preventing accelerated erosion. Proper management of rangeland is dependent upon many factors: season of grazing use; the kind of grazing animal; the intensity and distribution of grazing; and the range resource potential are important management considerations. Multiple use management of rangelands to meet present and future needs requires extensive knowledge of the range resource capabilities and limitations. An understanding of the dynamics of native plant communities and the properties of associated soils is fundamental in applying ecological principals to rangeland evaluation and management.

During the course of this soil survey, range and woodland sites were correlated to soils identified within the survey area. These correlations are based on our present understanding of soil-plant-climate relationships in the area. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt or lime content, and topographic position are also important. Climatic relationships to vegetation and soils are accounted for in the classification of soils and in soil mapping criteria. In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Range sites and woodland sites can generally be determined from soil maps and map unit legends developed for the survey area.

A range site is a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. A range site is the product of all environmental factors responsible for its

development. It can support a native plant community typified by an association of species that differs from the potential plant community of other range sites in the kind or proportion of species or in total production. Disturbances such as drought, fire, grazing by native fauna, or insect and disease damage are recognized as natural factors in the development of native plant communities.

The Rangeland Plants and Woodland understory tables in the appendix for each detailed map unit shows, for each soil and contrasting inclusion, the range site; the common plant name and scientific plant symbol for the characteristic vegetation; the average percent composition for each species in the potential plant community; and the total annual production of vegetation in favorable, normal, and unfavorable years; Characteristic vegetation - the grasses, forbs, and shrubs that make up most of the potential plant community for each soil - is listed by common name. Under composition, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals, the grazing season, and availability of forage. Many plants, trees, and shrubs are inaccessible or not within reach of foraging animals.

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

The total production of understory vegetation includes the herbaceous plants and the leaves, twigs, and fruit of woody plants up to a height of 4.5 feet. It is expressed in pounds per acre of air-dry vegetation in favorable, normal, and unfavorable years. In a favorable year, soil moisture is above average during the optimum part of the growing season; in a normal year, soil moisture is average; and in an unfavorable year, it is below average.

Also included in each table is a site number. A more detailed description of each site, identified by number, can be found in the local NRCS office Technical Guide.

## Rangeland Management

Range management requires knowledge of the kinds of soils and of the natural potential plant communities these soils can support in a given area. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the natural potential plant community on a particular range site. The more closely the existing community resembles the potential plant community, the higher the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community for a given use. The range condition rating alone does not indicate whether the present plant community is improving or deteriorating in relation to its potential. Trend in range condition is a measure of the direction of change in range condition. Present range condition is a reflection of the accumulated effects of past use; range trend is an expression of the effects of current use. Once potential plant communities have been identified and present range condition determined, trend in range condition can be monitored over time to evaluate whether management objectives are being met.

Usually the objective in range management is to manage grazing so that the plants growing on a site are about the same in kind and amount as the natural potential plant community for that site. Such management generally results in the optimum production of vegetation, conservation of water, and control of soil erosion. However, to meet a special need or a specific use, it may be desirable to manage for a plant community other than the potential plant community for the site. Care must always be taken when managing for a specific plant community not to increase susceptibility to soil erosion. Future uses and the relative ability of given sites to respond with management should be considered if management is directed to achieve other than the potential plant community.

Desirable forage plants of many sagebrush-grass plant communities within the survey area have been greatly reduced or even eliminated by excessive and untimely grazing use. There has been a general reduction of perennial grasses and an overall increase in woody plants. The productivity of forage plants generally is below the production potential on many sites. Uneven livestock distribution has allowed localized overuse and underuse of the native forage.

The increase in numbers and size of sagebrush and other shrubs, and the extensive invasion of cheatgrass (an introduced annual grass), on sagebrush-grass rangelands

has reduced soil moisture and nutrients available to perennial grasses and forbs. Where range condition has not deteriorated too far, and an adequate population of desirable perennial grasses and forbs are available to respond to a release from competition, brush management practices can be effective in reversing the trend toward increasing dominance of woody vegetation. Reducing big sagebrush cover can benefit mule deer and pronghorn antelope where the habitat needs of these animals are properly identified and planned for in the manipulation of vegetation. Extensive areas dominated by big sagebrush are marginal pronghorn antelope habitat and these areas can be treated to decrease the density and height of sagebrush. Removal of big sagebrush to enhance the diversity of understory grasses and forbs or to increase production of green forage on transitional range where shrub cover is excessive can benefit mule deer. The sage grouse is a habitat-specific bird, relying primarily on sagebrush to meet its life requirements. Plans for manipulation of sagebrush stands on ranges occupied by sage grouse should provide for the maintenance of suitable sage grouse habitat, especially nesting habitat near strutting grounds or "leks".

In assessing the impact of the manipulation of vegetation on wildlife it is important to consider the role "edges" play in wildlife habitat. The structure and dominance of plants that remain after manipulation of vegetation differ with the treatment method used. Fire totally removes all vegetation including the skeletons or woody portions of shrubs and thus eliminates the structure of woody vegetation from the area treated. Prescription burning may enhance habitat for a number of wildlife species. Mule deer, antelope, and many non-game species select recently burned areas for feeding. Brush treatments using herbicides leave the dead skeletons of shrubs and the shrub structure is retained. Antelope usually avoid areas having this dead shrub structure for several years after treatment. Herbicide control of shrubs may also kill broad-leaved forbs in the shrub understory which are a staple part of the diet of sage grouse and antelope. Chaining, and to a lesser degree, brush beating, change the vegetative structure from tree/shrub or shrub to grassland and the residue left on the ground creates microhabitat for small mammals. Manipulation of sagebrush within sage grouse occupied ranges must be undertaken with careful planning. Optimum nesting habitat for sage grouse is characterized by a 20 to 40 percent crown cover of sagebrush that is less than 30 inches high. Some treatment of sagebrush, such as reducing cover from 40 to 20 percent may not seriously degrade sage grouse nesting habitat and can often provide higher quality sage grouse forage.

Rangeland seeding may be required following removal of woody vegetation where desirable understory plants are sparse or absent in the present plant community. Revegetation may also be necessary for critical area treatment following wildfire or other major disturbance. Maximum grazing capacity is realized from seeded stands where management is directed to achieve uniform grazing of the stand and prevention of the concentration of livestock. Additional water developments and fencing may be required to meet management objectives. Livestock water developments can be beneficial to wildlife, especially deer and pronghorns, if the water supply is available when they occupy the area. Forage for wildlife, such as pronghorn antelope, mule deer, and sage grouse can be enhanced if adapted forbs are included in the seeding.

The success of range seeding depends on the amount of moisture available during the growing season. Even though adapted species and improved seeding and land treatment techniques may be applied, successful results of rangeland seeding are strongly influenced by rainfall. Precipitation within the survey area fluctuates widely in distribution and amount from one year to the next. The occurrence of years having below normal precipitation is relatively frequent and the risk of seeding failure due to the unpredictability of climate should be acknowledged in addition to critical soil properties that affect seeding success.

Each soil in the survey area is rated in the detailed soil map units as to suitability for rangeland seeding. Where critical area treatment is necessary it may be advantageous to provide a plant cover to prevent accelerated erosion on those soils with poor seeding suitability ratings. Only those plant materials adapted to the area to be treated should be used in rangeland seeding.

Riparian areas or meadows are interspersed throughout the survey area. Relatively broad floodplains occur at the lower elevations. Riparian vegetation occurs along the main stream channels feeding these floodplains. On higher landscapes, stringer meadows occur along spring-fed stream channels where moisture is available to plants through most of the growing season. Meadow vegetation also occurs on the periphery of seeps and springs. These riparian zones are disproportionately important for the relatively small amount of total area they represent in the survey area. The importance of riparian zones is related primarily to the presence of free water, the greater productivity and length of growing period of the riparian vegetation influenced by this extra moisture, and the diversity of plant species as well as the structural diversity of the riparian vegetation. Riparian zones along stream channels are typically linear in nature, which maximizes the edge effect between them and the adjacent upland areas. An "edge" or ecotone is a transition between plant communities or where vegetative structure within plant communities come together. These edges are commonly richer in wildlife than either of the adjoining communities.

More than half of all wildlife species in the survey area are dependent upon riparian plant communities for a significant portion of the year. Riparian communities also support wildlife not common to desert ecosystems such as short-eared owls, Pacific tree frogs, and long-tailed weasels. Riparian communities are also important as islands of habitat in desert environments for migrating birds. Species such as nuthatches and warblers which nest in forest ecosystems can be found in desert riparian zones during the spring and fall. These communities are concentration areas not only for wildlife, but also recreational users, livestock and feral horses.

Abusive livestock grazing of riparian vegetation can reduce water quality, eliminate streamside shrubs, cause soil compaction, accelerate erosion, and breakdown streambanks. Proper management of rangelands in the survey area requires that special attention be given to the welfare of riparian zones. Fortunately, riparian communities often respond to improved livestock management methods more rapidly than upland plant communities. Grazing treatments for riparian areas vary with the stability of the riparian community and the condition or "health" of the adjacent upland plant communities.

## Plant Communities of Nye County

Nye County is on the southern edge of the Basin and Range Physiographic Province. Major plant associations within the soil survey area typify the general zonation of vegetation common to the Great Basin Region. Valley floors and lower piedmont slope landscapes are dominated by salt-desert shrub plant communities. On landscape positions above the salt-desert shrub zone, sagebrush-grass plant communities are prevalent where mean annual precipitation is 8 inches or more.

Salt-desert shrub communities are normally a reflection of either a climatically dry environment where mean annual precipitation is less than 8 inches or of physiologically dry soil conditions. High concentrations of salts that interfere with plant uptake of soil moisture can create physiologically dry soil conditions. Most map units at the lower elevations support plant communities of the salt-desert shrub zone in the survey area. Representative shrubs of these salt-desert shrub communities are shadscale, bud sagebrush, Bailey greasewood, winterfat, and Douglas rabbitbrush. Common grasses include galleta, Indian ricegrass, and bottlebrush squirreltail.

Salt-desert shrub plant communities in the survey area vary from stands dominated by a single shrub species to relatively heterogeneous mixtures of shrubs and grasses. The vegetation of these communities is usually sparse and vegetal cover is normally less than 20 percent. The naturally sparse plant cover of most salt-desert shrub plant communities leaves them susceptible to wind and water erosion. Soil stability of the interspaces between plants in salt-desert shrub communities is provided by surface pavements of rock fragments or by microphytic (algae) crusts at the soil surface. Either of these soil protective features can be damaged by livestock trailing or off-road vehicle traffic.

Salt-desert shrub plant communities are most valuable as winter range for livestock. These sites can produce high quality winter forage and are usually subject to only light snowfall. Most of the desirable forage species within salt-desert shrub communities are adversely affected by late winter (March-April) grazing, heavy use, or a combination of these two factors. Where winter grazing on native rangeland communities is practiced, it is important to have an emergency supply of feed readily available to carry livestock through periods of unusually severe conditions.

Properly regulated grazing management practices, such as periodic rest during critical growth in the late winter, rotational use, and the control of intensity and season of use can enhance the long-term productivity of salt-desert shrub plant communities. Fences, herding, water hauling, and control of livestock access to watering facilities can be used to achieve better distribution of grazing use and to facilitate grazing management. Due to the inherent environmental harshness of the salt-desert shrub zone, manipulation of vegetation and re-vegetation projects are not usually advisable.

Salt-desert shrub communities are home to a wide variety of non-game species including whiptail lizards, antelope ground squirrels, loggerhead shrikes and the Pacific rattlesnake. Plant communities dominated by shadscale or winterfat and associated forbs and grasses provide important winter range areas for pronghorn antelope. On ranges occupied by pronghorn antelope, fencing can be detrimental to pronghorn migration, as these animals commonly do not jump. Fences constructed with the lower wire high enough for antelope to crawl under reduce the impact on antelope movement. Where feasible, routing of fence lines on antelope ranges should be planned to cause the least disruption to traditional antelope travel lanes. Livestock water developments are beneficial to antelope (and other wildlife) if the water supply is available when pronghorn occupy the area. Few mule deer utilize salt-desert shrub communities and these communities are generally considered unimportant to deer management. Feral horses will use these salt-desert shrub communities during the winter.

Within the salt-desert shrub zone are low-lying areas that receive extra moisture. Many of these sites receive additional moisture as run-in from higher landscape positions and are subject to shallow, low-velocity overflow

during periods of runoff. Black greasewood, basin big sagebrush, and basin wildrye are important plants on these floodplain sites. Basin wildrye production can exceed two thousand pounds per acre when these plant communities are in high condition. These same communities in poor condition typically produce less than 500 pounds per acre of basin wildrye. There is good potential for increasing basin wildrye production on many poor and fair condition sites in the survey area. Basin wildrye provides standing dried forage during its fall and winter dormancy and can be of value for late winter calving areas. Mule deer can be found on these basin wildrye communities year-round as can pygmy rabbits and northern harriers.

Other plant communities in these soil map units that reflect extra moisture conditions occur adjacent to valley floor playas. These sites have a high water table during periods of runoff. Black greasewood, shadscale, inland saltgrass, and basin wildrye are plants characteristic of these sites.

Plant communities dominated by black greasewood provide thermal cover for many species of wildlife but have limited value for big game. The spines and coarse structure of black greasewood also offer protective cover to nesting birds and small mammals. Although black greasewood is not a preferred forage plant for livestock, cattle and sheep will browse the succulent spring growth. On late fall and winter ranges, the fruit of black greasewood and shadscale offer nutritious and palatable feed. Soluble oxalates present in black greasewood may be harmful to livestock, especially sheep, if excess use is made of new growth in the spring.

Many valleys also include areas of playa. As snow melts in the spring, runoff water drains into these valley floor basins. This runoff water is retained on the playas for short periods providing nesting and feeding habitat for some water birds. Playas containing water during the spring offer important resting-places for migrating waterfowl. Sand dunes formed by the deposition of wind blown sediment are commonly found on the leeward side of playas in the survey area. Although of limited extent, partially stabilized sand dunes can offer important habitat for both predator and prey vertebrate wildlife. Kangaroo rats are commonly found on sand dune areas as are the kit fox and bobcat.

Some of the soils in the valleys are suitable for growing adapted crops if irrigation water is available. Leaving vegetative cover along fence rows and ditch banks can provide food and cover for birds and mammals.

Sagebrush-grass plant communities within the survey area are represented in the mid-elevations, valleys, and mountains. Average annual precipitation at these elevations is between 8 and 10 inches.

Wyoming big sagebrush, black sagebrush, and to a lesser extent, basin big sagebrush are the dominant woody sagebrush taxa of lower elevations in the survey area. Perennial grasses are potentially the dominant herbaceous vegetation of sagebrush-grass plant communities in the survey area. Galleta, Indian ricegrass, needle and thread, bottlebrush squirreltail, and Sandberg bluegrass are important grasses associated with sagebrush communities. Livestock pressure on these sagebrush-grass plant communities has historically been severe. These plant communities are usually first to initiate growth or "greenup" with warming temperatures in the early spring and have traditionally been used for spring grazing by livestock. However, close grazing by livestock at this time, season after season, will eventually eliminate the perennial grass and forb understory.

Grazing management practices, such as periodic rest during critical growth in the spring, rotational use, and the control of intensity and season of use can enhance the long-term productivity of these sagebrush-grass communities. Fences, herding, water hauling, and control of livestock access to watering facilities can be used to achieve better distribution of grazing use and to facilitate grazing management of these areas. There are very few perennial water sources within the sagebrush-grass zone. Water developments and watering facilities, therefore, are a key element to grazing management and can be of significant value for wildlife. Where range condition has not deteriorated too far, and an adequate population of desirable perennial grasses and forbs are available to respond to a release from competition, brush management practices can greatly enhance the forage available for livestock and wildlife. There is a limited selection of plant materials available for rangeland seeding in the 8 to 10 inch precipitation zone. However, seeding of adapted forage species tolerant to early spring grazing can play a key role in the management of grazing on adjacent native sagebrush-grass and salt-desert shrub plant communities. The occurrence of years having below normal precipitation is relatively frequent throughout the sagebrush-grass zone and the risk of seeding failure due to the unpredictability of climate should be acknowledged.

Although these sagebrush-grass communities may provide transitional range in the spring to pronghorn antelope moving from winter to summer ranges, plant communities dominated by big sagebrush are not heavily used by pronghorns. On ranges occupied by pronghorn antelope, fencing can be detrimental to pronghorn migration, as these animals commonly do not jump. Fences constructed with the lower wire high enough for antelope to crawl under reduce the impact on antelope movement. Where feasible, routing of fence lines on antelope ranges should be planned to cause the least disruption to traditional antelope travel lanes. Livestock water developments are beneficial to wildlife, especially deer and antelope, if the water supply is available when

they occupy the area. Sage grouse may use these areas during severe winter periods to feed on sagebrush that has not been snow-covered. Heavy snow at higher elevations will move chukar partridge onto these communities where feed is available. Low elevation sagebrush-grass communities within the survey area are used primarily by mule deer and feral horses as winter range or as transitional range in the spring. Spring grazing by livestock on deer winter range areas should be managed so that turn out of livestock is delayed until after spring green-up and most of the deer has migrated from the area.

Brush management practices can be very effective in increasing native forage production on sites in the mid-elevation sagebrush-grass zones. Brush management practices that are implemented primarily to benefit livestock can also be important to wildlife. Opening up large, homogeneous stands of sagebrush is often advantageous to wildlife, such as mule deer and pronghorn antelope. Rangeland seeding may be required following removal of woody vegetation where desirable understory plants are sparse or absent in the present plant community. Forage for wildlife, such as pronghorn antelope, mule deer, and sage grouse can be enhanced if adapted forbs are included in the seeding.

Singleleaf pinyon and Utah juniper plant communities are prevalent at intermediate elevations of the sagebrush-grass zone. The major occurrences of pinyon-juniper woodlands are in the Pancake, Monitor, Antelope, Grant, Egan Ranges. Dominant understory shrubs include mountain big sagebrush, mountain mahogany and black sagebrush. Prevalent understory grasses are Indian ricegrass, bottlebrush squirreltail, Sandberg bluegrass, mutton grass, and needlegrasses.

Non-game wildlife species associated with these woodlands are the bushy-tailed woodrat, the blue-grey gnat-catcher, pinyon jay, and the American kestrel. Mule deer will also use these woodland communities for thermal cover and many species of small mammals and birds are associated with the juniper woodlands within the survey area. Stringer meadows occur along spring-fed stream channels in the pinyon juniper zones. Meadow vegetation also occurs on the periphery of seeps and springs. Wet meadows adjacent to sagebrush stands are important sage grouse brood-rearing areas. The diet of sage grouse chicks during the first weeks after leaving the nest is primarily insects (ants and beetles) and succulent forbs that are common to wet meadows. Cattle grazing of meadow areas can improve the quality of sage grouse feed if a period of re-growth for key forb species is provided. Grazing increases the succulence of forbs by arresting the maturation process of plant tissues. The succulent or young leaf tissue is higher in protein and lower in fiber than mature tissue. Sage grouse have been shown to seek sources of succulent forbs by selecting for meadows grazed by cattle. Sage grouse chicks benefit from the horizontal and vertical cover provided by properly grazed meadows that appear "patchy" in terms of stubble heights remaining after livestock use. Improper livestock grazing management of riparian vegetation can cause gully erosion that results in lowered water tables, drying out of meadows, and loss of valuable wildlife and livestock forage. Grazing management strategies should be applied that are sensitive to the development and maintenance of healthy riparian areas.

During the mining booms of the late 1800's, much of Nye County's woodland resource was harvested for use in ore processing, as mine props, or burned as domestic firewood. Large portions of the pinyon-juniper woodland in Nye County support trees less than 150 years of age, representing re-growth after the early mining boom period. Old ax-cut stumps are common in the re-growth stands of pinyon and juniper in the survey area.

Pinyon and juniper woodlands are generally low in productivity at elevations where juniper is the dominant tree species. At higher elevations, the woodland is more productive and pinyon is dominant in the overstory.

In the pristine environment, stands of pinyon and juniper woodland were restricted to specific soils and landscape positions by naturally occurring wildfires. Young pinyon and juniper trees are very susceptible to ground fires until their crowns grow well above the sagebrush-grass vegetation. Fire usually eliminates or greatly reduces the number of tree seedlings on soils that produce continuous stands of fine fuels. Production of fine fuels is restricted on soils that are droughty, shallow and/or stony. A sparse stand of fine fuels reduces the frequency and extent of wildfires and provides "safe" sites for stands of pinyon and juniper to develop.

Settlement in the survey area has reduced the incidence and size of natural fires through fire suppression and the disruption of fine fuel continuity by livestock grazing. With changes in the extent and frequency of natural fire, significant changes in the character of pinyon-juniper woodlands and associated rangelands have occurred. Original woodlands have become more dense and adjacent sagebrush-grass communities have been invaded by these conifers.

Traditional products of the pinyon-juniper woodlands include firewood, fence posts, pine nuts and Christmas trees. As energy demands and costs increase, firewood harvesting becomes more important as a woodland product. Other woodland uses are livestock grazing, wildlife food and cover, recreation and watershed values.

Managing pinyon and juniper woodland for sustained yield is a relatively new concept. Pinyon and juniper wood is not suitable for lumber and commercial tree production management techniques have not generally been applied to these woodlands in the past. Conversion of pinyon-

juniper woodlands to rangeland has been the trend in the past, and several satisfactory conversion methods have been developed. Because of the recent (and growing) demand for firewood, however, management of these woodlands should include evaluations of the economic value of firewood production and harvest as well as livestock grazing.

Thinning and improvement cuttings are recommended for sustained yields. Harvest of selected trees for fence posts and firewood can provide an economic return and improve stand quality and yield. Thinning and selective tree harvest maintains an open overstory canopy that can optimize understory forage production while allowing more vigorous growth of the remaining trees.

Tree production should be encouraged on sites known to be productive or on soils that originally supported pinyon-juniper woodland. Invasion of pinyon or juniper into sagebrush-grass rangelands should be controlled to prevent loss of forage production and potential degradation of the rangeland resource. When developing a woodland management plan, it is important to evaluate the soil and site potentials. Consideration should be given to all woodland values, site opportunities and economic factors.

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some woodland, if well managed, can produce enough understory vegetation to support grazing of livestock or wildlife, or both, without damage to the trees.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, the amount of litter accumulation and level of tree competition for soil moisture and nutrients.

Areas where there is presently a heterogeneous mix of vegetative types including grassland, low shrub, tall shrub and tree/shrub communities usually provide an optimum diversity of habitat and wildlife. These types of vegetative complexes are common in the mid- and upper elevation sagebrush-grass zones within the survey area. In these areas, moderate browsing by cattle on antelope bitterbrush in the fall can encourage a shrub form that leaves more of the bitterbrush plant available for use by mule deer and antelope as well as enhancing bitterbrush vigor and production.

The uppermost elevations of the survey area (8,000 to 10,000 feet) typically support high elevation sagebrush-grass-plant communities. Average annual precipitation ranges between 14 to over 18 inches at these elevations within the survey area. Mountain big sagebrush and low sagebrush dominate the overstory canopy of these plant communities. Understory grasses include prairie junegrass, mutton grass, spike-fescue, needlegrass, bluegrass, basin wildrye, and bluebunch wheatgrass. Mountain livestock grazing species such as snowberry and serviceberry, as well as antelope bitterbrush, are common in the shrub overstory. Curlleaf mountain mahogany stands are found at the highest elevations on mountain summits and upper sideslopes.

Plant communities within these map units are potentially very productive and normally respond rapidly to management. These high elevation sites remain cold and wet through spring and into early summer and are used as summer range for livestock grazing. Livestock grazing should be delayed on these sites until the surface soils have dried sufficiently to withstand grazing pressure. Snow often blankets these high elevation sites by late fall, further restricting the period of livestock use in these areas. Steeply sloping terrain is common over the high elevation sagebrush-grass zone. Livestock tend to overuse less sloping areas if grazing is not managed to effect an even distribution of grazing use. Fences, watering facilities and herding can be employed to force livestock to use areas that might otherwise be left ungrazed. Salt and mineral block placements should be away from water. Mule deer use these high elevation plant communities for summer range. A patchwork of dense stands of mountain grazing species on north-facing slopes are important deer fawning areas. Management practices should encourage the maintenance of these dense brush stands for wildlife cover.

Seeps and springs at these elevations are common and livestock water is usually readily available. However, to prevent concentration of livestock and achieve good livestock distribution, additional water developments may be necessary. Spring developments, pipelines and storage tanks provide dependable means of supplying water. Development of seeps and springs for livestock water can be done to benefit wildlife also. Fencing the meadow surrounding a seep or spring to exclude livestock and piping the water to areas outside the exclosure into troughs or other storage facilities protects the meadow vegetation for wildlife. It is important that enough water is retained in the fenced seep or spring area to retain the meadow vegetation. Small meadows can also be developed by piping overflow water from livestock troughs into fenced areas to create and maintain meadow vegetation.

There are many naturally occurring meadow areas within the mid- and upper elevation sagebrush-grass communities that have been heavily invaded by big sagebrush. The sagebrush is robbing moisture from these meadows and if removed, water quantity and the duration of water flow will increase as the grassland aspect of meadow vegetation returns. Prescription burning of dense sagebrush stands can be an economical approach to brush management within the upper elevation sagebrush-grass zone. Brush management practices should be designed so that an adequate shrub canopy remains nears

meadows for wildlife cover. Range seeding of the upper elevation plant communities is usually not necessary. Most areas have sufficient remnant populations of desirable forbs and grasses to respond to grazing management and/or release from shrub competition with brush management. Where range seeding is needed, the relatively high annual precipitation over this zone allows for a wide selection of adapted plant materials to choose from in meeting the seeding purpose.

## Rangeland Seeding

Rangeland seeding may be required following the removal of woody vegetation in areas where desirable understory plants are scarce or are not included in the present plant community. Re-vegetation also may be necessary for critical area treatment following a wildfire or other major disturbance. Maximum grazing capacity can be achieved in seeded stands where the objective of management is uniform grazing of the stands and prevention of the concentration of livestock. Additional water developments and fencing may be required to meet management objectives.

The success of range seeding depends on the amount of moisture available during the growing season. Even in areas where adapted species are planted and improved seeding and land treatment techniques are applied, the success of range seeding is strongly influenced by rainfall. The distribution and amount of precipitation in the survey area fluctuate widely from one year to the next. Years of below normal precipitation are relatively frequent, and the risk of seeding failure caused by the unpredictability of climate should be acknowledged in addition to critical soil properties that affect seeding success.

Each soil in the survey area is rated in table 6, "Suitability for Rangeland Seeding." The criteria used in the development of these ratings are available from the local Nevada office of the Natural Resources Conservation Service. Where critical area treatment is necessary, providing a plant cover that helps to prevent accelerated erosion may be advantageous on soils that are poorly suited to range seeding. The plants that are suited to the soils in the area to be treated should be selected for seeding.

More specific management concerns are addressed under the heading "Plant Communities in Nye County, Nevada, Northeast Part" later in this section. Additional information about rangeland management can be obtained from local offices of the Natural Resources Conservation Service or Cooperative Extension.

# Forest Land

Table 7, "Woodland Management and Productivity, can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

## Woodland Ordination System

Table 7, "Woodland Management and Productivity, lists the ordination (woodland suitability) symbol for each soil. The ordination system is a nationwide uniform system of labeling soils or groups of soils that are similar in use and management. The primary factors evaluated in the woodland ordination system are productivity of the forest overstory tree species and the principal soil properties resulting in hazards and limitations that affect forest management. There are three parts of the ordination system: class, subclass, and group. The class and subclass are referred to as the ordination symbol.

### Ordination Class Symbol

The first element of the ordination symbol is a number that denotes potential productivity in terms of cubic meters of wood per hectare per year for the indicator tree species. The larger the number, the greater the potential productivity. Potential productivity is based on site index and the corresponding culmination of mean annual increment. For example, the number 1 indicates a potential production of 1 cubic meter of wood per hectare per year (14.3 cubic feet per acre per year) and 10 indicates a potential production of 10 cubic meters of wood per hectare per year (143 cubic feet per acre per year).

*Indicator species* is a species that is common in the area and is generally, but not necessarily, the most productive on the soil. It is the species that determines the ordination class. It is the first species listed for a particular map unit in table 7, "Woodland Management and Productivity." This table shows the productivity for all species where data have been collected.

*Site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The site indexes shown in table 7, "Woodland Management and Productivity," are averages based on measurements made at sites that are representative of the soil series. When the site index and forestland productivity of different soils are compared, the values for the same tree species should be compared. The higher the site index number, the more productive the soil for that species. Site index values are used in conjunction with yield tables to determine average annual yields. Indirectly, they are used to determine the productivity class in the ordination class symbol.

### Ordination Subclass Symbol

The second element of the ordination symbol, or subclass, is a capital letter that indicates certain soil or physiographic characteristics that contribute to important hazards or limitations to be considered in management. The subclasses are defined as follows:

*Subclass X* indicates that forestland use and management are limited by stones or rocks.

*Subclass W* indicates that forestland use and management are significantly limited by excess water, either seasonally or throughout the year. Restricted drainage, a high water table, or flooding can adversely affect either stand development or management.

*Subclass T* indicates that the root zone has toxic substances. Excessive alkalinity, acidity, sodium salts, or other toxic substances impede the development of desirable species.

*Subclass D* indicates that forestland use and management are limited by a restricted rooting depth. The rooting depth is restricted by hard bedrock, a hardpan, or other restrictive layers in the soil.

*Subclass C* indicates that forestland use and management are limited by the kind or amount of clay in the upper part of the soil.

*Subclass S* indicates that the soil is sandy, has a low available water capacity, and normally has a low content of available plant nutrients. The use of equipment is limited during dry periods.

*Subclass F* indicates that forestland use and management are limited by a high content of rock fragments that are larger than 2 millimeters and smaller than 10 inches. This subclass includes flaggy soils.

*Subclass R* indicates that forestland use and management are limited by excessive slope.

*Subclass A* indicates that no significant limitations affect forestland use and management.

## Forest Land Management and Productivity

Information about the productivity and management of the forested map units in the survey area is given in the table 7, "Woodland Management and Productivity."

### Management Concerns

In table 7, "Woodand Management and Productivity," the soils are rated for the erosion hazard, the equipment limitation, seedling mortality, the windthrow hazard, and plant competition.

The *erosion hazard* is *slight* if the expected soil loss is small; *moderate* if some measures are needed to control erosion during logging and road construction; and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

The *equipment limitation* is *slight* if the use of equipment is not limited to a particular kind of equipment or time of year; *moderate* if there is a short seasonal limitation or a need for some modification in management of equipment; and *severe* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

*Seedling mortality* ratings are for seedlings that are from a good planting stock and that are properly planted during a period of average rainfall. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

*Windthrow hazard* is *slight* if trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate* if some trees are blown down during periods of excessive soil wetness and strong winds; and *severe* if many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

*Plant competition* is *slight* if there is little or no competition from other plants; *moderate* if plant competition is expected to hinder the development of a fully stocked stand of desirable trees; and *severe* if plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

### Potential Productivity

The potential productivity of merchantable or *common trees* is expressed as a site index, which is described under the heading "Ordination Class Symbol." Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

# Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

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

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

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

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

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

## Building Site Development

Table 8, "Building Site Development," shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a

cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

*Dwellings* and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, potential for frost action, and depth to a high water table affect the traffic-supporting capacity.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

## Sanitary Facilities

Table 9, "Sanitary Facilities," shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. It also shows the suitability of the soils for use as a daily cover for landfill.

Soil properties are important in selecting sites for sanitary facilities and in identifying limiting soil properties and site features to be considered in planning, design, and installation. Soil limitation ratings of *slight, moderate,* or *severe* are given for septic tank absorption fields, sewage lagoons, and trench and area sanitary landfills. Soil suitability ratings of *good, fair,* and *poor* are given for daily cover for landfill.

A rating of *slight* or *good* indicates that the soils have no limitations or that the limitations can be easily overcome. Good performance and low maintenance can be expected. A rating of *moderate* or *fair* indicates that the limitations should be recognized but generally can be overcome by good management or special design. A rating of *severe* or *poor* indicates that overcoming the limitations is difficult or impractical. Increased maintenance may be required.

*Septic tank absorption fields* are areas in which subsurface systems of tile or perforated pipe distribute effluent from a septic tank into the natural soil. The centerline of the tile is assumed to be at a depth of 24 inches. Only the part of the soil between depths of 24 and 60 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be a certain thickness.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted, relatively impervious soil material. Aerobic lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Relatively impervious soil material for the lagoon floor and sides is desirable to minimize seepage and contamination of local ground water.

Table 9, "Sanitary Facilities," gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

*Trench sanitary landfill* is an area where solid waste is disposed of by placing refuse in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil that is excavated from the trench. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. Soil properties that influence the risk of pollution, the ease of excavation, trafficability, and revegetation are the major considerations in rating the soils.

*Area sanitary landfill* is an area where solid waste is disposed of by placing refuse in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil that is imported from a source away from the site. A final cover of soil at least 2 feet thick is placed over the completed landfill. Soil properties that influence trafficability, revegetation, and the risk of pollution are the main considerations in rating the soils for area sanitary landfills.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. The ratings in table 9, "Sanitary Facilities" are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The suitability of a soil for use as cover is based on properties that affect workability and the ease of digging, moving, and spreading the material over the refuse daily during both wet and dry periods.

Soil texture, wetness, rock fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

## Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources result in energy and resource conservation and minimize the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the wastewater to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of wastewater for irrigation, and treatment of wastewater by slow rate, overland flow, and rapid infiltration processes.

Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or Cooperative Extension.

## Construction Materials

Table 10, "Construction Materials," gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source

of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In table 10, "Construction Materials," the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have one or more of the following characteristics: a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 10, "Construction Materials," only the probability of finding material in suitable quantity in or below the soil is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is as much as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey; have less than 20 inches of suitable material; have a large amount of gravel, stones, or soluble salts; have slopes of more than 15 percent; or have a seasonal high water table at or near the surface.

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

## Water Management

Table 11, "Water Management" gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil

properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

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

*Embankments, dikes, and levees* are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In table 11, "Water Management," the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

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

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

*Aquifer-fed excavated ponds* are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff.

Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

# Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features listed in tables are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

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

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

## Engineering Index Properties

Table 12, "Engineering Index Properties," gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

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

*Classification* of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials *(1)* and the Unified soil classification system *(2)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in-group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in-group A-7 are fine grained. Highly organic soils are classified in-group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in

diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

*Liquid limit* and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

## Physical and Chemical Properties

Tables 13, "Physical Properties of the Soils," and table 14, "Chemical Properties of the Soils," show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

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

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In table 13, "Physical Properties of the Soils," the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Shrink-swell potential* is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent is sometimes used.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In table 13, "Physical Properties of Soils," the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate,

and tilth. It is a source of nitrogen and other nutrients for crops.

*Erosion factor K* indicates the susceptibility of a soil to sheet and rill erosion. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

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

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

*Wind erodibility groups* are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility of soil to soil blowing. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible and vegetation is difficult to establish.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams that have more than 5 percent finely divided calcium carbonate. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if ordinary measures to control soil blowing are used.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.
8. Soils that are not subject to soil blowing because of rock fragments on the surface or because of surface wetness.

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

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

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

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

*Gypsum* is given as the percent, by weight, of hydrated calcium sulfates in the soil. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum (more than 10 percent) may collapse if the gypsum is removed by percolating water.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of non-irrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water

application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Sodium adsorption ratio* is the measure of sodium relative to calcium and magnesium in the water extract from saturated soil paste. Soils having a sodium adsorption ratio of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

## Water Features

Table 15, "Water Features," gives estimates of several important water features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

*Hydrologic soil groups* are groups of soils that, when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a seasonal high water table, the intake rate, permeability after prolonged wetting, and the depth to a very slowly permeable layer. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

In the definitions of the hydrologic soil groups, the infiltration rate is the rate at which water enters the soil at the surface and is controlled by surface conditions. The transmission rate is the rate at which water moves through the soil and is controlled by properties of the soil layers.

The four hydrologic soil groups are:

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

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

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

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

*Flooding*, the temporary covering of the soil surface by flowing water, is caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

Table 15, "Water Features," gives the frequency and duration of flooding and the time of year when flooding is most likely to occur. Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as none, rare, occasional, or frequent. *None* means flooding is not probable; *rare* that it is unlikely but is possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs often under normal weather conditions (the chance of flooding is 50 percent in any year). The term *common* includes both frequent and occasional flooding.

Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 to 30 days), and *very long* (more than 30 days). The time of year that flooding is most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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

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

*High water table* (seasonal) is a zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the surface. Indicated in table 15, "Water Features," are the depth to the seasonal high water table, the kind of water table, and the months of the year when the water table usually is highest.

An *apparent* water table is indicated by the level at which water stands in a freshly dug, unlined borehole after adequate time for adjustments in the surrounding soil.

A *perched* water table is one that is above an unsaturated zone in the soil. The basis for determining that a water table is perched may be general knowledge of the area. The water table is proven to be perched if the water level in a borehole is observed to fall when the borehole is extended.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation.

## Soil Features

Table 16, "Soil Features," gives estimates of several important soil features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

*Depth to bedrock* is given if bedrock is within a depth of 60 inches. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

A *cemented pan* is a nearly continuous layer of indurated or strongly cemented material that is hard and brittle. The particles are held together by cementing substances, such as calcium carbonate and oxides of silicon, iron, or aluminum. Pans are identified when they are within a depth of 60 inches. They are classified as thin or thick. A *thin* pan can be excavated by trenching machines, backhoes, small rippers, and other equipment commonly used to dig excavations for pipelines, sewer lines, and graves. A *thick* pan is so thick or massive that blasting or special equipment is needed when excavations are made.

*Subsidence* is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 16, "Soil Features," shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

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

A *low* potential for frost action indicates that the soil is rarely susceptible to the formation of ice lenses; a *moderate* potential indicates that the soil is susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength; and a *high* potential indicates that the soil is highly susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil.

Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

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

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

# References


1) American Association of State Highway (and Transportation) Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10. 2 vols., illus.

2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM stand. D 2487-69. In 1974 annual book of ASTM standards, pt. 19, 464 pp., illus.

3) Carlson, Helen S. 1917. Nevada Place Names A geographical dictionary.

4) Gile, L.H. and R.B. Grossman. 1968. Morphology of the argillic horizon in desert soils of southern New Mexico. Soil Sci. 106: 6-15.

5) Gile, L.H. and J.W. Hawley. 1966. Periodic sedimentation and soil formation on an alluvial fan piedmont in southern New Mexico. Soil Sci. Soc. Am Proc. 30: 261-268.

6) Kleinhampl, Frank J. and Ziony, Joseph I. 1985. Geology of Northern Nye County, Nevada. Nevada Bureau of Mines and Geology, University of Nevada. Reno. Bulletin 99A. 172 pp., illus.

7) Morrison, R.B. 1964. Lake Lahontan: Geology of Southern Carson Desert, Nevada. U.S. Geol. Surv Prof. pap. 401. 156 pp., illus.

8) Morrison R.B. 1964. Soil stratigraphy: Principles, applications to differentiation and correlations of Quaternary deposits and landforms, and applications to soil science. Ph.D. thesis, Univ. Nev.

9) Morrison, R.B. 1965. Principles of Quaternary soil stratigraphy. In Quaternary soils, INQA Proc., vol. 9. VII Congress: 1-69.

10) Nikiforoff, C.C. 1942. Fundamental formula of soil formation. Am. J. Sci. 240: 847-866.

11) Nikiforoff, C.C. 1949. Weathering and soil evolution. Soil Sci. 67: 219-223.

12) Peterson, Frederick F. 1981. Landforms of the Basin and Range province defined for soil survey. Nevada Agric. Exp. Stn. Max C. Fleischmann Coll. Argic., Univ. Nev., Reno Tech. Bull. 28, 52 pp., illus.

13) Richmond, G M. 1962. Quaternary geology of the LaSal Mountains, Utah. U.S. Geol. Surv. Prof. pap. 324, 135 pp., illus.

14) Springer, M.E. 1953. Soil formation in the desert of the Lahontan Basin, Nevada. Ph.D. thesis. Univ. Calif.

15) United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210.

16) United States Department of Agriculture, Soil Conservation Service. 1981. Land Resource Regions and Major Land Resource Areas of the United States. U.S. Dep. Agric. Handb. 296.

17) United States Department of Agriculture, Soil Conservation Service. 1993. Soil survey manual. U.S. Dep. Agric. Handb. 18.

18) United States Department of Agriculture, Soil Conservation Service, 1980. Soil survey of Big Smoky Valley.

19) United States Department of Agriculture, Soil Conservation Service 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. U.S. Dep. Agric. Handb. 436.

20) Ward, W.T. 1965. Soils of the Adelaide Area, South Australia, in relation to time. In Quaternary soils. INQA Proc., vol. 9., VII Congress: 293-306.

# Glossary

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial cone.** The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a narrow valley upon a plain, or of a tributary stream near or at its junction with its main stream.

**Alluvial flat.** A nearly level, graded, alluvial surface in bolsons and semi-bolsons. Commonly, an alluvial flat does not manifest terraces or floodplain levels.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Argillite.** Weakly metamorphosed mudstone or shale.

**Arroyo.** The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

| | |
|---|---|
| Very low | 0 to 3.5 |
| Low | 3.5 to 5 |
| Moderate | 5 to 7.5 |
| High | more than 7.5 |

**Avalanche chute.** The track or path formed by an avalanche.

**Back slope.** The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

**Backswamp.** A floodplain landform of extensive, marshy, or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

**Badland.** Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in

semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

**Ballena.** A fan remnant having a distinctively-rounded surface of fan alluvium. The ballena's broadly rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave, short pediments which form smoothly-rounded drainageways between adjacent ballenas. A partial ballena is a fan remnant large enough to retain some relict fan surface on a remnant summit.

**Barrier beach.** A wide gently sloping portion of a bolson floor comprising numerous, parallel, relict longshore-bars and lagoons built by a receding pluvial lake.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

**Basin floor.** A general term for the nearly level, lowermost part of intermontane basins (i.e., bolson, semi-bolsons). The basin floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope.

**Beach terrace.** The relict shorelines from pluvial lakes, generally restricted to valley sides.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts, the water table is exposed.

**Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing.

**Bolson.** A landscape term for an internally drained intermontane basin into which drainages from surrounding mountains converge inward toward a central depression.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Caldera.** A large, more or less circular depression, formed by explosion and/or collapse, which surrounds a volcanic vent or vents, and whose diameter is much greater than that of the included vent, or vents.

**Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.

**California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be

supported by standard crushed limestone, per unit area, with the same degree of distortion.

**Canopy.** The leafy crown of trees or shrubs. (See Crown.)

**Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

**Channery soil material.** Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

**Chemical treatment.** Control of unwanted vegetation through the use of chemicals.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

**Clayey soil.** Silty clay, sandy clay, or clay.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Clearcut.** A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Closed depression.** A low area completely surrounded by higher ground and having no natural outlet.

**Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded, partly rounded, or angular fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

**Codominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

**Colluvium.** Unconsolidated, unsorted earth material moved and deposited by mass movement on sideslopes and at the base of slopes.

**Commercial forest.** Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Compressible** (in tables). Excessive decrease in volume of soft soil under load.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane that typically takes the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron or manganese oxide are

generally considered a type of redoximorphic concentration.

**Conglomerate.** A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but, for many, it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Cuesta.** A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

**Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deep soil.** A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Delta.** A body of alluvium having a surface that is nearly flat and fan shaped, deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

**Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Desert pavement.** On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

**Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

**Dominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

**Drainage class (natural).** Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

**Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Dune.** A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

**Ecological Site.** A distinctive kind of rangeland or grazed forestland that has a unique historic potential native plant community. Ecological sites are the products of all the environmental factors that affect their development. An ecological site is capable of supporting a native plant community that has a unique kind and/or proportion of species or total vegetative production. Ecological sites in grazed forestland include both overstory and understory vegetation.

**Effervescence.** The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCL) are added to the soil. The ratings are as follows:

Very slightly effervescent .....few bubbles
Slightly effervescent..... ..... ..... . bubbles readily
Strongly effervescent ..... .... bubbles form low foam
Violently effervescent..... ...bubbles form thick foam quickly

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Even aged.** Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.

**Excess alkali** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

**Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

**Excess sulfur** (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

**Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**Fan apron.** A sheet-like mantle of relatively young alluvium covering part of an older fan piedmont surface. It somewhere buries a soil that can be traced to the edge of the fan apron.

**Fan piedmont.** The most extensive landform on piedmont slopes, formed by the coalescence of alluvial fans or accretions of fan aprons into one generally smooth slope.

**Fan remnant.** A general term for landforms that are remaining parts of older fan-landforms, that either have been dissected or partially buried.

**Fan skirt.** The zone of smooth, laterally-coalescing, small alluvial fans that issue from gullies cut into the fan piedmont or that are the coalescing extensions of inset fans of the fan piedmont, and that merge with the basin floor.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity*, or *capillary capacity*.

**Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.

**First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.

**Flaggy soil material.** Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.

**Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

**Foot slope.** The inclined surface at the base of a hill.

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Fragile** (in tables). A soil that is easily damaged by use or disturbance.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Gilgai.** The microrelief of clayey soils that shrink and swell considerably with changes in moisture content. Usually manifested as a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water.** Water filling all the unblocked pores of underlying material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Gypsum.** A mineral consisting of hydrous calcium sulfate.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

**Heavy metal.** Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Holocene.** The epoch of the Quaternary Period of geologic time, extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

*O horizon.*--An organic layer of fresh and decaying plant residue.

*A horizon.*--The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*--The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*--The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*--The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*--Soft, consolidated bedrock beneath the soil.

*R layer.*--Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant

cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Inset fan.** A special case of the flood plain of an ephemeral stream that is confined between fan remnants, basin-floor remnants, ballenas, or closely opposed fan toeslopes.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

| | |
|---|---|
| Less than 0.2 | very low |
| 0.2 to 0.4 | low |
| 0.4 to 0.75 | moderately low |
| 0.75 to 1.25 | moderate |
| 1.25 to 1.75 | moderately high |
| 1.75 to 2.5 | high |
| More than 2.5 | very high |

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives groundwater discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Intermontane basin.** A generic term for wide structural depressions between mountain ranges that are partly filled with alluvium. They may be drained internally (bolsons) or externally (semi-bolsons).

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin.*--Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border.*--Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes or borders.

*Controlled flooding.*--Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*--Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*--Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*--Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*--Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*--Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*--Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Lagoon.** The nearly level, filled depression behind the longshore bar on a barrier beach.

**Lake plain.** A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

**Lake terrace.** The narrow shelf produced along a lake shore and later exposed when the water recedes.

**Lamella.** A thin, generally horizontal layer of fine material illuviated within a very much thicker, coarser, eluviated layer.

**Landform.** Any recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes that provide an empirical description of similar portions of the earth's surface.

**Landscape.** A collection of related, natural landforms.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loamy soil.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Longshore bar.** A narrow, elongate, coarse-textured ridge, built by the wave action of a pluvial lake, that extends parallel to the shore and separated it from a lagoon; both the bar and lagoon are now relict features.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Low strength.** The soil is not strong enough to support loads.

**Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mean annual increment (MAI).** The average annual increase in volume of a tree during the entire life of the tree.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt

**Merchantable trees.** Trees that are of sufficient size to be economically processed into wood products.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately deep soil.** A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance--*few*, *common*, and *many*; size--*fine*, *medium*, and *coarse*; and contrast--*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

**Munsell notation.** A designation of color by degrees of three simple variables--hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Observed rooting depth.** Depth to which roots have been observed to penetrate.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition.

**Overstory.** The trees in a forest that form the upper crown cover.

**Oxbow.** The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Parna dune.** An eolian dune built of sand size aggregates of clayey material that commonly occurs leeward of a playa.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pediment.** A gently sloping erosional surface developed at the foot of a receding hill or mountain slope.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

| | |
|---|---|
| Extremely slow | 0.00 to 0.01 inch |
| Very slow | 0.01 to 0.06 inch |
| Slow | 0.06 to 0.2 inch |
| Moderately slow | 0.2 to 0.6 inch |
| Moderate | 0.6 inch to 2.0 inches |
| Moderately rapid | 2.0 to 6.0 inches |
| Rapid | 6.0 to 20 inches |
| Very rapid | more than 20 inches |

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piedmont slope.** The dominant slope at the foot of a mountain. Main components of the piedmont slope include pediments, alluvial fans, fan piedmonts, fan skirts and inset fans.

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Playa.** The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

**Pleistocene.** The epoch of the Quaternary Period of geologic time preceding the Holocene (from aproximately 2 million to 10 thousand years ago).

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Pluvial.** Relating to former periods of abundant rains.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration

**Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Poor outlets** (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Quartzite, metamorphic.** Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

**Quaternary.** The period of geologic time, extending from about 2 million years ago to the present and comprising two epochs, the Pleistocene (Ice Age) and Holocene (Recent).

**Quartzite, sedimentary.** Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

**Range condition.** The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Range site.** An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

| | |
|---|---|
| Ultra acid | less than 3.5 |
| Extremely acid | 3.5 to 4.4 |
| Very strongly acid | 4.5 to 5.0 |
| Strongly acid | 5.1 to 5.5 |
| Moderately acid | 5.6 to 6.0 |
| Slightly acid | 6.1 to 6.5 |
| Neutral | 6.6 to 7.3 |
| Slightly alkaline (mildly alkaline) | 7.4 to 7.8 |
| Moderately alkaline | 7.9 to 8.4 |
| Strongly alkaline | 8.5 to 9.0 |
| Very strongly alkaline | 9.1 and higher |

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regeneration.** The new growth of a natural plant community, developing from seed.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relict stream terrace.** One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

**Riverwash.** Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed and reworked by rivers so frequently that they support little or no vegetation.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Rock outcrop.** Exposures of bare bedrock other than lava flows and rock-lined pits.

**Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Rubble land.** Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

**Salinity.** The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

| | |
|---|---|
| Nonsaline | 0 to 2 |
| Very slightly saline | 2 to 4 |
| Slightly saline | 4 to 8 |
| Moderately saline | 8 to 16 |
| Strongly saline | More than 16 |

**Salty water** (in tables). Water that is too salty for consumption by livestock.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sand sheet.** A large, irregularly shaped, surficial mantle of eolian sand.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sandy soil.** Sand or loamy sand.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Sawlogs.** Logs of suitable size and quality for the production of lumber.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Scribner's log rule.** A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Semi-bolson.** An intermontane basin that is drained externally by an intermittent stream.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons

that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Shallow soil.** A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shelterwood system.** A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

**Shoulder slope.** The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Shrub-coppice dune.** A small dune that forms around shrubs or small trees.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Site class.** A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

**Site curve (50-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

**Site curve (100-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Skid trails.** Pathways along which logs are dragged to a common site for loading onto a logging truck.

**Slash.** Branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

**Slickens.** Accumulations of fine-textured material, such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

**Slippage** (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the following slope classes are recognized:

| | |
|---|---|
| Nearly level | 0 to 2 percent |
| Gently sloping | 2 to 4 percent |
| Moderately sloping | 4 to 8 percent |
| Strongly sloping | 8 to 15 percent |
| Moderately steep | 15 to 30 percent |
| Steep | 30 to 50 percent |
| Very steep | 50 to 75 percent |
| Extremely steep | 75 percent and higher |

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of $NA^+$ to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

| | |
|---|---|
| Very slight | 5-12:1 |
| Slight | 13-30:1 |
| Moderate | 31-45:1 |
| Strong | 46-90:1 |
| Very strong | more than 90:1 |

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

| | |
|---|---|
| Very coarse sand | 2.0 to 1.0 |
| Coarse sand | 1.0 to 0.5 |
| Medium sand | 0.5 to 0.25 |
| Fine sand | 0.25 to 0.10 |
| Very fine sand | 0.10 to 0.05 |
| Silt | 0.05 to 0.002 |
| Clay | less than 0.002 |

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Species.** A single, distinct kind of plant or animal having certain distinguishing characteristics.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Strath terrace.** A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

**Stream channel.** The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

**Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

**Summit.** A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer" or the "Ap horizon."

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Tailwater.** The water directly downstream of a structure.

**Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geologic). A step-like surface, ordinarily flat or undulating, bordering a river, a lake, or the sea representing a former flood plain.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

**Thin layer** (in tables). Otherwise suitable soil material too thin for the specified use.

**Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toe slope.** The outermost inclined surface at the base of a hill; part of a foot slope.

**Too arid** (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

**Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Trafficability.** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

**Tread.** The relatively flat terrace surface that was cut or built by stream or wave action.

**Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.

**Understory.** Any plants in a forest community that grow to a height of less than 5 feet.

**Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.

**Upland** (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley.** An elongated depressional area primarily developed by stream action.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Waterspreading.** Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

**Water supplying capacity.** The total amount of water

available in the soil for plant growth in a normal year from precipitation and from runon from higher areas. Runoff and water lost to deep percolation are not included.

**Weathering**. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded**. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point)**. The moisture content of soil, on an ovendry basis, at which a plant (specifically, a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow**. The uprooting and tipping over of trees by the wind.

# TABLES

Table 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1978-90 at Blue Eagle Ranch, Hanks, Nevada)

| Month | Temperature (Degrees F.) | | | | | Precipitation (Inches) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2 years in 10 will have-- | | | | 2 years in 10 will have-- | | |
| | Average daily maximum | Average daily minimum | Average daily | Maximum temperature higher than-- | Minimum temperature lower than-- | Average number of growing degree days* | Average | less than | more than | Average number of days with 0.10 inch or more |
| January--- | 37.7 | 13.3 | 25.5 | 60 | -14 | 7 | 0.85 | 0.44 | 1.20 | 3 |
| February-- | 46.1 | 19.3 | 32.7 | 70 | -14 | 45 | 0.58 | 0.42 | 0.83 | 2 |
| March----- | 58.0 | 29.8 | 43.9 | 75 | 16 | 149 | 1.10 | 0.39 | 1.68 | 3 |
| April----- | 68.9 | 35.5 | 52.2 | 89 | 15 | 368 | 1.01 | 0.55 | 1.79 | 3 |
| May------- | 77.9 | 43.1 | 60.5 | 97 | 28 | 612 | 1.21 | 0.31 | 2.13 | 2 |
| June------ | 90.3 | 51.5 | 70.9 | 104 | 36 | 926 | 0.26 | 0.10 | 0.55 | 0 |
| July------ | 96.9 | 56.3 | 76.6 | 108 | 42 | 1,134 | 0.74 | 0.28 | 1.38 | 2 |
| August---- | 93.8 | 54.8 | 74.3 | 107 | 41 | 1,055 | 1.07 | 0.36 | 1.82 | 2 |
| September- | 83.9 | 46.6 | 65.2 | 98 | 31 | 749 | 1.10 | 0.25 | 1.94 | 2 |
| October--- | 70.5 | 36.1 | 53.3 | 89 | 19 | 418 | 1.31 | 0.52 | 2.18 | 2 |
| November-- | 52.6 | 25.7 | 39.2 | 75 | 4 | 92 | 0.95 | 0.44 | 1.54 | 2 |
| December-- | 43.2 | 18.2 | 30.7 | 59 | -6 | 7 | 0.37 | 0.22 | 0.84 | 1 |
| Yearly: | | | | | | | | | | |
| Average- | 68.3 | 35.8 | 52.1 | ---- | ---- | ---- | --- | --- | --- | --- |
| Extreme- | 110 | -25 | --- | 110 | -16 | ---- | --- | --- | --- | --- |
| Total--- | --- | --- | --- | ---- | ---- | 5,562 | 10.54 | 4.73 | 13.72 | 24 |

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degees F.)

Table 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1972-90 at Reese River Range Station, Nevada)

| Month | Temperature (Degrees F.) | | | | | Precipitation (Inches) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2 years in 10 will have-- | | | | 2 years in 10 will have-- | | |
| | Average daily maximum | Average daily minimum | Average daily | Maximum temperature higher than-- | Minimum temperature lower than-- | Average number of growing degree days* | Average | less than | more than | Average number of days with 0.10 inch or more |
| January--- | 40.1 | 11.4 | 25.8 | 60 | -19 | 5 | 0.45 | 0.22 | 0.65 | 1 |
| February-- | 44.3 | 16.6 | 30.4 | 63 | -12 | 11 | 0.47 | 0.25 | 0.66 | 2 |
| March----- | 47.4 | 21.7 | 34.5 | 65 | 1 | 28 | 0.88 | 0.49 | 1.23 | 3 |
| April----- | 56.3 | 23.7 | 40.0 | 76 | 5 | 86 | 0.56 | 0.14 | 1.07 | 1 |
| May------- | 65.6 | 29.8 | 47.7 | 85 | 13 | 250 | 0.84 | 0.23 | 1.34 | 2 |
| June------ | 77.4 | 36.8 | 57.1 | 93 | 21 | 466 | 0.62 | 0.13 | 1.15 | 1 |
| July------ | 85.0 | 41.8 | 63.4 | 94 | 26 | 641 | 0.63 | 0.20 | 1.13 | 1 |
| August---- | 82.4 | 40.5 | 61.5 | 94 | 24 | 560 | 0.78 | 0.41 | 1.46 | 2 |
| September- | 72.8 | 33.9 | 53.4 | 88 | 16 | 351 | 0.89 | 0.26 | 1.50 | 2 |
| October--- | 62.2 | 26.1 | 44.1 | 79 | 7 | 166 | 0.84 | 0.41 | 1.22 | 3 |
| November-- | 49.3 | 19.3 | 34.3 | 71 | -5 | 39 | 0.79 | 0.25 | 1.23 | 2 |
| December-- | 42.7 | 13.3 | 28.0 | 61 | -21 | 6 | 0.33 | 0.18 | 0.71 | 1 |
| Yearly: | | | | | | | | | | |
| Average- | 60.5 | 26.2 | 43.4 | ---- | ---- | ---- | --- | --- | --- | --- |
| Extreme- | 100 | -27 | --- | 97 | -20 | ---- | --- | --- | --- | --- |
| Total--- | --- | --- | --- | ---- | ---- | 2,610 | 8.19 | 3.93 | 8.76 | 21 |

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degees F.)

Table 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1949-90 at Smokey Valley, Nevada)

| Month | Temperature (Degrees F.) | | | | | Precipitation (Inches) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Average daily maximum | Average daily minimum | Average daily | 2 years in 10 will have-- Maximum temperature higher than-- | 2 years in 10 will have-- Minimum temperature lower than-- | Average number of growing degree days* | Average | 2 years in 10 will have-- less than | 2 years in 10 will have-- more than | Average number of days with 0.10 inch or more |
| January--- | 43.5 | 14.8 | 29.2 | 62 | -12 | 11 | 0.57 | 0.12 | 1.00 | 1 |
| February-- | 50.2 | 20.1 | 35.1 | 68 | -3 | 33 | 0.60 | 0.08 | 1.13 | 1 |
| March----- | 55.3 | 23.8 | 39.6 | 73 | 4 | 85 | 0.70 | 0.13 | 1.20 | 1 |
| April----- | 63.9 | 29.3 | 46.6 | 81 | 12 | 213 | 0.54 | 0.13 | 1.00 | 1 |
| May------- | 73.2 | 37.4 | 55.3 | 90 | 19 | 474 | 0.51 | 0.10 | 0.91 | 1 |
| June------ | 83.3 | 45.7 | 64.5 | 98 | 28 | 713 | 0.50 | 0.13 | 0.90 | 1 |
| July------ | 90.9 | 52.7 | 71.8 | 99 | 39 | 971 | 0.60 | 0.16 | 1.10 | 1 |
| August---- | 88.8 | 50.5 | 69.7 | 99 | 37 | 877 | 0.70 | 0.22 | 1.44 | 1 |
| September- | 81.0 | 41.8 | 61.4 | 94 | 26 | 612 | 0.52 | 0.11 | 0.91 | 1 |
| October--- | 69.7 | 32.1 | 50.9 | 87 | 13 | 339 | 0.43 | 0.11 | 0.90 | 1 |
| November-- | 54.5 | 22.6 | 38.5 | 73 | 2 | 73 | 0.60 | 0.17 | 1.03 | 1 |
| December-- | 44.8 | 15.8 | 30.3 | 62 | -8 | 10 | 0.47 | 0.17 | 1.02 | 1 |
| Yearly: | | | | | | | | | | |
| Average- | 66.6 | 32.2 | 49.4 | ---- | ---- | ---- | --- | --- | --- | --- |
| Extreme- | 102 | -31 | --- | 101 | -14 | ---- | --- | --- | --- | --- |
| Total--- | --- | --- | --- | ---- | ---- | 4,411 | 6.73 | 3.10 | 8.90 | 12 |

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degees F.)

Table 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1966-90 at Snowball Ranch, Nevada)

| Month | Temperature (Degrees F.) | | | | | Precipitation (Inches) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2 years in 10 will have-- | | | | 2 years in 10 will have-- | | |
| | Average daily maximum | Average daily minimum | Average daily | Maximum temperature higher than-- | Minimum temperature lower than-- | Average number of growing degree days* | Average | less than | more than | Average number of days with 0.10 inch or more |
| January--- | 40.0 | 13.4 | 26.7 | 58 | -14 | 3 | 0.52 | 0.19 | 0.80 | 2 |
| February-- | 43.1 | 16.8 | 29.9 | 61 | -10 | 7 | 0.60 | 0.13 | 0.96 | 2 |
| March----- | 47.0 | 21.1 | 34.1 | 65 | -2 | 29 | 0.95 | 0.29 | 1.48 | 3 |
| April----- | 54.6 | 25.8 | 40.2 | 73 | 10 | 96 | 0.77 | 0.28 | 1.18 | 2 |
| May------- | 64.4 | 32.9 | 48.6 | 80 | 17 | 283 | 0.90 | 0.26 | 1.57 | 3 |
| June------ | 74.1 | 39.9 | 57.0 | 88 | 24 | 510 | 0.66 | 0.12 | 1.18 | 2 |
| July------ | 81.5 | 47.4 | 64.4 | 91 | 34 | 735 | 1.09 | 0.30 | 1.81 | 2 |
| August---- | 79.0 | 45.7 | 62.3 | 89 | 32 | 692 | 0.96 | 0.30 | 1.65 | 2 |
| September- | 71.9 | 38.3 | 55.1 | 87 | 20 | 454 | 0.92 | 0.18 | 1.56 | 2 |
| October--- | 61.2 | 29.7 | 45.5 | 78 | 8 | 209 | 0.71 | 0.20 | 1.24 | 2 |
| November-- | 48.9 | 20.7 | 34.8 | 68 | -1 | 38 | 0.54 | 0.18 | 0.83 | 1 |
| December-- | 41.0 | 14.2 | 27.6 | 59 | -12 | 4 | 0.45 | 0.18 | 0.75 | 1 |
| Yearly: | | | | | | | | | | |
| Average- | 59.9 | 28.8 | 43.9 | ---- | ---- | ---- | --- | --- | --- | --- |
| Extreme- | 93 | -24 | --- | 92 | -18 | ---- | --- | --- | --- | --- |
| Total--- | --- | --- | --- | ---- | ---- | 3,060 | 9.06 | 4.75 | 11.67 | 24 |

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degees F.)

Table 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1948-90 at Sunnyside, Nevada)

| Month | Temperature (Degrees F.) | | | | | Precipitation (Inches) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Average daily maximum | Average daily minimum | Average daily | 2 years in 10 will have-- Maximum temperature higher than-- | 2 years in 10 will have-- Minimum temperature lower than-- | Average number of growing degree days* | Average | 2 years in 10 will have-- less than | 2 years in 10 will have-- more than | Average number of days with 0.10 inch or more |
| January--- | 43.9 | 15.0 | 29.5 | 68 | -12 | 5 | 0.65 | 0.27 | 1.14 | 2 |
| February-- | 49.4 | 20.9 | 35.2 | 69 | -3 | 22 | 0.65 | 0.27 | 1.14 | 2 |
| March----- | 55.0 | 25.8 | 40.4 | 74 | 5 | 76 | 0.89 | 0.37 | 1.53 | 3 |
| April----- | 63.6 | 30.6 | 47.1 | 81 | 12 | 192 | 0.79 | 0.21 | 1.43 | 1 |
| May------- | 73.6 | 38.7 | 56.1 | 92 | 23 | 420 | 0.80 | 0.18 | 1.34 | 2 |
| June------ | 84.6 | 47.3 | 66.0 | 98 | 32 | 667 | 0.39 | 0.09 | 0.76 | 1 |
| July------ | 91.3 | 53.8 | 72.5 | 100 | 38 | 791 | 1.01 | 0.25 | 1.74 | 2 |
| August---- | 88.9 | 51.6 | 70.2 | 99 | 36 | 756 | 0.98 | 0.27 | 1.62 | 2 |
| September- | 79.9 | 42.4 | 61.2 | 94 | 24 | 503 | 0.90 | 0.20 | 1.51 | 1 |
| October--- | 68.1 | 31.8 | 50.0 | 85 | 13 | 276 | 0.89 | 0.28 | 1.60 | 2 |
| November-- | 54.4 | 23.2 | 38.8 | 74 | 3 | 66 | 0.69 | 0.19 | 1.15 | 1 |
| December-- | 45.7 | 16.3 | 31.0 | 63 | -9 | 6 | 0.60 | 0.13 | 1.07 | 2 |
| Yearly: | | | | | | | | | | |
| Average- | 66.5 | 33.1 | 49.8 | ---- | ---- | ---- | --- | --- | --- | --- |
| Extreme- | 104 | -20 | --- | 102 | -13 | ---- | --- | --- | --- | --- |
| Total--- | --- | --- | --- | ---- | ---- | 3,781 | 9.25 | 5.82 | 12.82 | 21 |

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F.)

Table 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1978-90 at Blue Eagle Ranch, Hanks, Nevada)

| Probability | Temperature | | |
|---|---|---|---|
| | 24 degrees F. or lower | 28 degrees F. or lower | 32 degrees F. or lower |
| Last freezing temperature in spring: | | | |
| 1 year in 10 later than-- | April 25 | May 9 | May 9 |
| 2 years in 10 later than-- | April 19 | May 4 | May 25 |
| 5 years in 10 later than-- | April 8 | April 25 | May 16 |
| First freezing temperature in fall: | | | |
| 1 year in 10 earlier than-- | October 13 | October 8 | September 15 |
| 2 years in 10 earlier than-- | October 19 | October 13 | September 23 |
| 5 years in 10 earlier than-- | October 30 | October 23 | October 8 |

Table 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1972-90 at Reese River Ranger Station, Nevada)

| Probability | Temperature | | |
|---|---|---|---|
| | 24 degrees F. or lower | 28 degrees F. or lower | 32 degrees F. or lower |
| Last freezing temperature in spring: | | | |
| 1 year in 10 later than-- | June 18 | August 7 | September 4 |
| 2 years in 10 later than-- | June 12 | July 24 | August 19 |
| 5 years in 10 later than-- | June 1 | June 27 | July 21 |
| First freezing temperature in fall: | | | |
| 1 year in 10 earlier than-- | September 4 | August 29 | August 15 |
| 2 years in 10 earlier than-- | September 9 | September 3 | August 21 |
| 5 years in 10 earlier than-- | September 19 | September 12 | September 3 |

Table 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1949-90 at Smokey Valley, Nevada)

| Probability | Temperature | | |
|---|---|---|---|
| | 24 degrees F. or lower | 28 degrees F. or lower | 32 degrees F. or lower |
| Last freezing temperature in spring: | | | |
| 1 year in 10 later than-- | May 28 | June 6 | July 6 |
| 2 years in 10 later than-- | May 20 | May 30 | June 25 |
| 5 years in 10 later than-- | May 7 | May 15 | June 3 |
| First freezing temperature in fall: | | | |
| 1 year in 10 earlier than-- | September 27 | September 14 | September 3 |
| 2 years in 10 earlier than-- | October 3 | September 20 | September 9 |
| 5 years in 10 earlier than-- | October 15 | October 2 | September 21 |

Table 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1966-90 at Snowball Ranch, Nevada)

| Probability | Temperature | | |
|---|---|---|---|
| | 24 degrees F. or lower | 28 degrees F. or lower | 32 degrees F. or lower |
| Last freezing temperature in spring: | | | |
| 1 year in 10 later than-- | June 7 | July 6 | August 11 |
| 2 years in 10 later than-- | June 1 | June 27 | July 29 |
| 5 years in 10 later than-- | May 20 | June 8 | July 5 |
| First freezing temperature in fall: | | | |
| 1 year in 10 earlier than-- | September 15 | September 2 | August 24 |
| 2 years in 10 earlier than-- | September 21 | September 9 | August 30 |
| 5 years in 10 earlier than-- | October 3 | September 24 | September 10 |

Table 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1948-90 at Sunnyside, Nevada)

| Probability | Temperature | | |
|---|---|---|---|
| | 24 degrees F. or lower | 28 degrees F. or lower | 32 degrees F. or lower |
| Last freezing temperature in spring: | | | |
| 1 year in 10 later than-- | May 7 | May 22 | July 15 |
| 2 year in 10 later than-- | May 3 | May 17 | June 30 |
| 5 years in 10 later than-- | April 25 | May 6 | June 1 |
| First freezing temperature in fall: | | | |
| 1 year in 10 earlier than-- | September 29 | September 12 | September 6 |
| 2 years in 10 earlier than-- | October 6 | September 18 | September 11 |
| 5 years in 10 earlier than-- | October 18 | October 1 | September 21 |

Table 3.--GROWING SEASON

(Recorded in the period 1978-90 at Blue Eagle Ranch, Hanks, Nevada)

| Probability | Daily Minimum Temperature during growing season | | |
|---|---|---|---|
| | Higher than 24 degrees F. | Higher than 28 degrees F. | Higher than 32 degrees F. |
| | Days | Days | Days |
| 9 years in 10 | 210 | 185 | 155 |
| 8 years in 10 | 216 | 192 | 162 |
| 5 years in 10 | 227 | 206 | 175 |
| 2 years in 10 | 239 | 220 | 187 |
| 1 year in 10 | 244 | 228 | 194 |

Table 3.--GROWING SEASON

(Recorded in the period 1972-90 at Reese River Ranger Station, Nevada)

| Probability | Daily Minimum Temperature during growing season | | |
|---|---|---|---|
| | Higher than 24 degrees F. | Higher than 28 degrees F. | Higher than 32 degrees F. |
| | Days | Days | Days |
| 9 years in 10 | 116 | 43 | 9 |
| 8 years in 10 | 122 | 62 | 28 |
| 5 years in 10 | 132 | 98 | 64 |
| 2 years in 10 | 143 | 134 | 100 |
| 1 year in 10 | 149 | 152 | 119 |

Table 3.--GROWING SEASON

(Recorded in the period 1949-90 at Smokey Valley, Nevada)

| Probability | Daily Minimum Temperature during growing season | | |
|---|---|---|---|
| | Higher than 24 degrees F. | Higher than 28 degrees F. | Higher than 32 degrees F. |
| | Days | Days | Days |
| 9 years in 10 | 147 | 133 | 90 |
| 8 years in 10 | 156 | 142 | 105 |
| 5 years in 10 | 174 | 160 | 134 |
| 2 years in 10 | 192 | 177 | 162 |
| 1 year in 10 | 202 | 186 | 177 |

Table 3.--GROWING SEASON

(Recorded in the period 1966-90 at Snowball Ranch, Nevada)

| Probability | Daily Minimum Temperature during growing season | | |
|---|---|---|---|
| | Higher than 24 degrees F. | Higher than 28 degrees F. | Higher than 32 degrees F. |
| | Days | Days | Days |
| 9 years in 10 | 129 | 90 | 48 |
| 8 years in 10 | 138 | 105 | 65 |
| 5 years in 10 | 157 | 132 | 99 |
| 2 years in 10 | 175 | 160 | 132 |
| 1 year in 10 | 185 | 174 | 149 |

Table 3.--GROWING SEASON

(Recorded in the period 1948-90 at Sunnyside, Nevada)

| Probability | Daily Minimum Temperature during growing season | | |
|---|---|---|---|
| | Higher than 24 degrees F. | Higher than 28 degrees F. | Higher than 32 degrees F. |
| | Days | Days | Days |
| 9 years in 10 | 169 | 148 | 81 |
| 8 years in 10 | 177 | 157 | 100 |
| 5 years in 10 | 193 | 173 | 137 |
| 2 years in 10 | 209 | 190 | 174 |
| 1 year in 10 | 217 | 199 | 193 |

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

| Map symbol | Soil name | Acres | Percent |
|---|---|---|---|
| 3000 | Stumble loamy sand, 2 to 8 percent slopes | 6,662 | 0.2 |
| 3001 | Stumble-Koyen association | 9,574 | 0.3 |
| 3020 | Easychair silt loam, 0 to 2 percent slopes | 560 | * |
| 3040 | Mosida-Rebel-Slaw association | 3,435 | * |
| 3041 | Mosida loam, 0 to 4 percent slopes | 4,048 | 0.1 |
| 3050 | Mijay-Raster association | 4,386 | 0.1 |
| 3060 | Morbench gravelly sandy loam, 15 to 30 percent slopes | 2,606 | * |
| 3080 | Brako-Veet-Handpah association | 6,385 | 0.2 |
| 3090 | Univega-Koyen association | 9,662 | 0.3 |
| 3091 | Univega-Clowfin-Mollon association | 29,137 | 0.8 |
| 3101 | Gabbvally-Vindicator-Rock outcrop association | 8,724 | 0.2 |
| 3102 | Gabbvally-Stewval-Beelem association | 27,425 | 0.8 |
| 3110 | Cath-Zadvar association | 28,057 | 0.8 |
| 3111 | Cath gravelly loam, 2 to 8 percent slopes | 2,825 | * |
| 3112 | Cath-Portmount-Abgese association | 10,350 | 0.3 |
| 3120 | Portmount gravelly sandy loam, 2 to 8 percent slopes | 7,654 | 0.2 |
| 3130 | Unsel gravelly sandy loam, 2 to 8 percent slopes | 23,039 | 0.7 |
| 3131 | Unsel-Geer association | 3,662 | 0.1 |
| 3132 | Unsel-Koyen-Kaefa association | 26,359 | 0.8 |
| 3134 | Unsel-Hollywall-Lyx association | 2,182 | * |
| 3137 | Unsel-Koyen association | 47,259 | 1.3 |
| 3138 | Unsel-Stumble association | 1,624 | * |
| 3139 | Unsel-Izo association | 2,883 | * |
| 3140 | Haunchee-Eaglepass-Rock outcrop association | 3,684 | 0.1 |
| 3150 | Nuyobe-Blueagle-Playas complex, 0 to 30 percent slopes | 25,811 | 0.7 |
| 3160 | Cropper-Clanalpine-Bellehelen association | 47,717 | 1.4 |
| 3161 | Cropper-Segura-Ravenswood association | 52,920 | 1.5 |
| 3162 | Cropper-Segura-Clanalpine association | 16,124 | 0.5 |
| 3170 | Hackwood-Winu association | 1,091 | * |
| 3180 | Hymas-Hopeke-Solak association | 2,992 | * |
| 3190 | Penoyer-Geer association | 13,557 | 0.4 |
| 3191 | Penoyer-Watoopah-Easychair association | 27,267 | 0.8 |
| 3200 | Ganaflan gravelly loam, 2 to 15 percent slopes | 1,991 | * |
| 3210 | Kunzler-Sycomat association | 24,935 | 0.7 |
| 3211 | Kunzler, dry-Sycomat association | 93,844 | 2.7 |
| 3212 | Kunzler-Candelaria association | 26,773 | 0.8 |
| 3220 | Stewval-Beelem association | 75,267 | 2.1 |
| 3221 | Stewval, moist-Rock outcrop association | 42,574 | 1.2 |
| 3223 | Stewval-Rock outcrop association | 114,496 | 3.3 |
| 3224 | Stewval-Beelem-Bellehelen association | 20,693 | 0.6 |
| 3226 | Stewval-Bellehelen-Rock outcrop association | 192,191 | 5.5 |
| 3228 | Stewval-Gabbvally-Beelem association | 40,089 | 1.1 |
| 3231 | Geer fine sandy loam, 0 to 4 percent slopes | 3,999 | 0.1 |
| 3233 | Geer-Koyen association | 4,013 | 0.1 |
| 3240 | Stargo-Veet association | 1,211 | * |
| 3241 | Stargo association | 10,889 | 0.3 |
| 3250 | Wardenot gravelly sandy loam, 0 to 4 percent slopes | 1,998 | * |
| 3260 | Springwarm-Jotava-Delacit association | 5,834 | 0.2 |
| 3270 | Jotava silty clay loam, 0 to 2 percent slopes | 4,365 | 0.1 |
| 3280 | Duffer-Equis association | 6,380 | 0.2 |
| 3300 | Palinor very gravelly loam, 2 to 15 percent slopes | 32,476 | 0.9 |
| 3301 | Palinor-Nuc association | 14,612 | 0.4 |
| 3302 | Palinor-Parisa association | 40,275 | 1.1 |
| 3310 | Ursine-Veet-Armespan association | 51,151 | 1.5 |
| 3311 | Ursine-Cliffdown association | 19,823 | 0.6 |
| 3330 | Handpah-Delamar association | 1,796 | * |
| 3333 | Handpah-Watoopah-Zadvar association | 35,470 | 1.0 |
| 3334 | Handpah-Palinor-Parisa association | 34,243 | 1.0 |
| 3335 | Handpah-Watoopah-Candelaria association | 9,219 | 0.3 |
| 3340 | Amelar-Boj-Hardol association | 1,962 | * |
| 3380 | Roden-Izar association | 1,162 | * |
| 3400 | Parisa gravelly loam, 2 to 8 percent slopes | 5,634 | 0.2 |
| 3410 | Watoopah-Veet association | 16,478 | 0.5 |
| 3412 | Watoopah-Veet-Zadvar association | 8,052 | 0.2 |

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

| Map symbol | Soil name | Acres | Percent |
|---|---|---|---|
| 3414 | Watoopah-Cath association | 21,549 | 0.6 |
| 3415 | Watoopah-Leo association | 5,505 | 0.2 |
| 3420 | Squawtip-Bellehelen-Rock outcrop association | 98,788 | 2.8 |
| 3430 | Bellehelen-Rock outcrop association | 34,947 | 1.0 |
| 3434 | Bellehelen-Cropper-Rock outcrop association | 20,434 | 0.6 |
| 3440 | Layview-Foxvire-Suak association | 4,263 | 0.1 |
| 3441 | Layview-Labshaft-Winu association | 12,823 | 0.4 |
| 3442 | Layview-Suak-Winu association | 6,202 | 0.2 |
| 3450 | Grassval-Allker-Zadvar association | 47,379 | 1.4 |
| 3460 | Zadvar-Handpah association | 71,480 | 2.0 |
| 3463 | Zadvar-Veet association | 12,343 | 0.4 |
| 3467 | Zadvar very gravelly sandy loam, 4 to 30 percent slopes | 19,140 | 0.5 |
| 3468 | Zadvar-Allker-Peeko association | 88,688 | 2.5 |
| 3470 | Cirac-Keefa-Nyserva association | 3,496 | * |
| 3471 | Cirac-Nyserva complex, 0 to 4 percent slopes | 29,842 | 0.9 |
| 3473 | Cirac-Slaw-Nyserva association | 29,038 | 0.8 |
| 3474 | Cirac-Nyserva-Kawich complex, 0 to 30 percent slopes | 37,587 | 1.1 |
| 3475 | Cirac-Keefa-Slaw association | 22,938 | 0.7 |
| 3480 | Chuckridge-Zadvar association | 6,941 | 0.2 |
| 3481 | Chuckridge-Unsel-Veet association | 1,477 | * |
| 3491 | Slaw-Easychair association | 9,042 | 0.3 |
| 3520 | Rustigate loam, 0 to 2 percent slopes | 876 | * |
| 3521 | Rustigate-Nuyobe association | 34,115 | 1.0 |
| 3522 | Rustigate-Nuyobe-Kawich complex, 0 to 15 percent slopes | 50,769 | 1.4 |
| 3530 | Rebel sandy loam, 0 to 2 percent slopes | 2,124 | * |
| 3531 | Rebel gravelly loamy coarse sand, 0 to 4 percent slopes | 4,474 | 0.1 |
| 3540 | Packer-Suak-Foxvire association | 11,855 | 0.3 |
| 3560 | Ubehebe-Penelas-Logring association | 11,427 | 0.3 |
| 3570 | Eaglepass-Kyler-Rock outcrop association | 17,694 | 0.5 |
| 3571 | Eaglepass-Rock outcrop complex, 30 to 75 percent slopes | 3,478 | * |
| 3572 | Eaglepass-Kyler-Rock outcrop complex, 15 to 75 percent slopes | 12,619 | 0.4 |
| 3580 | Kyler-Rock outcrop complex, 15 to 50 percent slopes | 13,584 | 0.4 |
| 3581 | Kyler, moist-Rock outcrop complex, 15 to 50 percent slopes | 43,383 | 1.2 |
| 3590 | Allker-Portmount association | 4,368 | 0.1 |
| 3600 | Ardivey-Hollywell-Belted association | 61,988 | 1.8 |
| 3601 | Ardivey-Zadvar association | 12,707 | 0.4 |
| 3610 | Tokoper-Garhill-Rock outcrop association | 38,958 | 1.1 |
| 3620 | Argalt-Stewval-Gabbvally association | 29,583 | 0.8 |
| 3630 | Lyx-Geer-Koyen association | 2,222 | * |
| 3640 | Armespan-Zadvar-Veet association | 9,276 | 0.3 |
| 3641 | Armespan-Lyx-Candelaria association | 9,449 | 0.3 |
| 3642 | Armespan very gravelly sandy loam, 8 to 30 percent slopes | 22,005 | 0.6 |
| 3643 | Armespan-Morbench association | 11,173 | 0.3 |
| 3644 | Armespan-Cliffdown-Candelaria association | 53,015 | 1.5 |
| 3645 | Armespan-Clowfin-Peeko association | 12,778 | 0.4 |
| 3647 | Armespan-Spager association | 3,876 | 0.1 |
| 3651 | Candelaria very gravelly sandy loam, 2 to 8 percent slopes | 11,561 | 0.3 |
| 3655 | Candelaria-Armespan association | 22,100 | 0.6 |
| 3660 | Titiack-Garhill association | 11,374 | 0.3 |
| 3670 | Logring-Rock outcrop-Kyler association | 18,616 | 0.5 |
| 3671 | Logring-Eaglepass association | 3,048 | * |
| 3672 | Logring-Kyler-Eaglepass association | 42,839 | 1.2 |
| 3700 | Leo-Delamar association | 19,909 | 0.6 |
| 3702 | Leo-Hollywell association | 1,001 | * |
| 3703 | Leo-Koyen association | 2,914 | * |
| 3710 | Beelem-Rock outcrop complex, 15 to 50 percent slopes | 20,549 | 0.6 |
| 3730 | Penelas-Kyler-Rock outcrop association | 14,235 | 0.4 |
| 3731 | Penelas-Ubehebe-Rock outcrop association | 1,677 | * |
| 3740 | Keefa-Unsel association | 83,281 | 2.4 |
| 3741 | Keefa-Koyen association | 46,707 | 1.3 |
| 3742 | Keefa-Stargo association | 18,328 | 0.5 |
| 3744 | Keefa-Garhill-Belted association | 11,422 | 0.3 |
| 3745 | Keefa-Hollywell association | 1,719 | * |
| 3747 | Keefa-Lyx-Linoyer association | 1,436 | * |

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

| Map symbol | Soil name | Acres | Percent |
|---|---|---|---|
| 3748 | Keefa-Koyen association | 18,386 | 0.5 |
| 3750 | Koyen-Cliffdown association | 4,038 | 0.1 |
| 3751 | Koyen-Unsel association | 56,252 | 1.6 |
| 3752 | Koyen sandy loam, 2 to 8 percent slopes | 17,767 | 0.5 |
| 3754 | Koyen-Watoopah-Geer association | 11,728 | 0.3 |
| 3755 | Koyen-Watoopah association | 11,648 | 0.3 |
| 3756 | Koyen-Lyx association | 6,000 | 0.2 |
| 3757 | Koyen-Veet-Penoyer association | 3,622 | 0.1 |
| 3758 | Koyen sand, 2 to 8 percent slopes | 4,498 | 0.1 |
| 3760 | Vindicator very gravelly sandy loam, 8 to 30 percent slopes | 1,835 | * |
| 3770 | Yody-Cath-Abgese association | 26,695 | 0.8 |
| 3780 | Molion very gravelly sandy loam, 2 to 8 percent slopes | 1,328 | * |
| 3800 | Lyda-Delamar-Lyx association | 7,618 | 0.2 |
| 3801 | Lyda-Belted-Ardivey association | 3,409 | * |
| 3803 | Lyda-Ardivey-Veet association | 12,929 | 0.4 |
| 3804 | Lyda-Ardivey-Lyx association | 14,901 | 0.4 |
| 3805 | Lyda-Hardhat association | 12,591 | 0.4 |
| 3810 | Belted-Univega-Koyen association | 7,167 | 0.2 |
| 3811 | Belted-Unsel-Lyx association | 17,705 | 0.5 |
| 3830 | Downeyville-Rock outcrop complex, 15 to 50 percent slopes | 17,985 | 0.5 |
| 3831 | Downeyville-Stewval association | 28,777 | 0.8 |
| 3832 | Downeyville-Tokoper association | 3,737 | 0.1 |
| 3841 | Veet very gravelly sandy loam, 2 to 8 percent slopes | 5,813 | 0.2 |
| 3842 | Veet-Koyen-Geer association | 4,886 | 0.1 |
| 3850 | Garhill-Tokoper-Argalt association | 6,679 | 0.2 |
| 3860 | Hyzen-Kyler-Rock outcrop association | 62,760 | 1.8 |
| 3861 | Hyzen-Eganroc-Rock outcrop association | 35,485 | 1.0 |
| 3870 | Lien-Rebel association | 2,276 | * |
| 3880 | Hardhat-Candelaria association | 96,832 | 2.8 |
| 3881 | Hardhat-Stargo-Yomba association | 24,000 | 0.7 |
| 3890 | Jarab-Drewing-Pharo association | 13,448 | 0.4 |
| 3900 | Playas | 47,075 | 1.3 |
| 3901 | Lava flows | 1,182 | * |
| 3910 | Yomba association | 20,259 | 0.6 |
| 3911 | Yomba-Playas complex, 0 to 2 percent slopes | 7,064 | 0.2 |
| 3920 | Puett-Grassval-Rebel association | 17,235 | 0.5 |
| 3940 | Peeko-Clowfin association | 1,500 | * |
| 3941 | Peeko gravelly loam, 2 to 8 percent slopes | 4,481 | 0.1 |
| 3960 | Hodedo stony loam, 15 to 30 percent slopes | 3,106 | * |
| 3970 | Linoyer-Rebel association | 26,803 | 0.8 |
| 3971 | Linoyer-Easychair association | 1,858 | * |
| 3972 | Linoyer very fine sandy loam, 0 to 4 percent slopes | 10,965 | 0.3 |
| 3973 | Linoyer-Clowfin association | 1,189 | * |
| 3974 | Linoyer-Kunzler association | 20,979 | 0.6 |
| W | Water | 3,374 | * |
| | Total | 3,507,835 | 100.0 |

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for irrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

| Map symbol and soil name | Land capability | Alfalfa hay | Pasture |
|---|---|---|---|
| | | Tons | AUM |
| 3040: | | | |
| Mosida | 2w | 5.50 | --- |
| Rebel | 4s | 5.00 | --- |
| Slaw | 3w | 4.00 | --- |
| 3041: | | | |
| Mosida | 2w | 5.50 | --- |
| 3190: | | | |
| Penoyer | 2c | 5.50 | --- |
| Geer | 2c | 5.50 | --- |
| 3200: | | | |
| Ganaflan | 4s | 5.00 | --- |
| 3210: | | | |
| Kunzler | 2e | 5.00 | --- |
| Sycomat | 3c | 5.00 | --- |
| 3473: | | | |
| Cirac | 3s | 4.00 | 9.00 |
| Slaw | 3w | 4.00 | 9.00 |
| Nyserva | 3s | 4.00 | 9.00 |
| 3521: | | | |
| Rustigate | 4w | --- | 10.00 |
| Nuyobe | 4w | --- | 12.00 |
| 3742: | | | |
| Keefa | 3e | 4.50 | --- |
| Stargo | 3s | 4.00 | --- |

TABLE 6.--RANGELAND SEEDING

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3000: | | |
| Stumble | Poor | Too arid, too sandy, soil blowing. |
| 3001: | | |
| Stumble | Poor | Too arid, too sandy, soil blowing. |
| Koyen | Poor | Too arid, too sandy, soil blowing. |
| 3020 Easychair | Poor | Too arid. |
| 3040: | | |
| Mosida | Good | |
| Rebel | Poor | Droughty, too sandy. |
| Slaw | Poor | Too arid, excess salt, too crusty. |
| 3041 Mosida | Good | |
| 3050: | | |
| Mijay | Poor | Small stones. |
| Raster | Poor | Large stones. |
| 3060 Morbench | Poor | Droughty. |
| 3080: | | |
| Breko | Poor | Large stones. |
| Veet | Poor | Droughty, large stones. |
| Handpah | Poor | Droughty. |
| 3090: | | |
| Univega | Poor | Too arid, droughty, too sandy. |
| Koyen | Poor | Too arid. |
| 3091: | | |
| Univega | Poor | Too arid, droughty, too sandy. |
| Clowfin | Poor | Too arid. |
| Molion | Poor | Droughty. |
| 3101: | | |
| Gabbvally | Poor | Small stones, droughty. |
| 3101: | | |
| Vindicator | Poor | Too arid, droughty, depth to rock. |
| 3102: | | |
| Gabbvally | Poor | Droughty, large stones. |
| Stewval | Poor | Droughty, large stones, depth to rock. |
| Beelem | Poor | Droughty, depth to rock. |
| 3110: | | |
| Cath | Fair | Too arid. |
| Zadvar | Poor | Droughty, small stones. |
| 3111 Cath | Fair | Too arid. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3112: | | |
| Cath | Fair | Too arid. |
| Portmount | Fair | Too arid. |
| Abgese | Fair | Too arid. |
| 3120 Portmount | Fair | Too arid. |
| 3130 Unsel | Poor | Too arid. |
| 3131: | | |
| Unsel | Poor | Too arid. |
| Geer | Poor | Too arid, soil blowing. |
| 3132: | | |
| Unsel | Poor | Too arid. |
| Koyen | Poor | Too arid. |
| Keefa | Poor | Too arid. |
| 3134: | | |
| Unsel | Poor | Too arid. |
| Hollywell | Poor | Too arid, too sandy. |
| Lyx | Poor | Too arid, droughty, too sandy. |
| 3137: | | |
| Unsel | poor | Too arid. |
| Koyen | Poor | Too arid. |
| 3138: | | |
| Unsel | Poor | Too arid. |
| Stumble | Poor | Too arid, too sandy. |
| 3139: | | |
| Unsel | Poor | Too arid. |
| Izo | Poor | Too arid, droughty, too sandy. |
| 3140: | | |
| Haunches | Poor | Small stones. |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| 3150: | | |
| Nuyobe | Poor | Excess salt, excess sodium. |
| Blueagle | Poor | Too arid, excess salt, excess sodium. |
| 3160: | | |
| Cropper | Poor | Droughty, large stones. |
| Clanalpine | Poor | Small stones. |
| Ballehelen | Poor | Droughty, large stones. |
| 3161: | | |
| Cropper | Poor | Droughty, large stones. |
| Segura | Poor | Large stones. |
| Ravenswood | Poor | Large stones. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3162: | | |
| Cropper | Poor | Droughty, large stones. |
| Segura | Poor | Large stones. |
| Clanalpine | Poor | Small stones. |
| 3170: | | |
| Hackwood | Poor | Large stones. |
| Winu | Fair | Small stones. |
| 3180: | | |
| Hymas | Poor | Small stones, droughty. |
| Hopeka | Poor | Small stones, droughty, depth to rock. |
| Solak | Poor | Small stones, droughty. |
| 3190: | | |
| Penoyer | Poor | Too arid, soil blowing. |
| Geer | Poor | Too arid, soil blowing. |
| 3191: | | |
| Penoyer | Poor | Too arid, soil blowing. |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Bosychair | Poor | Too arid. |
| 3200 Ganaflan | Poor | Too arid, excess salt. |
| 3210: | | |
| Kunzler | Fair | Too arid. |
| Sycomat | Poor | Too arid. |
| 3211: | | |
| Kunzler | Fair | Too arid. |
| Kunzler | Fair | Too arid. |
| Sycomat | Poor | Too arid. |
| 3212: | | |
| Kunzler | Fair | Too arid. |
| Kunzler | Fair | Too arid. |
| Candelaria | Poor | Too arid, droughty, small stones. |
| 3220: | | |
| Stewval | Poor | Droughty, depth to rock, large stones. |
| Beelem | Poor | Droughty, depth to rock. |
| 3221: | | |
| Stewval | Poor | Droughty, depth to rock, small stones. |
| Stewval | Poor | Droughty, depth to rock, small stones. |
| 3223: | | |
| Stewval | Poor | Droughty, depth to rock, small stones. |
| 3224: | | |
| Stewval | Poor | Droughty, depth to rock, small stones. |
| Beelem | Poor | Droughty, depth to rock. |
| Bellehelen | Poor | Droughty, large stones. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3226: | | |
| Stewval | Poor | Droughty, depth to rock, small stones. |
| Bellehelen | Poor | Droughty, large stones. |
| 3228: | | |
| Stewval | Poor | Droughty, depth to rock, small stones. |
| Gabbvally | Poor | Droughty, large stones. |
| Beelam | Poor | Droughty, depth to rock. |
| 3231 Geer | Poor | Too arid, soil blowing. |
| 3233: | | |
| Geer | Poor | Too arid, soil blowing. |
| Koyen | Poor | Too arid, soil blowing. |
| 3240: | | |
| Stargo | Poor | Too arid. |
| Veet | Fair | Too arid. |
| 3241: | | |
| Stargo | Poor | Too arid. |
| Stargo | Poor | Too arid. |
| 3250 Wardenot | Poor | Too arid, soil blowing. |
| 3260: | | |
| Springwarm | Poor | Excess salt, excess sodium. |
| Jotava | Poor | Excess salt. |
| Delacit | Poor | Too arid, too sandy, excess salt. |
| 3270: | | |
| Jotava | Poor | Excess salt. |
| 3280: | | |
| Duffer | Poor | Excess salt, excess sodium. |
| Duffer | Poor | Excess salt, excess sodium. |
| Equis | Poor | Excess salt, too crusty, excess sodium. |
| 3300 Palinor | Poor | Droughty, small stones. |
| 3301: | | |
| Palinor | Poor | Droughty, small stones. |
| Nuc | Poor | Droughty, erodes easily. |
| 3302: | | |
| Palinor | Poor | Droughty, small stones. |
| Parisa | Poor | Droughty. |
| 3310: | | |
| Ursine | Poor | Droughty, small stones. |
| Veet | Poor | Small stones. |
| Armespan | Poor | Droughty, small stones. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3311: | | |
| Oraina | Poor | Droughty, small stones. |
| Cliffdown | Poor | Too arid, excess salt. |
| 3330: | | |
| Handpah | Poor | Droughty. |
| Delamar | Poor | Too arid. |
| 3333: | | |
| Handpah | Poor | Droughty. |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Zadvar | Poor | Droughty, small stones. |
| 3334: | | |
| Handpah | Poor | Droughty. |
| 3334: | | |
| Palinor | Poor | Droughty, small stones. |
| Parisa | Poor | Droughty. |
| 3335: | | |
| Handpah | Poor | Droughty. |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Candelaria | Poor | Too arid, droughty, small stones. |
| 3340: | | |
| Amelar | Fair | Small stones. |
| Eoj | Poor | Large stones, rooting depth. |
| Hardol | Poor | Small stones. |
| 3380: | | |
| Roden | Poor | Droughty, small stones. |
| Izar | Poor | Small stones, depth to rock. |
| Roden | Poor | Droughty, small stones. |
| 3400 Parisa | Poor | Droughty. |
| 3410: | | |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Veet | Poor | Large stones. |
| 3412: | | |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Veet | Poor | Large stones. |
| Zadvar | Poor | Droughty. |
| 3414: | | |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Cath | Fair | Too arid. |
| 3415: | | |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Lao | Poor | Too arid, droughty, small stones. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3420: | | |
| Squawtip | Poor | Droughty, large stones. |
| Bellehelen | Poor | Droughty, large stones. |
| 3430: | | |
| Bellehelen | Poor | Droughty, large stones. |
| Bellehelen | Poor | Droughty, large stones. |
| 3434: | | |
| Bellehelen | Poor | Droughty, large stones. |
| Cropper | Poor | Droughty, large stones. |
| 3440: | | |
| Layview | Poor | Small stones. |
| Foxvire | Poor | Erodes easily. |
| Suak | Poor | Large stones. |
| 3441: | | |
| Layview | Poor | Small stones. |
| Topeki | Poor | Droughty, large stones. |
| Winu | Poor | Erodes easily. |
| 3442: | | |
| Layview | Poor | Small stones. |
| Suak | Poor | Large stones. |
| Winu | Poor | Erodes easily. |
| 3450: | | |
| Grassval | Poor | Droughty. |
| Allker | Fair | Too arid, small stones. |
| Zadvar | Poor | Droughty, small stones. |
| 3460: | | |
| Zadvar | Poor | Droughty, small stones. |
| Handpah | Poor | Droughty. |
| 3463: | | |
| Zadvar | Poor | Droughty, small stones. |
| 3463: | | |
| Veet | Poor | Small stones. |
| 3467 | Poor | Droughty, small stones. |
| Zadvar | | |
| 3468: | | |
| Zadvar | Poor | Droughty. |
| Allker | Fair | Too arid, small stones. |
| Peeko | Poor | Droughty. |
| 3470: | | |
| Cirac | Poor | Too arid, excess salt. |
| Keefa | Poor | Too arid. |
| Nyserva | Poor | Excess salt, excess sodium. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3471: | | |
| Cirac | Poor | Too arid, excess salt. |
| Nyserva | Poor | Excess salt, excess sodium. |
| 3473: | | |
| Cirac | Poor | Too arid, excess salt. |
| Slaw | Poor | Too arid, excess salt, excess sodium. |
| Nyserva | Poor | Excess salt, excess sodium. |
| 3474: | | |
| Cirac | Poor | Too arid, excess salt |
| Nyserva | Poor | Excess salt, excess sodium. |
| Kawich | Poor | Too arid, droughty, too sandy. |
| 3475: | | |
| Cirac | Poor | Too arid, excess salt. |
| Keefa | Poor | Too arid. |
| Slaw | Poor | Too arid, excess salt, excess sodium. |
| 3480: | | |
| Chuckridge | Poor | Droughty. |
| Zadvar | Poor | Droughty. |
| 3481: | | |
| Chuckridge | Poor | Droughty. |
| Unsel | Poor | Too arid. |
| Veet | Poor | Small stones. |
| 3491: | | |
| Slaw | Poor | Too arid, excess salt, too crusty. |
| Easychair | Poor | Too arid. |
| 3520 Rustigate | Poor | Soil blowing. |
| 3521. | | |
| Rustigate | Poor | Soil blowing. |
| Nuyobe | Poor | Excess salt, excess sodium. |
| 3522: | | |
| Rustigate | Poor | Soil blowing. |
| Nuyobe | Poor | Excess salt, excess sodium. |
| Kawich | Poor | Too arid, droughty, too sandy. |
| 3530 Rebel | Fair | Too arid. |
| 3531 Rebel | Poor | Droughty, too sandy. |
| 3540: | | |
| Packer | Poor | Small stones. |
| Suak | Poor | Large stones. |
| Foxvire | Poor | Erodes easily. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3560: | | |
| Ubehebe | Poor | Droughty, small stones. |
| Panelns | Poor | Droughty, small stones. |
| Logring | Poor | Droughty, erodes easily. |
| 3570: | | |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| 3570: | | |
| Kyler | Poor | Droughty, large stones. |
| 3571: | | |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| 3572: | | |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| Kyler | Poor | Droughty, large stones. |
| 3580 Kyler | Poor | Droughty, small stones. |
| 3581 Kyler | Poor | Droughty, small stones. |
| 3590: | | |
| Allker | Fair | Too arid, small stones. |
| Portmount | Fair | Too arid. |
| 3600: | | |
| Ardivey | Poor | Small stones. |
| Hollywell | Poor | Droughty, small stones. |
| Belted | Poor | Small stones, depth to rock. |
| 3601: | | |
| Ardivey | Poor | Small stones. |
| Zadvar | Poor | Droughty, small stones. |
| 3610: | | |
| Tokoper | Poor | Too arid, large stones, cemented pan. |
| Garhill | Poor | Too arid, droughty. |
| 3620: | | |
| Argalt | Poor | Droughty, large stones, cemented pan. |
| Stewval | Poor | Droughty, depth to rock, large stones. |
| Gabbvally | Poor | Droughty, large stones. |
| 3630: | | |
| Lyx | Poor | Too arid, droughty, too sandy. |
| 3630: | | |
| Geer | Poor | Too arid, soil blowing. |
| Koyen | Poor | Too arid. |
| 3640: | | |
| Armespan | Poor | Droughty, small stones. |
| Zadvar | Poor | Droughty, small stones. |
| Veet | Poor | Small stones. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3641: | | |
| Armespan | Poor | Droughty, small stones. |
| Lyx | Poor | Too arid, droughty, too sandy. |
| Candelaria | Poor | Too arid, droughty, small stones. |
| 3642 Armespan | Poor | Droughty, small stones. |
| 3643: | | |
| Armespan | Poor | Droughty, small stones. |
| Morbench | Poor | Droughty. |
| 3644: | | |
| Armespan | Poor | Droughty, small stones. |
| Cliffdown | Poor | Too arid, excess salt. |
| Candelaria | Poor | Too arid, droughty, small stones. |
| 3645: | | |
| Armespan | Poor | Droughty, small stones. |
| Clowfin | Poor | Too arid. |
| Peaxo | Poor | Droughty. |
| 3647: | | |
| Armespan | Poor | Droughty, small stones. |
| Spager | Poor | Droughty. |
| 3651 Candelaria | Poor | Too arid, droughty, small stones. |
| 3655: | | |
| Candelaria | Poor | Too arid, droughty, small stones. |
| Armespan | Poor | Droughty, small stones. |
| 3660: | | |
| Titiack | Poor | Too arid, droughty, small stones. |
| Garhill | Poor | Too arid, droughty. |
| 3670 Logring | Poor | Droughty, erodes easily, small stones. |
| 3671: | | |
| Logring | Poor | Droughty, erodes easily, small stones. |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| 3672: | | |
| Logring | Poor | Droughty, erodes easily, small stones. |
| Kyler | Poor | Droughty, large stones. |
| Eaglepass | Poor | Droughty, large stones, depth to rock. |
| 3700: | | |
| Leo | Poor | Too arid, droughty. |
| Delamar | Poor | Too arid. |
| 3702: | | |
| Leo | Poor | Too arid, droughty, small stones. |
| Hollywell | Poor | Too arid, too sandy. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3703: | | |
| Leo | Poor | Too arid, droughty. |
| Koyen | Poor | Too arid. |
| 3710 Beelam | Poor | Droughty, depth to rock. |
| 3730: | | |
| Penelas | Poor | Droughty, small stones. |
| Kyler | Poor | Droughty, small stones. |
| 3731: | | |
| Penelas | Poor | Droughty, small stones. |
| 3731: | | |
| Ubehebe | Poor | Droughty, small stones. |
| 3740: | | |
| Keefa | Poor | Too arid. |
| Unsel | Poor | Too arid. |
| 3741: | | |
| Keefa | Poor | Too arid. |
| Koyen | Poor | Too arid, soil blowing. |
| 3742: | | |
| Keefa | Poor | Too arid. |
| Stargo | Poor | Too arid. |
| 3744: | | |
| Keefa | Poor | Too arid. |
| Garhill | Poor | Too arid, droughty. |
| Belted | Poor | Too arid, droughty, small stones. |
| 3745: | | |
| Keefa | Poor | Too arid. |
| Hollywell | Poor | Too arid, large stone, cemented pan. |
| 3747: | | |
| Keefa | Poor | Too arid. |
| Lyx | Poor | Too arid, droughty, too sandy. |
| Linoyer | Poor | Soil blowing. |
| 3748: | | |
| Keefa | Poor | Too arid. |
| Koyen | Poor | Too arid, soil blowing. |
| Keefa | Poor | Too arid. |
| 3750: | | |
| Koyen | Poor | Too arid, soil blowing. |
| 3750: | | |
| Cliffdown | Poor | Too arid, excess salt. |
| 3751: | | |
| Koyen | Poor | Too arid. |
| Unsel | Poor | Too arid. |
| Koyen | Poor | Too arid. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3752 Koyen | Poor | Too arid, soil blowing. |
| 3754: | | |
| Koyen | Poor | Too arid. |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| Geer | Poor | Too arid, soil blowing. |
| 3755: | | |
| Koyen | Poor | Too arid. |
| Watoopah | Poor | Too arid, soil blowing, too sandy. |
| 3756: | | |
| Koyen | Poor | Too arid, soil blowing. |
| Lyx | Poor | Too arid, droughty, too sandy. |
| 3757: | | |
| Koyen | Poor | Too arid. |
| Veet | Fair | Too arid |
| Penoyer | Poor | Too arid, soil blowing. |
| 3758 Koyen | Poor | Too arid, too sandy, soil blowing. |
| 3760 Vindicator | Poor | Too arid, droughty, depth to rock. |
| 3770: | | |
| Yody | Fair | Too arid, small stones. |
| Cath | Fair | Too arid. |
| Abgese | Fair | Too arid. |
| 3780: | | |
| Molion | Poor | Droughty. |
| 3800: | | |
| Lyda | Poor | Too arid, droughty, small stones. |
| Delamar | Poor | Too arid. |
| Lyx | Poor | Too arid, droughty, too sandy. |
| 3801: | | |
| Lyda | Poor | Too arid, droughty, small stones. |
| Belted | Poor | Small stones, depth to rock. |
| Ardivey | Poor | Small stones. |
| 3803: | | |
| Lyda | Poor | Too arid, droughty, small stones. |
| Ardivey | Poor | Small stones. |
| Veet | Poor | Small stones. |
| 3804: | | |
| Lyda | Poor | Too arid, droughty, small stones. |
| Ardivey | Poor | Small stones. |
| Lyx | Poor | Too arid, droughty, too sandy. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3805: | | |
| Lyda | Poor | Too arid, droughty, small stones. |
| Hardhat | Poor | Too arid, soil blowing. |
| 3810: | | |
| Belted | Poor | Small stones, depth to rock. |
| Univega | Poor | Too arid, droughty, too sandy. |
| Koyen | Poor | Too arid. |
| 3811: | | |
| Belted | Poor | Small stones, depth to rock. |
| Unsel | Poor | Too arid. |
| Lyx | Poor | Too arid, droughty, too sandy. |
| 3830: | | |
| Downeyville | Poor | Droughty, small stones, depth to rock. |
| 3831: | | |
| Downeyville | Poor | Droughty, large stones, depth to rock. |
| Stewval | Poor | Droughty, small stones, depth to rock. |
| 3832: | | |
| Downeyville | Poor | Droughty, small stones, depth to rock. |
| Tokoper | Poor | Too arid, large stones, cemented pan. |
| 3841 | Poor | Small stones. |
| Veet | | |
| 3842: | | |
| Veet | Poor | Soil blowing. |
| Koyen | Poor | Too arid, too sandy, soil blowing. |
| Geer | Poor | Too arid, soil blowing. |
| 3850: | | |
| Garhill | Poor | Too arid, droughty. |
| Tokoper | Poor | Too arid, large stones, cemented pan. |
| Argalt | Poor | Droughty, large stones, cemented pan. |
| 3860: | | |
| Hyzen | Poor | Droughty, large stones, depth to rock. |
| Kyler | Poor | Droughty, small stones. |
| 3861: | | |
| Hyzen | Poor | Droughty, large stones, depth to rock. |
| Eganroc | Poor | Large stones. |
| 3870: | | |
| Lien | Poor | Droughty, small stones, cemented pan. |
| Rebel | Fair | Too arid. |
| 3880: | | |
| Hardhat | Poor | Too arid, soil blowing. |
| Candelaria | Poor | Too arid, droughty, small stones. |

TABLE 6.--RANGELAND SEEDING--Continued

| Soil name and map symbol | Limitation rating | Restrictive features |
|---|---|---|
| 3881: | | |
| Hardhat | Poor | Too arid, soil blowing. |
| Stargo | Poor | Too arid. |
| Yomba | Poor | Too arid, soil blowing. |
| 3890: | | |
| Jarab | Poor | Droughty. |
| Drewing | Poor | Droughty. |
| Pharo | Good | |
| 3910: | | |
| Yomba | Poor | Too arid, soil blowing. |
| Yomba | Poor | Too arid, soil blowing. |
| 3911 Yomba | Poor | Too arid, soil blowing. |
| 3920: | | |
| Puett | Poor | Too arid, droughty. |
| Grassval | Poor | Droughty. |
| Rebel | Fair | Too arid. |
| 3940: | | |
| Peeko | Poor | Droughty. |
| Clowfin | Poor | Too arid. |
| 3941 Peeko | Poor | Droughty. |
| 3960 Hodedo | Fair | Droughty. |
| 3970: | | |
| Linoyer | Poor | Soil blowing. |
| Rebel | Fair | Too arid. |
| 3971: | | |
| Linoyer | Poor | Soil blowing. |
| Easychair | Poor | Too arid. |
| 3972 Linoyer | Poor | Soil blowing. |
| 3973: | | |
| Linoyer | Poor | Soil blowing. |
| Clowfin | Poor | Too arid. |
| 3974: | | |
| Linoyer | Poor | Soil blowing. |
| Kunzler | Poor | Too arid. |

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the map units suitable for production of trees are listed)

| Map symbol and soil name | Ordination symbol | Management concerns: Erosion hazard | Equipment limitation | Seedling mortality | Windthrow hazard | Plant competition | Potential productivity: Common trees | Site index | Volume of wood fiber |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | m3/ha |
| 3060: | | | | | | | | | |
| Morbench | 0F | Moderate | Moderate | Slight | Slight | Slight | Utah juniper | 50 | 0 |
| | | | | | | | singleleaf pinyon | 50 | 0 |
| 3160: | | | | | | | | | |
| Cropper | 0R | Severe | Severe | Moderate | Slight | Slight | singleleaf pinyon | 35 | 0 |
| Clanalpine | 1R | Severe | Severe | Moderate | Slight | Moderate | singleleaf pinyon | 75 | 1 |
| Bellehelen | 0X | Moderate | Moderate | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| 3161: | | | | | | | | | |
| Cropper | 0X | Moderate | Moderate | Moderate | Slight | Slight | singleleaf pinyon | 35 | 0 |
| Segura | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ravenswood | 0X | Moderate | Moderate | Moderate | Slight | Severe | singleleaf pinyon | 55 | 0 |
| 3162: | | | | | | | | | |
| Cropper | 0X | Moderate | Moderate | Moderate | Slight | Slight | singleleaf pinyon | 35 | 0 |
| Segura | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Clanalpine | 1R | Severe | Severe | Moderate | Slight | Moderate | singleleaf pinyon | 75 | 1 |
| 3170: | | | | | | | | | |
| Hackwood | 1A | Moderate | Moderate | Slight | Moderate | Slight | quaking aspen | 44 | 1 |
| Winu | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3180: | | | | | | | | | |
| Hymas | 0R | Severe | Severe | Severe | Slight | Severe | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| Hopeka | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 33 | 0 |
| | | | | | | | singleleaf pinyon | 33 | 0 |
| Solak | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3224: | | | | | | | | | |
| Stewval | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Beelem | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| 3226: | | | | | | | | | |
| Stewval | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3380: | | | | | | | | | |
| Roden | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Izar | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

| Map symbol and soil name | Ordination symbol | Management concerns: Erosion hazard | Equipment limitation | Seedling mortality | Windthrow hazard | Plant competition | Potential productivity: Common trees | Site index | Volume of wood fiber |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | m3/ha |
| Roden | 0D | Moderate | Moderate | Moderate | Slight | Slight | Utah juniper | 20 | 0 |
| | | | | | | | singleleaf pinyon | 20 | 0 |
| 3420: | | | | | | | | | |
| Squawtip | 1R | Severe | Severe | Slight | Slight | Moderate | singleleaf pinyon | 75 | 1 |
| Bellehelen | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3430: | | | | | | | | | |
| Bellehelen | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| Bellehelen | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3434: | | | | | | | | | |
| Bellehelen | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 40 | 0 |
| | | | | | | | singleleaf pinyon | 40 | 0 |
| Cropper | 0R | Severe | Severe | Moderate | Slight | Slight | singleleaf pinyon | 35 | 0 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3560: | | | | | | | | | |
| Ubehebe | 0R | Severe | Moderate | Moderate | Severe | Moderate | Utah juniper | 45 | 0 |
| | | | | | | | singleleaf pinyon | 45 | 0 |
| Penelas | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Logring | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 45 | 0 |
| | | | | | | | singleleaf pinyon | 45 | 0 |
| 3643: | | | | | | | | | |
| Armospan | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Morbench | 0F | Slight | Slight | Slight | Slight | Slight | Utah juniper | 50 | 0 |
| | | | | | | | singleleaf pinyon | 50 | 0 |
| 3670: | | | | | | | | | |
| Logring | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 45 | 0 |
| | | | | | | | singleleaf pinyon | 45 | 0 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3671: | | | | | | | | | |
| Logring | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 45 | 0 |
| | | | | | | | singleleaf pinyon | 45 | 0 |
| Eaglepass | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3672: | | | | | | | | | |
| Logring | 0R | Severe | Severe | Severe | Slight | Moderate | Utah juniper | 45 | 0 |
| | | | | | | | singleleaf pinyon | 45 | 0 |
| Kyler | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

| Map symbol and soil name | Ordination symbol | Management concerns: Erosion hazard | Equipment limitation | Seedling mortality | Windthrow hazard | Plant competition | Potential productivity: Common trees | Site index | Volume of wood fiber |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | m3/ha |
| 3731: | | | | | | | | | |
| Penalas | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ubehebe | 0R | Severe | Moderate | Moderate | Severe | Moderate | Utah juniper<br>singleleaf pinyon | 45<br>45 | 0<br>0 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3860: | | | | | | | | | |
| Hyzen | 0R | Severe | Severe | Moderate | Slight | --- | Utah juniper<br>singleleaf pinyon | 20<br>20 | 0<br>0 |
| Kyler | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3861: | | | | | | | | | |
| Hyzen | 0R | Severe | Severe | Moderate | Slight | --- | Utah juniper<br>singleleaf pinyon | 20<br>20 | 0<br>0 |
| Eganroc | 4R | Severe | Severe | Moderate | Slight | Slight | white fir | 30 | 4 |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3870: | | | | | | | | | |
| Lien | 0D | Moderate | Moderate | Moderate | Slight | Moderate | Utah juniper<br>singleleaf pinyon | 25<br>25 | 0<br>0 |
| Rebel | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3890: | | | | | | | | | |
| Jarab | 1D | Slight | Slight | Moderate | Moderate | Moderate | Utah juniper<br>singleleaf pinyon | 65<br>65 | 1<br>1 |
| Drewing | 0D | Moderate | Moderate | Moderate | Slight | Moderate | Utah juniper<br>singleleaf pinyon | 40<br>40 | 0<br>0 |
| Pharo | 0F | Moderate | Moderate | Moderate | Moderate | Moderate | Utah juniper<br>singleleaf pinyon | 50<br>50 | 0<br>0 |
| 3960: | | | | | | | | | |
| Hodedo | 0X | Moderate | Severe | Moderate | Slight | Slight | Utah juniper<br>singleleaf pinyon | 30<br>30 | 0<br>0 |

TABLE 8.--BUILDING SITE DEVELOPMENT

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3000: | | | | | | |
| Stumble | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: droughty |
| 3001: | | | | | | |
| Stumble | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: droughty |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: too sandy droughty |
| Izo | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Severe: small stones droughty |
| 3020: | | | | | | |
| Easychair | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding low strength shrink-swell | Slight |
| 3040: | | | | | | |
| Mosida | Moderate: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding |
| Rebel | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: small stones too sandy |
| Slaw | Moderate: flooding too clayey | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding low strength | Severe: excess salt |
| 3041: | | | | | | |
| Mosida | Moderate: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding |
| 3050: | | | | | | |
| Mijay | Severe: cemented pan cutbanks cave | Moderate: cemented pan shrink-swell slope | Severe: cemented pan | Severe: slope | Moderate: cemented pan shrink-swell slope | Severe: small stones |
| Raster | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding slope | Moderate: flooding slope | Severe: small stones droughty |
| 3060: | | | | | | |
| Morbench | Severe: slope cutbanks cave | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| 3080: | | | | | | |
| Breko | Severe: large stones | Severe: large stones | Severe: large stones | Severe: large stones | Severe: large stones | Severe: large stones small stones |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| Handpah | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3090: | | | | | | |
| Univega | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| 3091: | | | | | | |
| Univega | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Clowfin | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: droughty |
| Molion | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan |
| 3101: | | | | | | |
| Gabbvally | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Vindicator | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3102: | | | | | | |
| Gabbvally | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Beelem | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| 3110: | | | | | | |
| Cath | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan small stones |
| 3111: | | | | | | |
| Cath | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| 3112: | | | | | | |
| Cath | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Portmount | Slight | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Abgese | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: droughty |
| 3120: | | | | | | |
| Portmount | Slight | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| 3130: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| 3131: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Geer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3132: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Koyen | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| Keefa | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| 3134: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Hollywell | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: droughty |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: droughty |
| 3137: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Koyen | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| 3138: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Stumble | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3139: | | | | | | |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Izo | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Severe: small stones droughty |
| 3140: | | | | | | |
| Haunchea | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3150: | | | | | | |
| Nuyobe | Severe: wetness | Severe: flooding | Severe: flooding wetness | Severe: flooding | Severe: frost action low strength | Severe: excess sodium excess salt |
| Blueagle | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: low strength slope | Severe: excess salt slope |
| Playas | Severe: ponding | Severe: shrink-swell ponding | Severe: shrink-swell ponding | Severe: shrink-swell ponding | Severe: low strength shrink-swell ponding | Severe: excess salt ponding droughty |
| 3160: | | | | | | |
| Cropper | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Clanalpine | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: large stones slope small stones |
| Bellehelen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| 3161: | | | | | | |
| Cropper | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Segura | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock |
| Ravenswood | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: large stones slope |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3162: | | | | | | |
| Cropper | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Segura | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock |
| Clanalpine | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: large stones slope |
| 3170: | | | | | | |
| Hackwood | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| Winu | Severe: depth to rock | Moderate: shrink-swell slope depth to rock | Severe: depth to rock | Severe: slope | Moderate: shrink-swell slope depth to rock | Moderate: slope small stones depth to rock |
| 3180: | | | | | | |
| Hymas | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock |
| Hopeka | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Solak | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| 3190: | | | | | | |
| Penoyer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| Geer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3191: | | | | | | |
| Penoyer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Easychair | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding low strength shrink-swell | Slight |
| 3200: | | | | | | |
| Ganaflan | Severe: cutbanks cave | Moderate: slope | Moderate: slope depth to rock | Severe: slope | Moderate: slope | Severe: excess salt |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3210: | | | | | | |
| Kunzler | Slight | Slight | Slight | Slight | Moderate: frost action | Slight |
| Sycomat | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: droughty |
| 3211: | | | | | | |
| Kunzler | Slight | Slight | Slight | Slight | Moderate: frost action | Slight |
| Kunzler | Slight | Slight | Slight | Slight | Moderate: frost action | Slight |
| Sycomat | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: droughty |
| 3212: | | | | | | |
| Kunzler | Slight | Slight | Slight | Slight | Moderate: frost action | Slight |
| Kunzler | Slight | Slight | Slight | Slight | Moderate: frost action | Slight |
| Candelaria | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Severe: small stones |
| 3220: | | | | | | |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Baelem | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| 3221: | | | | | | |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3223. | | | | | | |
| Stewval | Severe. slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3224: | | | | | | |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Baelem---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| 3226: | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- |
| 3228: | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Oanbvally------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock |
| Beelem---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| 3231: | | | | | | |
| Geer---------- | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3233: | | | | | | |
| Geer---------- | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| Koyen---------- | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Slight |
| 3240: | | | | | | |
| Stargo---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| Veet---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding droughty |
| 3241: | | | | | | |
| Stargo---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| Stargo---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3250: | | | | | | |
| Wardenot-------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding large stones | Severe: droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3260: | | | | | | |
| Springwarm------ | Severe: wetness depth to rock | Severe: flooding | Severe: flooding wetness depth to rock | Severe: flooding | Severe: frost action | Severe: excess sodium excess salt |
| Jotava---------- | Severe: wetness cutbanks cave | Severe: flooding | Severe: flooding wetness | Severe: flooding | Severe: frost action | Severe: excess salt |
| Delacit--------- | Severe: depth to rock | Moderate: shrink-swell depth to rock | Severe: depth to rock | Moderate: shrink-swell depth to rock | Moderate: shrink-swell depth to rock | Severe: excess sodium excess salt depth to rock |
| 3270: | | | | | | |
| Jotava---------- | Severe: wetness cutbanks cave | Severe: flooding | Severe: flooding wetness | Severe: flooding | Severe: frost action | Severe: excess salt |
| 3280: | | | | | | |
| Duffer---------- | Severe: wetness | Severe: flooding | Severe: flooding wetness | Severe: flooding | Severe: flooding frost action low strength | Moderate: excess salt flooding wetness |
| Duffer---------- | Moderate: wetness | Severe: flooding | Severe: flooding | Severe: flooding | Severe: frost action low strength | Severe: excess salt |
| Equis---------- | Severe: wetness | Severe: flooding shrink-swell wetness | Severe: flooding shrink-swell wetness | Severe: flooding shrink-swell wetness | Severe: low strength shrink-swell | Severe: excess sodium excess salt too clayey |
| 3300: | | | | | | |
| Palinor--------- | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan slope | Severe: cemented pan | Severe: cemented pan small stones droughty |
| 3301: | | | | | | |
| Palinor--------- | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones droughty |
| Nuc---------- | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| 3302: | | | | | | |
| Palinor--------- | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones droughty |
| Parisa---------- | Severe: cemented pan | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: droughty |
| 3310: | | | | | | |
| Ursine---------- | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Vest---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Armespan | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Severe: small stones |
| 3311: | | | | | | |
| Ursine | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Cliffdown | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones |
| 3330: | | | | | | |
| Handpah | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Delamar | Severe: cemented pan cutbanks cave | Moderate: cemented pan shrink-swell | Severe: cemented pan | Moderate: cemented pan shrink-swell slope | Moderate: cemented pan shrink-swell | Moderate: cemented pan |
| 3333: | | | | | | |
| Handpah | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan small stones |
| 3334: | | | | | | |
| Handpah | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Palinor | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones droughty |
| Parisa | Severe: cemented pan | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: droughty |
| 3335: | | | | | | |
| Handpah | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Candelaria | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: small stones |
| 3340: | | | | | | |
| Amelar | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| Eoj | Severe: slope | Severe: shrink-swell slope | Severe: shrink-swell slope | Severe: shrink-swell slope | Severe: low strength shrink-swell slope | Severe: large stones slope |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Hardol | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope small stones droughty |
| 3380: | | | | | | |
| Roden | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones depth to rock |
| Izar | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Roden | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones depth to rock |
| 3400: | | | | | | |
| Parisa | Severe: cemented pan | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: droughty |
| 3410: | | | | | | |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Slight | Moderate: frost action | Moderate: small stones droughty |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| 3412: | | | | | | |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan |
| 3414: | | | | | | |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Cath | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| 3415: | | | | | | |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Leo | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3420: | | | | | | |
| Squawtip | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: large stones slope |
| Bellehelen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3430: | | | | | | |
| Bellehelen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Bellehelen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3434: | | | | | | |
| Bellehelen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Cropper | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3440: | | | | | | |
| Layview | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Foxvire | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| Suak | Severe: large stones slope depth to rock | Severe: large stones slope | Severe: large stones slope depth to rock | Severe: large stones slope | Severe: large stones slope | Severe: large stones small stones droughty |
| 3441: | | | | | | |
| Layview | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Labshaft | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope depth to rock |
| Winu | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3442: | | | | | | |
| Layview | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Suak | Severe: large stones slope depth to rock | Severe: large stones slope | Severe: large stones slope depth to rock | Severe: large stones slope | Severe: large stones slope | Severe: large stones small stones droughty |
| Winu | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope |
| 3450: | | | | | | |
| Grassval | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan slope | Severe: cemented pan | Severe: cemented pan |
| Allker | Severe: cutbanks cave | Moderate: shrink-swell | Slight | Moderate: shrink-swell slope | Moderate: frost action shrink-swell | Moderate: small stones |
| Zadvar | Severe: cemented pan slope cutbanks cave | Severe: slope | Severe: cemented pan slope | Severe: slope | Severe: slope | Severe: cemented pan slope small stones |
| 3460: | | | | | | |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan small stones |
| Handpah | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| 3463: | | | | | | |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan small stones |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| 3467: | | | | | | |
| Zadvar | Severe: cemented pan slope cutbanks cave | Severe: slope | Severe: cemented pan slope | Severe: slope | Severe: slope | Severe: cemented pan slope small stones |
| 3468: | | | | | | |
| Zadvar | Severe: cemented pan slope cutbanks cave | Severe: slope | Severe: cemented pan slope | Severe: slope | Severe: slope | Severe: cemented pan slope |
| Allker | Severe: cutbanks cave | Moderate: shrink-swell | Slight | Moderate: shrink-swell slope | Moderate: frost action shrink-swell | Moderate: small stones |
| Peeko | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3470: | | | | | | |
| Cirac | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess salt |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Nyserva | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess sodium excess salt |
| 3471: | | | | | | |
| Cirac | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess salt |
| Nyserva | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess sodium excess salt |
| 3473: | | | | | | |
| Cirac | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess salt |
| Slaw | Moderate: flooding too clayey | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding low strength | Severe: excess salt |
| Nyserva | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess sodium excess salt |
| 3474: | | | | | | |
| Cirac | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess salt |
| Nyserva | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess sodium excess salt |
| Kawich | Severe: slope cutbanks cave | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| 3475: | | | | | | |
| Cirac | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: excess salt |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Slaw | Moderate: flooding too clayey | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding low strength | Severe: excess salt |
| 3480: | | | | | | |
| Chuckridge | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan large stones small stones |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan slope | Severe: cemented pan | Severe: slope | Moderate: frost action cemented pan slope | Severe: cemented pan |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3481: | | | | | | |
| Chuckridge | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| 3491: | | | | | | |
| Slaw | Moderate: flooding too clayey | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding low strength | Severe: excess salt |
| Easychair | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding low strength shrink-swell | Slight |
| 3520: | | | | | | |
| Rustigate | Moderate: wetness | Severe: flooding | Severe: flooding | Severe: flooding | Severe: frost action | Slight |
| 3521: | | | | | | |
| Rustigate | Moderate: wetness | Severe: flooding | Severe: flooding | Severe: flooding | Severe: frost action | Slight |
| Nuyobe | Severe: wetness | Severe: flooding | Severe: flooding wetness | Severe: flooding | Severe: frost action low strength | Severe: excess sodium excess salt |
| 3522: | | | | | | |
| Rustigate | Moderate: wetness | Severe: flooding | Severe: flooding | Severe: flooding | Severe: frost action | Slight |
| Nuyobe | Severe: wetness | Severe: flooding | Severe: flooding wetness | Severe: flooding | Severe: frost action low strength | Severe: excess sodium excess salt |
| Kawich | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: excess salt droughty |
| 3530: | | | | | | |
| Rebel | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| 3531: | | | | | | |
| Rebel | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: small stones too sandy |
| 3540: | | | | | | |
| Packer | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope small stones |
| Suak | Severe: large stones slope depth to rock | Severe: large stones slope | Severe: large stones slope depth to rock | Severe: large stones slope | Severe: large stones slope | Severe: large stones small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Foxvire | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| 3560: | | | | | | |
| Ubehebe | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones depth to rock |
| Penelas | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones droughty |
| Logring | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| 3570: | | | | | | |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones small stones droughty |
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3571: | | | | | | |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones small stones droughty |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones small stones droughty |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3572: | | | | | | |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones small stones droughty |
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Rock Outcrop | --- | --- | -- | --- | --- | --- |
| 3580: | | | | | | |
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3581: | | | | | | |
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3590: | | | | | | |
| Allker | Severe: cutbanks cave | Moderate: shrink-swell | Slight | Moderate: shrink-swell slope | Moderate: frost action shrink-swell | Moderate: small stones |
| Portmount | Slight | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| 3600: | | | | | | |
| Ardivey | Severe: cutbanks cave | Moderate: large stones | Moderate: large stones | Moderate: large stones slope | Moderate: large stones | Severe: small stones droughty |
| Hollywell | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| Belted | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: cemented pan | Severe: cemented pan small stones |
| 3601: | | | | | | |
| Ardivey | Severe: cutbanks cave | Moderate: large stones slope | Moderate: large stones slope | Severe: slope | Moderate: large stones slope | Severe: small stones droughty |
| Zadver | Severe: cemented pan cutbanks cave | Moderate: cemented pan slope | Severe: cemented pan | Severe: slope | Moderate: frost action cemented pan slope | Severe: cemented pan small stones |
| 3610: | | | | | | |
| Tokoper | Severe: cemented pan depth to rock | Severe: depth to rock | Severe: cemented pan depth to rock | Severe: slope depth to rock | Severe: depth to rock | Severe: large stones small stones depth to rock |
| Garbill | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3620: | | | | | | |
| Argalt | Severe: cemented pan depth to rock | Severe: depth to rock | Severe: cemented pan depth to rock | Severe: slope depth to rock | Severe: low strength depth to rock | Severe: small stones depth to rock |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |
| Gabbvally | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3630: | | | | | | |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| Gaer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| Koyen | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| 3640: | | | | | | |
| Armespan | Severe: slope cutbanks cave | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope small stones |
| Zadvar | Severe: cemented pan cutbanks cave | Moderate: cemented pan slope | Severe: cemented pan | Severe: slope | Moderate: frost action cemented pan slope | Severe: cemented pan small stones |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| 3641: | | | | | | |
| Armespan | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Severe: small stones |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| Candelaria | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: small stones |
| 3642: | | | | | | |
| Armespan | Severe: slope cutbanks cave | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope small stones |
| 3643: | | | | | | |
| Armespan | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: frost action slope | Severe: small stones |
| Morbench | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: frost action slope | Moderate: large stones small stones droughty |
| 3644: | | | | | | |
| Armespan | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: frost action slope | Severe: small stones |
| Cliffdown | Moderate: slope | Moderate: slope | Moderate: slope | Severe: slope | Moderate: slope | Severe: small stones |
| Candelaria | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: slope | Severe: small stones |
| 3645: | | | | | | |
| Armespan | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: frost action slope | Severe: small stones |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Clowfin | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| Peako | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| 3647: | | | | | | |
| Armespan | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Severe: small stones |
| Spager | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope |
| 3651: | | | | | | |
| Candelaria | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: small stones |
| 3655: | | | | | | |
| Candelaria | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: slope | Severe: small stones |
| Armespan | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: frost action slope | Severe: small stones |
| 3660: | | | | | | |
| Titiack | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope small stones |
| Garhill | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: slope depth to rock |
| 3670: | | | | | | |
| Logring | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| 3671: | | | | | | |
| Logring | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones small stones droughty |
| 3672: | | | | | | |
| Logring | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |

TABLE 8.--BUILDING SITE DEVELOPMENT -Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Eaglepass | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones small stones droughty |
| 3700: | | | | | | |
| Leo | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: droughty |
| Delamar | Severe: cemented pan cutbanks cave | Moderate: cemented pan shrink-swell | Severe: cemented pan | Moderate: cemented pan shrink-swell slope | Moderate: cemented pan shrink-swell | Moderate: cemented pan |
| 3702: | | | | | | |
| Leo | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| Hollywell | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: droughty |
| 3703: | | | | | | |
| Leo | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: droughty |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| 3710: | | | | | | |
| Beelem | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3730: | | | | | | |
| Penelas | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones droughty |
| Kyler | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3731: | | | | | | |
| Penelas | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones droughty |
| Ubehebe | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3740: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: droughty |
| Unsel | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| 3741: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: droughty |
| Koyan | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3742: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: droughty |
| Stargo | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| 3744: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Garhill | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: depth to rock |
| Belted | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: cemented pan | Severe: cemented pan large stones small stones |
| 3745: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Hollywall | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: droughty |
| 3747: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: droughty |
| Lym | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: droughty |
| Linoyer | Severe: cutbanks cave | Slight | Slight | Slight | Moderate: frost action | Moderate: droughty |
| 3748: | | | | | | |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: droughty |
| Koyan | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| Keefa | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: droughty |
| 3750: | | | | | | |
| Koyan | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Cliffdown | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| 3751: | | | | | | |
| Koyen | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Unsel | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Koyen | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| 3752: | | | | | | |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Slight |
| 3754: | | | | | | |
| Koyen | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| Geer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3755: | | | | | | |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| Watoopah | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Moderate: frost action | Moderate: small stones droughty |
| 3756: | | | | | | |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Slight |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| 3757: | | | | | | |
| Koyen | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| Veet | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding droughty |
| Penoyer | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| 3758: | | | | | | |
| Koyen | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: too sandy droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3760: | | | | | | |
| Vindicator | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones depth to rock |
| 3770: | | | | | | |
| Yody | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Moderate: cemented pan small stones |
| Cath | Severe: cutbanks cave | Moderate: slope | Moderate: slope | Severe: slope | Moderate: frost action slope | Moderate: slope small stones droughty |
| Abgase | Severe: cutbanks cave | Slight | Slight | Slight | Moderate: frost action | Moderate: droughty |
| 3780: | | | | | | |
| Molion | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan small stones |
| 3800: | | | | | | |
| Lyda | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Delamar | Severe: cemented pan cutbanks cave | Moderate: cemented pan shrink-swell | Severe: cemented pan | Moderate: cemented pan shrink-swell slope | Moderate: cemented pan shrink-swell | Moderate: cemented pan small stones |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| 3801: | | | | | | |
| Lyda | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Belted | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: cemented pan | Severe: cemented pan small stones |
| Ardivey | Severe: cutbanks cave | Moderate: large stones | Moderate: large stones | Moderate: large stones slope | Moderate: large stones | Severe: small stones droughty |
| 3803: | | | | | | |
| Lyda | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Ardivey | Severe: cutbanks cave | Moderate: large stones slope | Moderate: large stones slope | Severe: slope | Moderate: large stones slope | Severe: small stones droughty |
| Vest | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding slope | Moderate: flooding frost action slope | Severe: small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3804: | | | | | | |
| Lyda | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Ardivey | Severe: cutbanks cave | Moderate: large stones | Moderate: large stones | Moderate: large stones slope | Moderate: large stones | Severe: small stones droughty |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| 3805: | | | | | | |
| Lyda | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan small stones |
| Hardhat | Slight | Slight | Slight | Moderate: slope | Slight | Moderate: large stones small stones droughty |
| 3810: | | | | | | |
| Belted | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: cemented pan | Severe: cemented pan small stones |
| Univaga | Severe: cemented pan cutbanks cave | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Koyen | Severe. cutbanks cave | Slight | Slight | Moderate: slope | Slight | Moderate: small stones droughty |
| 3811: | | | | | | |
| Belted | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan | Moderate: cemented pan | Severe: cemented pan small stones |
| Unsel | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Lyx | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Severe: small stones droughty |
| 3830: | | | | | | |
| Downeyville | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Rock Outcrop | --- | --- | --- | --- | --- | --- |
| 3831: | | | | | | |
| Downeyville | Severe. slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3832: | | | | | | |
| Downeyville----- | Severe: depth to rock | Severe: depth to rock | Severe: depth to rock | Severe: slope depth to rock | Severe: depth to rock | Severe: large stones small stones depth to rock |
| Tokoper--------- | Severe: cemented pan depth to rock | Severe: depth to rock | Severe: cemented pan depth to rock | Severe: slope depth to rock | Severe: depth to rock | Severe: large stones small stones depth to rock |
| 3841: | | | | | | |
| Veet---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: small stones droughty |
| 3842: | | | | | | |
| Veet---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Severe: droughty |
| Koyen---------- | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: too sandy droughty |
| Geer---------- | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| 3850: | | | | | | |
| Garhill--------- | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan depth to rock | Severe: depth to rock |
| Tokoper--------- | Severe: cemented pan depth to rock | Severe: depth to rock | Severe: cemented pan depth to rock | Severe: depth to rock | Severe: depth to rock | Severe: large stones small stones depth to rock |
| Argalt---------- | Severe: cemented pan depth to rock | Severe: depth to rock | Severe: cemented pan depth to rock | Severe: slope depth to rock | Severe: low strength depth to rock | Severe: small stones depth to rock |
| 3860: | | | | | | |
| Hyzen---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Kyler---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- |
| 3861: | | | | | | |
| Hyzen---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: large stones slope small stones |
| Eganroc--------- | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope small stones droughty |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3870: | | | | | | |
| Lien | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope small stones |
| Rebel | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| 3880: | | | | | | |
| Hardhat | Slight | Slight | Slight | Moderate: slope | Slight | Moderate: large stones small stones droughty |
| Candelaria | Severe: cutbanks cave | Slight | Slight | Moderate: slope | Slight | Severe: small stones |
| 3881: | | | | | | |
| Hardhat | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: large stones small stones droughty |
| Stargo | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Slight |
| Yomba | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| 3890: | | | | | | |
| Jarab | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan slope | Severe: cemented pan | Severe: cemented pan |
| Drewing | Severe: cemented pan cutbanks cave | Moderate: cemented pan | Severe: cemented pan | Moderate: cemented pan slope | Moderate: frost action cemented pan | Severe: cemented pan |
| Pharo | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Severe: slope |
| 3900: | | | | | | |
| Playas | Severe: ponding | Severe: shrink-swell ponding | Severe: shrink-swell ponding | Severe: shrink-swell ponding | Severe: low strength shrink-swell ponding | Severe: excess salt ponding droughty |
| 3901: | | | | | | |
| Lava Flows | --- | --- | --- | --- | --- | --- |
| 3910: | | | | | | |
| Yomba | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| Yomba | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |
| 3911: | | | | | | |
| Yomba | Severe: cutbanks cave | Slight | Slight | Slight | Slight | Moderate: small stones droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| Playas | Severe: ponding | Severe: shrink-swell ponding | Severe: shrink-swell ponding | Severe: shrink-swell ponding | Severe: low strength shrink-swell ponding | Severe: excess salt ponding droughty |
| 3920: | | | | | | |
| Puett | Severe: slope depth to rock | Severe: slope | Severe: slope depth to rock | Severe: slope | Severe: slope | Severe: slope depth to rock |
| Grassval | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Rebel | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| 3940: | | | | | | |
| Peeko | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| Clowfin | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: small stones droughty |
| 3941: | | | | | | |
| Peeko | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan |
| 3960: | | | | | | |
| Hodedo | Severe: cemented pan slope cutbanks cave | Severe: shrink-swell slope | Severe: cemented pan slope | Severe: shrink-swell slope | Severe: shrink-swell slope | Severe: slope |
| 3970: | | | | | | |
| Linoyer | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: droughty |
| Rebel | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Slight |
| 3971: | | | | | | |
| Linoyer | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: droughty |
| Easychair | Slight | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding low strength shrink-swell | Slight |
| 3972: | | | | | | |
| Linoyer | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: droughty |
| 3973: | | | | | | |
| Linoyer | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: droughty |
| Clowfin | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding | Moderate: droughty |

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

| Map symbol and soil name | Shallow excavations | Dwellings without basements | Dwellings with basements | Small commercial buildings | Local roads and streets | Lawns and landscaping |
|---|---|---|---|---|---|---|
| 3974: | | | | | | |
| Linoyer | Severe: cutbanks cave | Severe: flooding | Severe: flooding | Severe: flooding | Moderate: flooding frost action | Moderate: droughty |
| Kunzler | Slight | Slight | Slight | Slight | Moderate: frost action | Slight |
| W: | | | | | | |
| Water | --- | --- | --- | --- | --- | --- |

TABLE 9.--SANITARY FACILITIES

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3000: | | | | | |
| Stumble | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: small stones |
| 3001: | | | | | |
| Stumble | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: small stones |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| Izo | Severe: flooding poor filter | Severe: flooding seepage | Severe: flooding too sandy | Severe: flooding | Poor: seepage small stones too sandy |
| 3020: | | | | | |
| Easychair | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3040: | | | | | |
| Mosida | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Good |
| Rebel | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |
| Slaw | Severe: flooding percs slowly | Severe: flooding | Severe: excess salt flooding | Severe: flooding | Good |
| 3041: | | | | | |
| Mosida | Severe: flooding | Severe: flooding | Severe: flooding | Severe: flooding | Good |
| 3050: | | | | | |
| Mijay | Severe: cemented pan percs slowly | Severe: cemented pan seepage slope | Severe: cemented pan large stones | Moderate: slope | Poor: cemented pan small stones |
| Raster | Severe: poor filter | Severe: seepage slope | Severe: seepage too sandy | Severe: seepage | Poor: seepage small stones too sandy |
| 3060: | | | | | |
| Morbench | Severe: slope | Severe: seepage slope | Severe: slope | Severe: slope | Poor: seepage slope small stones |
| 3080: | | | | | |
| Breko | Severe: large stones percs slowly | Severe: large stones seepage | Severe: large stones | Slight | Poor: seepage small stones |
| Veet | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Handpah--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| 3090: | | | | | |
| Univega--------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: cemented pan too sandy | Slight | Poor: cemented pan seepage too sandy |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3091: | | | | | |
| Univega--------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: cemented pan too sandy | Slight | Poor: cemented pan seepage too sandy |
| Clowfin--------- | Moderate: flooding | Severe: seepage | Moderate: flooding large stones | Moderate: flooding | Poor: small stones |
| Molion---------- | Severe: cemented pan | Severe: cemented pan | Moderate: cemented pan too sandy | Slight | Poor: cemented pan seepage small stones |
| 3101: | | | | | |
| Gabbvally------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Vindicator------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3102: | | | | | |
| Gabbvally------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Beelem---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3110: | | | | | |
| Cath---------- | Severe: percs slowly | Moderate: slope | Moderate: too sandy | Slight | Poor: seepage small stones |
| Zadvar---------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| 3111: | | | | | |
| Cath---------- | Severe: percs slowly | Moderate: slope | Moderate: too sandy | Slight | Poor: seepage small stones |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3112: | | | | | |
| Cath | Severe: percs slowly | Moderate: slope | Moderate: too sandy | Slight | Poor: seepage small stones |
| Portmount | Slight | Severe: seepage | Slight | Slight | Poor: small stones |
| Abgese | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: small stones |
| 3120: | | | | | |
| Portmount | Slight | Severe: seepage | Slight | Slight | Poor: small stones |
| 3130: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3131: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Geer | Moderate: flooding percs slowly | Moderate: seepage slope | Moderate: flooding | Moderate: flooding | Good |
| 3132: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| 3134: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Hollywell | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| Lyx | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| 3137: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3138: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Stumble | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: small stones |
| 3139: | | | | | |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Izo | Severe: flooding poor filter | Severe: flooding seepage | Severe: flooding too sandy | Severe: flooding | Poor: seepage small stones too sandy |
| 3140: | | | | | |
| Haunchee | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Eaglepass | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3150: | | | | | |
| Nuyobe | Severe: percs slowly wetness | Severe: wetness | Severe: excess sodium excess salt wetness | Severe: wetness | Poor: excess sodium |
| Blueagle | Severe: percs slowly slope | Severe: slope | Severe: excess salt slope | Severe: slope | Poor: slope |
| Playas | Severe: percs slowly ponding | Severe: ponding | Severe: excess salt too clayey ponding | Severe: ponding | Poor: hard to pack too clayey ponding |
| 3160: | | | | | |
| Cropper | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Clanalpine | Severe: percs slowly slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Bellehelen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| 3161: | | | | | |
| Cropper | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Segura---------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>slope<br>depth to rock |
| Ravenswood------ | Severe:<br>percs slowly<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>too clayey<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>small stones<br>too clayey<br>depth to rock |
| 3162: | | | | | |
| Cropper--------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>slope<br>small stones<br>depth to rock |
| Segura---------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>slope<br>depth to rock |
| Clanalpine------ | Severe:<br>percs slowly<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>slope<br>small stones<br>depth to rock |
| 3170: | | | | | |
| Hackwood-------- | Severe:<br>slope | Severe:<br>slope | Severe:<br>slope | Severe:<br>slope | Poor:<br>slope<br>small stones |
| Winu---------- | Severe:<br>percs slowly<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>depth to rock | Severe:<br>depth to rock | Poor:<br>small stones<br>depth to rock |
| 3180: | | | | | |
| Hymas---------- | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>slope<br>small stones<br>depth to rock |
| Hopeka---------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>depth to rock |
| Solak---------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| 3190: | | | | | |
| Penoyer--------- | Moderate:<br>flooding<br>percs slowly | Moderate:<br>seepage | Moderate:<br>flooding | Moderate:<br>flooding | Good |
| Geer---------- | Moderate:<br>flooding<br>percs slowly | Moderate:<br>seepage<br>slope | Moderate:<br>flooding | Moderate:<br>flooding | Good |
| 3191: | | | | | |
| Penoyer--------- | Moderate:<br>flooding<br>percs slowly | Moderate:<br>seepage | Moderate:<br>flooding | Moderate:<br>flooding | Good |
| Watoopah-------- | Severe:<br>poor filter | Severe:<br>seepage | Severe:<br>too sandy | Slight | Poor:<br>seepage<br>small stones<br>too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Easychair------- | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3200: | | | | | |
| Ganaflan-------- | Severe: depth to rock | Severe: seepage slope depth to rock | Severe: depth to rock | Moderate: slope | Poor: small stones depth to rock |
| 3210: | | | | | |
| Kunzler--------- | Moderate: percs slowly | Moderate: seepage slope | Slight | Slight | Good |
| Sycomat--------- | Moderate: percs slowly | Severe: seepage | Slight | Slight | Fair: small stones thin layer |
| 3211: | | | | | |
| Kunzler--------- | Moderate: percs slowly | Moderate: seepage slope | Slight | Slight | Good |
| Kunzler--------- | Moderate: percs slowly | Moderate: seepage slope | Slight | Slight | Good |
| Sycomat--------- | Moderate: percs slowly | Severe: seepage | Slight | Slight | Fair: small stones thin layer |
| 3212: | | | | | |
| Kunzler--------- | Moderate: percs slowly | Moderate: seepage slope | Slight | Slight | Good |
| Kunzler--------- | Moderate: percs slowly | Moderate: seepage slope | Slight | Slight | Good |
| Candelaria------ | Slight | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3220: | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Beelem---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3221: | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3223: | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3224: | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Beelem---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| 3226: | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3228: | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Gabbvally------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Beelem---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3231: | | | | | |
| Geer---------- | Moderate: flooding percs slowly | Moderate: seepage slope | Moderate: flooding | Moderate: flooding | Good |
| 3233: | | | | | |
| Geer---------- | Moderate: flooding percs slowly | Moderate: seepage slope | Moderate: flooding | Moderate: flooding | Good |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3240: | | | | | |
| Stargo---------- | Moderate: flooding | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: too sandy |
| Veet---------- | Severe: flooding poor filter | Severe: flooding seepage | Severe: flooding | Severe: flooding | Poor: seepage small stones |
| 3241: | | | | | |
| Stargo---------- | Moderate: flooding | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Stargo---------- | Moderate: flooding | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: too sandy |
| 3250: | | | | | |
| Wardenot-------- | Severe: poor filter | Severe: seepage | Severe: large stones | Moderate: flooding | Poor: seepage small stones |
| 3260: | | | | | |
| Springwarm------ | Severe: wetness depth to rock | Severe: wetness depth to rock | Severe: excess sodium wetness depth to rock | Severe: wetness depth to rock | Poor: excess sodium small stones depth to rock |
| Jotava---------- | Severe: percs slowly wetness | Severe: wetness | Severe: excess salt wetness | Severe: wetness | Fair: wetness |
| Delacit--------- | Severe: depth to rock | Severe: depth to rock | Severe: excess salt wetness depth to rock | Slight | Poor: small stones depth to rock |
| 3270: | | | | | |
| Jotava---------- | Severe: percs slowly wetness | Severe: wetness | Severe: excess salt wetness | Severe: wetness | Fair: wetness |
| 3280: | | | | | |
| Duffer---------- | Severe: flooding percs slowly wetness | Severe: flooding wetness | Severe: excess salt flooding wetness | Severe: flooding wetness | Fair: wetness |
| Duffer---------- | Severe: percs slowly wetness | Severe: wetness | Severe: wetness | Severe: wetness | Fair: wetness |
| Equis----------- | Severe: percs slowly wetness | Slight | Severe: excess sodium too clayey wetness | Severe: wetness | Poor: hard to pack too clayey wetness |
| 3300: | | | | | |
| Palinor--------- | Severe: cemented pan poor filter | Severe: cemented pan seepage slope | Severe: cemented pan too sandy | Moderate: slope | Poor: cemented pan small stones too sandy |
| 3301: | | | | | |
| Palinor--------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: cemented pan too sandy | Slight | Poor: cemented pan small stones too sandy |
| Nuc------------- | Severe: percs slowly slope | Severe: slope | Severe: slope | Severe: slope | Poor: slope small stones |
| 3302: | | | | | |
| Palinor--------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: cemented pan too sandy | Slight | Poor: cemented pan small stones too sandy |
| Parisa---------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan small stones |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3310: | | | | | |
| Ursine---------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Veet---------- | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| Armespan-------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: seepage small stones |
| 3311: | | | | | |
| Ursine---------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Cliffdown------- | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Poor: small stones |
| 3330: | | | | | |
| Handpah--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| Delamar--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| 3333: | | | | | |
| Handpah--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Zadvar---------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| 3334: | | | | | |
| Handpah--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| Palinor--------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: cemented pan too sandy | Slight | Poor: cemented pan small stones too sandy |
| Parisa---------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| 3335: | | | | | |
| Handpah--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Candelaria------ | Slight | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3340: | | | | | |
| Amelar---------- | Severe: slope | Severe: slope | Severe: slope | Severe: slope | Poor: slope small stones |
| Eoj---------- | Severe: percs slowly slope | Severe: large stones slope | Severe: large stones slope too clayey | Severe: slope | Poor: hard to pack large stones too clayey |
| Hardol---------- | Severe: slope | Severe: large stones slope | Severe: large stones slope | Severe: slope | Poor: seepage slope small stones |
| 3380: | | | | | |
| Roden---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Izar---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Roden---------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| 3400: | | | | | |
| Parisa---------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| 3410: | | | | | |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Veet---------- | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| 3412: | | | | | |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Veet---------- | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| Zadvar---------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3414: | | | | | |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Cath---------- | Severe: percs slowly | Moderate: slope | Moderate: too sandy | Slight | Poor: seepage small stones |
| 3415: | | | | | |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Leo---------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3420: | | | | | |
| Squawtip-------- | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3430: | | | | | |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3434: | | | | | |
| Bellehelen------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope depth to rock |
| Cropper--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3440: | | | | | |
| Layview--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Foxvire--------- | Severe: slope | Severe: seepage slope | Severe: seepage slope | Severe: seepage slope | Poor: slope small stones |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Suak | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| 3441: | | | | | |
| Layview | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Labshaft | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Winu | Severe: percs slowly slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| 3442: | | | | | |
| Layview | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Suak | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Winu | Severe: percs slowly slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| 3450: | | | | | |
| Grassval | Severe: cemented pan | Severe: cemented pan slope | Severe: cemented pan | Moderate: slope | Poor: cemented pan small stones |
| Allker | Severe: percs slowly poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Zadvar | Severe: cemented pan slope poor filter | Severe: cemented pan seepage slope | Severe: slope too sandy | Severe: slope | Poor: cemented pan seepage too sandy |
| 3460: | | | | | |
| Zadvar | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| Handpah | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| 3463: | | | | | |
| Zadvar | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Veet | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| 3467: | | | | | |
| Zadvar | Severe: cemented pan slope poor filter | Severe: cemented pan seepage slope | Severe: slope too sandy | Severe: slope | Poor: cemented pan seepage too sandy |
| 3468: | | | | | |
| Zadvar | Severe: cemented pan slope poor filter | Severe: cemented pan seepage slope | Severe: slope too sandy | Severe: slope | Poor: cemented pan seepage too sandy |
| Allker | Severe: percs slowly poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Peeko | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: slope | Poor: cemented pan slope small stones |
| 3470: | | | | | |
| Cirac | Moderate: flooding | Severe: seepage | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Nyserva | Severe: percs slowly | Slight | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| 3471: | | | | | |
| Cirac | Moderate: flooding | Severe: seepage | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| Nyserva | Severe: percs slowly | Moderate: slope | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| 3473: | | | | | |
| Cirac | Moderate: flooding | Severe: seepage | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| Slaw | Severe: flooding percs slowly | Severe: flooding | Severe: excess salt flooding | Severe: flooding | Good |
| Nyserva | Severe: percs slowly | Moderate: slope | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| 3474: | | | | | |
| Cirac | Moderate: flooding | Severe: seepage | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |
| Nyserva | Severe: percs slowly | Moderate: slope | Severe: excess salt too sandy | Moderate: flooding | Poor: too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Kawich---------- | Severe:<br>slope<br>poor filter | Severe:<br>seepage<br>slope | Severe:<br>slope<br>too sandy | Severe:<br>slope | Poor:<br>slope<br>too sandy |
| 3475: | | | | | |
| Cirac---------- | Moderate:<br>flooding | Severe:<br>seepage | Severe:<br>excess salt<br>too sandy | Moderate:<br>flooding | Poor:<br>too sandy |
| Keefa---------- | Moderate:<br>percs slowly | Severe:<br>seepage | Severe:<br>too sandy | Slight | Poor:<br>too sandy |
| Slaw---------- | Severe:<br>flooding<br>percs slowly | Severe:<br>flooding | Severe:<br>excess salt<br>flooding | Severe:<br>flooding | Good |
| 3480: | | | | | |
| Chuckridge------ | Severe:<br>cemented pan | Severe:<br>cemented pan<br>seepage | Severe:<br>cemented pan | Slight | Poor:<br>cemented pan<br>small stones |
| Zadvar---------- | Severe:<br>cemented pan<br>poor filter | Severe:<br>cemented pan<br>seepage<br>slope | Severe:<br>too sandy | Moderate:<br>slope | Poor:<br>cemented pan<br>seepage<br>too sandy |
| 3481: | | | | | |
| Chuckridge------ | Severe:<br>cemented pan | Severe:<br>cemented pan<br>seepage | Severe:<br>cemented pan | Slight | Poor:<br>cemented pan<br>small stones |
| Unsel---------- | Severe:<br>poor filter | Severe:<br>seepage | Severe:<br>too sandy | Slight | Poor:<br>seepage<br>small stones<br>too sandy |
| Veet---------- | Severe:<br>poor filter | Severe:<br>seepage | Moderate:<br>flooding<br>large stones<br>too sandy | Moderate:<br>flooding | Poor:<br>seepage<br>small stones |
| 3491: | | | | | |
| Slaw---------- | Severe:<br>flooding<br>percs slowly | Severe:<br>flooding | Severe:<br>excess salt<br>flooding | Severe:<br>flooding | Good |
| Easychair------- | Moderate:<br>flooding<br>percs slowly | Severe:<br>seepage | Moderate:<br>flooding | Moderate:<br>flooding | Good |
| 3520: | | | | | |
| Rustigate------- | Severe:<br>wetness | Severe:<br>wetness | Severe:<br>wetness | Severe:<br>wetness | Fair:<br>wetness |
| 3521: | | | | | |
| Rustigate------- | Severe:<br>wetness | Severe:<br>wetness | Severe:<br>wetness | Severe:<br>wetness | Fair:<br>wetness |
| Nuyobe---------- | Severe:<br>percs slowly<br>wetness | Severe:<br>wetness | Severe:<br>excess sodium<br>excess salt<br>wetness | Severe:<br>wetness | Poor:<br>excess sodium |
| 3522: | | | | | |
| Rustigate------- | Severe:<br>wetness | Severe:<br>wetness | Severe:<br>wetness | Severe:<br>wetness | Fair:<br>wetness |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Nuyobe---------- | Severe:<br>percs slowly<br>wetness | Severe:<br>wetness | Severe:<br>excess sodium<br>excess salt<br>wetness | Severe:<br>wetness | Poor:<br>excess sodium |
| Kawich---------- | Severe:<br>poor filter | Severe:<br>seepage<br>slope | Severe:<br>too sandy | Slight | Poor:<br>too sandy |
| 3530:<br>Rebel---------- | Moderate:<br>flooding | Severe:<br>seepage | Moderate:<br>flooding | Moderate:<br>flooding | Good |
| 3531:<br>Rebel---------- | Moderate:<br>flooding | Severe:<br>seepage | Moderate:<br>flooding | Moderate:<br>flooding | Good |
| 3540:<br>Packer---------- | Severe:<br>slope | Severe:<br>large stones<br>seepage<br>slope | Severe:<br>large stones<br>seepage<br>slope | Severe:<br>seepage<br>slope | Poor:<br>slope<br>small stones |
| Suak---------- | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Poor:<br>slope<br>small stones<br>depth to rock |
| Foxvire--------- | Severe:<br>slope | Severe:<br>seepage<br>slope | Severe:<br>seepage<br>slope | Severe:<br>seepage<br>slope | Poor:<br>slope<br>small stones |
| 3560:<br>Ubehebe--------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| Penelas--------- | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>depth to rock |
| Logring--------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| 3570:<br>Eaglepass------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>depth to rock |
| Kyler---------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3571:<br>Eaglepass------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>depth to rock |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Eaglepass------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3572: | | | | | |
| Eaglepass------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>depth to rock |
| Kyler---------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3580: | | | | | |
| Kyler---------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3581: | | | | | |
| Kyler---------- | Severe:<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>large stones<br>slope<br>depth to rock | Severe:<br>slope | Poor:<br>slope<br>small stones<br>depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3590: | | | | | |
| Allker---------- | Severe:<br>percs slowly<br>poor filter | Severe:<br>seepage | Severe:<br>too sandy | Slight | Poor:<br>seepage<br>small stones<br>too sandy |
| Portmount------- | Slight | Severe:<br>seepage | Slight | Slight | Poor:<br>small stones |
| 3600: | | | | | |
| Ardivey--------- | Severe:<br>poor filter | Severe:<br>seepage | Severe:<br>large stones | Slight | Poor:<br>seepage<br>small stones |
| Hollywell------- | Severe:<br>poor filter | Severe:<br>seepage | Severe:<br>too sandy | Moderate:<br>flooding | Poor:<br>small stones<br>too sandy |
| Belted---------- | Severe:<br>cemented pan<br>poor filter | Severe:<br>cemented pan<br>seepage | Severe:<br>too sandy | Slight | Poor:<br>cemented pan<br>seepage<br>too sandy |
| 3601: | | | | | |
| Ardivey--------- | Severe:<br>poor filter | Severe:<br>seepage<br>slope | Severe:<br>large stones | Moderate:<br>slope | Poor:<br>seepage<br>small stones |
| Zadvar---------- | Severe:<br>cemented pan<br>poor filter | Severe:<br>cemented pan<br>seepage<br>slope | Severe:<br>too sandy | Moderate:<br>slope | Poor:<br>cemented pan<br>seepage<br>too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3610: | | | | | |
| Tokoper--------- | Severe: cemented pan depth to rock | Severe: cemented pan slope depth to rock | Severe: large stones depth to rock | Moderate: slope | Poor: depth to rock |
| Garhill--------- | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- |
| 3620: | | | | | |
| Argalt---------- | Severe: cemented pan depth to rock | Severe: cemented pan slope depth to rock | Severe: depth to rock | Moderate: slope | Poor: depth to rock |
| Stewval--------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Gabbvally------- | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| 3630: | | | | | |
| Lyx---------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| Geer---------- | Moderate: flooding percs slowly | Moderate: seepage | Moderate: flooding | Moderate: flooding | Good |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| 3640: | | | | | |
| Armespan-------- | Severe: slope poor filter | Severe: seepage slope | Severe: slope | Severe: slope | Poor: seepage slope small stones |
| Zadvar---------- | Severe: cemented pan poor filter | Severe: cemented pan seepage slope | Severe: too sandy | Moderate: slope | Poor: cemented pan seepage too sandy |
| Veet---------- | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| 3641: | | | | | |
| Armespan-------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: seepage small stones |
| Lyx---------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Candelaria------ | Slight | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3642: | | | | | |
| Armespan-------- | Severe: slope poor filter | Severe: seepage slope | Severe: slope | Severe: slope | Poor: seepage slope small stones |
| 3643: | | | | | |
| Armespan-------- | Severe: poor filter | Severe: seepage slope | Moderate: slope too sandy | Moderate: slope | Poor: seepage small stones |
| Morbench-------- | Moderate: percs slowly slope | Severe: seepage slope | Moderate: slope too sandy | Moderate: slope | Poor: seepage small stones |
| 3644: | | | | | |
| Armespan-------- | Severe: poor filter | Severe: seepage slope | Moderate: slope too sandy | Moderate: slope | Poor: seepage small stones |
| Cliffdown------- | Moderate: slope | Severe: seepage slope | Moderate: slope | Moderate: slope | Poor: small stones |
| Candelaria------ | Moderate: slope | Severe: seepage slope | Severe: too sandy | Moderate: slope | Poor: seepage small stones too sandy |
| 3645: | | | | | |
| Armespan-------- | Severe: poor filter | Severe: seepage slope | Moderate: slope too sandy | Moderate: slope | Poor: seepage small stones |
| Clowfin--------- | Moderate: flooding | Severe: seepage | Moderate: flooding large stones | Moderate: flooding | Poor: small stones |
| Peeko---------- | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| 3647: | | | | | |
| Armespan-------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: seepage small stones |
| Spager---------- | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: slope | Poor: cemented pan slope small stones |
| 3651: | | | | | |
| Candelaria------ | Slight | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3655: | | | | | |
| Candelaria------ | Moderate: slope | Severe: seepage slope | Severe: too sandy | Moderate: slope | Poor: seepage small stones too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Armespan | Severe: poor filter | Severe: seepage slope | Moderate: slope too sandy | Moderate: slope | Poor: seepage small stones |
| 3660: | | | | | |
| Titiack | Severe: percs slowly slope | Severe: slope | Severe: slope | Severe: slope | Poor: seepage slope small stones |
| Garhill | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3670: | | | | | |
| Logring | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| Kyler | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| 3671: | | | | | |
| Logring | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Eaglepass | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3672: | | | | | |
| Logring | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Kyler | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Eaglepass | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3700: | | | | | |
| Leo | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| Delamar | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3702: | | | | | |
| Leo | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| Hollywell | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| 3703: | | | | | |
| Leo | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3710: | | | | | |
| Beelem | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3730: | | | | | |
| Penelas | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Kyler | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3731: | | | | | |
| Penelas | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Ubehebe | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3740: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3741: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3742: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Stargo | Moderate: flooding | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: too sandy |
| 3744: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Garhill | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Severe: cemented pan depth to rock | Slight | Poor: depth to rock |
| Belted | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| 3745: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Hollywell | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| 3747: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Lyx | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| Linoyer | Moderate: percs slowly | Severe: seepage | Slight | Slight | Fair: thin layer |
| 3748: | | | | | |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| Keefa | Moderate: percs slowly | Severe: seepage | Severe: too sandy | Slight | Poor: too sandy |
| 3750: | | | | | |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| Cliffdown | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Poor: small stones |
| 3751: | | | | | |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3752: | | | | | |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3754: | | | | | |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Geer---------- | Moderate: flooding percs slowly | Moderate: seepage slope | Moderate: flooding | Moderate: flooding | Good |
| 3755: | | | | | |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| Watoopah-------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3756: | | | | | |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| Lyx---------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| 3757: | | | | | |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| Veet---------- | Severe: flooding poor filter | Severe: flooding seepage | Severe: flooding | Severe: flooding | Poor: seepage small stones |
| Penoyer--------- | Moderate: flooding percs slowly | Moderate: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3758: | | | | | |
| Koyen---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3760: | | | | | |
| Vindicator------ | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| 3770: | | | | | |
| Yody---------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan small stones |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| Cath---------- | Severe: percs slowly | Severe: slope | Moderate: slope too sandy | Moderate: slope | Poor: seepage small stones |
| Abgese---------- | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: small stones |
| 3780: | | | | | |
| Molion---------- | Severe: cemented pan | Severe: cemented pan | Moderate: cemented pan too sandy | Slight | Poor: cemented pan seepage small stones |
| 3800: | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Delamar--------- | Severe: cemented pan | Severe: cemented pan seepage | Severe: cemented pan | Slight | Poor: cemented pan |
| Lyx---------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| 3801: | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Belted---------- | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| Ardivey--------- | Severe: poor filter | Severe: seepage | Severe: large stones | Slight | Poor: seepage small stones |
| 3803: | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Ardivey--------- | Severe: poor filter | Severe: seepage slope | Severe: large stones | Moderate: slope | Poor: seepage small stones |
| Veet---------- | Severe: poor filter | Severe: seepage slope | Moderate: flooding slope too sandy | Moderate: flooding slope | Poor: seepage small stones |
| 3804: | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Ardivey--------- | Severe: poor filter | Severe: seepage | Severe: large stones | Slight | Poor: seepage small stones |
| Lyx---------- | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3805: | | | | | |
| Lyda | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Hardhat | Slight | Severe: seepage | Slight | Slight | Fair: small stones |
| 3810: | | | | | |
| Belted | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| Univega | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: cemented pan too sandy | Slight | Poor: cemented pan seepage too sandy |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: too sandy | Slight | Poor: thin layer |
| 3811: | | | | | |
| Belted | Severe: cemented pan poor filter | Severe: cemented pan seepage | Severe: too sandy | Slight | Poor: cemented pan seepage too sandy |
| Unsel | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Lyx | Severe: poor filter | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: seepage small stones too sandy |
| 3830: | | | | | |
| Downeyville | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3831: | | | | | |
| Downeyville | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Stewval | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| 3832: | | | | | |
| Downeyville | Severe: depth to rock | Severe: slope depth to rock | Severe: depth to rock | Moderate: slope | Poor: small stones depth to rock |
| Tokoper | Severe: cemented pan depth to rock | Severe: cemented pan slope depth to rock | Severe: large stones depth to rock | Moderate: slope | Poor: depth to rock |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3841: | | | | | |
| Veet | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| 3842: | | | | | |
| Veet | Severe: poor filter | Severe: seepage | Moderate: flooding large stones too sandy | Moderate: flooding | Poor: seepage small stones |
| Koyen | Severe: poor filter | Severe: seepage | Moderate: flooding too sandy | Moderate: flooding | Poor: thin layer |
| Geer | Moderate: flooding percs slowly | Moderate: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3850: | | | | | |
| Garhill | Severe: cemented pan depth to rock | Severe: cemented pan slope depth to rock | Severe: cemented pan depth to rock | Moderate: slope | Poor: depth to rock |
| Tokoper | Severe: cemented pan depth to rock | Severe: cemented pan large stones depth to rock | Severe: large stones depth to rock | Slight | Poor: depth to rock |
| Argalt | Severe: cemented pan depth to rock | Severe: cemented pan slope depth to rock | Severe: depth to rock | Moderate: slope | Poor: depth to rock |
| 3860: | | | | | |
| Hyzen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Kyler | Severe: slope depth to rock | Severe: large stones slope depth to rock | Severe: large stones slope depth to rock | Severe: slope | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3861: | | | | | |
| Hyzen | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Eganroc | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- |
| 3870: | | | | | |
| Lien | Severe: cemented pan slope | Severe: cemented pan slope | Severe: cemented pan slope | Severe: slope | Poor: cemented pan slope |
| Rebel | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3880: | | | | | |
| Hardhat | Slight | Severe: seepage | Slight | Slight | Fair: small stones |
| Candelaria | Slight | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3881: | | | | | |
| Hardhat | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Fair: small stones |
| Stargo | Moderate: flooding | Severe: seepage | Severe: too sandy | Moderate: flooding | Poor: too sandy |
| Yomba | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3890: | | | | | |
| Jarab | Severe: cemented pan | Severe: cemented pan slope | Severe: cemented pan | Severe: cemented pan | Poor: cemented pan small stones |
| Drewing | Severe: cemented pan | Severe: cemented pan seepage | Moderate: cemented pan | Slight | Poor: cemented pan seepage small stones |
| Pharo | Severe: slope | Severe: seepage slope | Severe: slope | Severe: slope | Poor: slope small stones |
| 3900: | | | | | |
| Playas | Severe: percs slowly ponding | Severe: ponding | Severe: excess salt too clayey ponding | Severe: ponding | Poor: hard to pack too clayey ponding |
| 3901: | | | | | |
| Lava Flows | --- | --- | --- | --- | --- |
| 3910: | | | | | |
| Yomba | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Yomba | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| 3911: | | | | | |
| Yomba | Severe: poor filter | Severe: seepage | Severe: too sandy | Slight | Poor: seepage small stones too sandy |
| Playas | Severe: percs slowly ponding | Severe: ponding | Severe: excess salt too clayey ponding | Severe: ponding | Poor: hard to pack too clayey ponding |

TABLE 9.--SANITARY FACILITIES--Continued

| Map symbol and soil name | Septic tank absorption fields | Sewage lagoon areas | Trench sanitary landfill | Area sanitary landfill | Daily cover for landfill |
|---|---|---|---|---|---|
| 3920: | | | | | |
| Puett | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope depth to rock | Severe: slope | Poor: slope depth to rock |
| Grassval | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Rebel | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3940: | | | | | |
| Peeko | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| Clowfin | Moderate: flooding | Severe: seepage | Moderate: flooding large stones | Moderate: flooding | Poor: small stones |
| 3941: | | | | | |
| Peeko | Severe: cemented pan | Severe: cemented pan | Severe: cemented pan | Slight | Poor: cemented pan small stones |
| 3960: | | | | | |
| Hodedo | Severe: cemented pan slope poor filter | Severe: cemented pan seepage slope | Severe: cemented pan large stones slope | Severe: slope | Poor: cemented pan large stones slope |
| 3970: | | | | | |
| Linoyer | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Fair: thin layer |
| Rebel | Moderate: flooding | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3971: | | | | | |
| Linoyer | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Fair: thin layer |
| Easychair | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Good |
| 3972: | | | | | |
| Linoyer | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Fair: thin layer |
| 3973: | | | | | |
| Linoyer | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Fair: thin layer |
| Clowfin | Moderate: flooding | Severe: seepage | Moderate: flooding large stones | Moderate: flooding | Poor: small stones |
| 3974: | | | | | |
| Linoyer | Moderate: flooding percs slowly | Severe: seepage | Moderate: flooding | Moderate: flooding | Fair: thin layer |
| Kunzler | Moderate: percs slowly | Moderate: seepage slope | Slight | Slight | Good |
| W: | | | | | |
| Water | --- | --- | --- | --- | --- |

TABLE 10.--CONSTRUCTION MATERIALS

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3000: | | | | |
| Stumble | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| 3001: | | | | |
| Stumble | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Izo | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3020: | | | | |
| Easychair | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3040: | | | | |
| Mosida | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| Rebel | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| Slaw | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too clayey |
| 3041: | | | | |
| Mosida | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3050: | | | | |
| Mijay | Poor: cemented pan | Probable | Probable | Poor: area reclaim small stones |
| Raster | Good | Probable | Probable | Poor: area reclaim small stones |
| 3060: | | | | |
| Morbench | Fair: slope | Improbable: thin layer | Improbable: thin layer | Poor: area reclaim slope small stones |
| 3080: | | | | |
| Breko | Poor: large stones | Probable | Probable | Poor: area reclaim small stones |
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| Handpah | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3090: | | | | |
| Univega | Poor: cemented pan | Probable | Probable | Poor: cemented pan small stones too sandy |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| 3091: | | | | |
| Univega | Poor: cemented pan | Probable | Probable | Poor: cemented pan small stones too sandy |
| Clowfin | Good | Probable | Probable | Poor: area reclaim small stones |
| Molion | Good | Probable | Probable | Poor: area reclaim cemented pan small stones |
| 3101: | | | | |
| Gabbvally | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Vindicator | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3102: | | | | |
| Gabbvally | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Stewval | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Beelem | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| 3110: | | | | |
| Cath | Good | Probable | Probable | Poor: area reclaim small stones |
| Zadvar | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3111: | | | | |
| Cath | Good | Probable | Probable | Poor: area reclaim small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3112: | | | | |
| Cath | Good | Probable | Probable | Poor: area reclaim small stones |
| Portmount | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| Abgese | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| 3120: | | | | |
| Portmount | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| 3130: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| 3131: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Geer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| 3132: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| 3134: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Hollywell | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3137: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3138: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Stumble | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| 3139: | | | | |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Izo | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3140: | | | | |
| Haunchee | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Eaglepass | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3150: | | | | |
| Nuyobe | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium |
| Blueagle | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess salt slope |
| Playas | Poor: low strength shrink-swell wetness | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too clayey wetness |
| 3160: | | | | |
| Cropper | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Clanalpine | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones |
| Bellehelen | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| 3161: | | | | |
| Cropper | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Segura---------- | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Ravenswood------ | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>too clayey |
| 3162: | | | | |
| Cropper--------- | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Segura---------- | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Clanalpine------ | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones |
| 3170: | | | | |
| Hackwood-------- | Poor:<br>slope | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>area reclaim<br>slope<br>small stones |
| Winu---------- | Poor:<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>small stones |
| 3180: | | | | |
| Hymas---------- | Poor:<br>large stones<br>slope<br>depth to rock | Improbable:<br>large stones<br>excess fines | Improbable:<br>large stones<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Hopeka---------- | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Solak---------- | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| 3190: | | | | |
| Penoyer--------- | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Good |
| Geer---------- | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Good |
| 3191: | | | | |
| Penoyer--------- | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Good |
| Watoopah-------- | Good | Probable | Probable | Poor:<br>area reclaim<br>small stones<br>too sandy |
| Easychair------- | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Fair:<br>small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3200: | | | | |
| Ganaflan | Poor: depth to rock | Probable | Probable | Poor: area reclaim, excess salt, small stones |
| 3210: | | | | |
| Kunzler | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim |
| Sycomat | Good | Probable | Probable | Poor: area reclaim, small stones |
| 3211: | | | | |
| Kunzler | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim |
| Kunzler | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim |
| Sycomat | Good | Probable | Probable | Poor: area reclaim, small stones |
| 3212: | | | | |
| Kunzler | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim |
| Kunzler | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim |
| Candelaria | Good | Probable | Probable | Poor: area reclaim, small stones, too sandy |
| 3220: | | | | |
| Stewval | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Beelem | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| 3221: | | | | |
| Stewval | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Stewval | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3223: | | | | |
| Stewval | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Rock Outcrop | --- | --- | --- | --- |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3224: | | | | |
| Stewval | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Beelem | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Bellehelen | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| 3226: | | | | |
| Stewval | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Bellehelen | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3228: | | | | |
| Stewval | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Gabbvally | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Beelem | Poor: slope, depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| 3231: | | | | |
| Geer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| 3233: | | | | |
| Geer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| Koyen | Good | Probable | Probable | Poor: area reclaim, small stones |
| 3240: | | | | |
| Stargo | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones, too sandy |
| Veet | Good | Probable | Probable | Poor: area reclaim, small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3241: | | | | |
| Stargo | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Stargo | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| 3250: | | | | |
| Wardenot | Fair: large stones | Probable | Probable | Poor: area reclaim small stones |
| 3260: | | | | |
| Springwarm | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium small stones |
| Jotava | Fair: wetness | Improbable: excess fines | Improbable: excess fines | Poor: thin layer |
| Delacit | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: excess salt small stones depth to rock |
| 3270: | | | | |
| Jotava | Fair: wetness | Improbable: excess fines | Improbable: excess fines | Poor: thin layer |
| 3280: | | | | |
| Duffer | Fair: low strength shrink-swell wetness | Improbable: excess fines | Improbable: excess fines | Poor: excess salt |
| Duffer | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess salt |
| Equis | Poor: low strength shrink-swell | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium excess salt too clayey |
| 3300: | | | | |
| Palinor | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones too sandy |
| 3301: | | | | |
| Palinor | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim cemented pan small stones |
| Nuc | Fair: slope | Improbable: small stones | Probable | Poor: area reclaim slope small stones |
| 3302: | | | | |
| Palinor | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim cemented pan small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Parisa---------- | Poor: cemented pan | Improbable: small stones | Probable | Poor: area reclaim small stones |
| 3310: | | | | |
| Ursine---------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Veet---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Armespan-------- | Good | Probable | Probable | Poor: area reclaim small stones |
| 3311: | | | | |
| Ursine---------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Cliffdown------- | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| 3330: | | | | |
| Handpah--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Delamar--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| 3333: | | | | |
| Handpah--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Watoopah-------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Zadvar---------- | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3334: | | | | |
| Handpah--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Palinor--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim cemented pan small stones |
| Parisa---------- | Poor. cemented pan | Improbable: small stones | Probable | Poor: area reclaim small stones |
| 3335: | | | | |
| Handpah--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Watoopah-------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Candelaria------ | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3340: | | | | |
| Amelar---------- | Fair: slope | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim slope small stones |
| Eoj---------- | Poor: low strength shrink-swell | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim large stones too clayey |
| Hardol---------- | Poor: slope | Improbable: small stones | Probable | Poor: area reclaim slope small stones |
| 3380: | | | | |
| Roden---------- | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: small stones too clayey depth to rock |
| Izar---------- | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Roden---------- | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: small stones too clayey depth to rock |
| 3400: | | | | |
| Parisa---------- | Poor: cemented pan | Improbable: small stones | Probable | Poor: area reclaim small stones |
| 3410: | | | | |
| Watoopah-------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Veet---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| 3412: | | | | |
| Watoopah-------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Veet---------- | Good | Probable | Probable | Poor: area reclaim small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Zadvar---------- | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3414: | | | | |
| Watoopah-------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Cath---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| 3415: | | | | |
| Watoopah-------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Leo---------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3420: | | | | |
| Squawtip-------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones |
| Bellehelen------ | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3430: | | | | |
| Bellehelen------ | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Bellehelen------ | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3434: | | | | |
| Bellehelen------ | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Cropper--------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3440: | | | | |
| Layview--------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Foxvire--------- | Poor: slope | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim slope small stones |
| Suak---------- | Poor: large stones slope depth to rock | Improbable: large stones excess fines | Improbable: large stones excess fines | Poor: slope small stones |
| 3441: | | | | |
| Layview--------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Labshaft-------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Winu---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones |
| 3442: | | | | |
| Layview--------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Suak---------- | Poor: large stones slope depth to rock | Improbable: large stones excess fines | Improbable: large stones excess fines | Poor: slope small stones |
| Winu---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones |
| 3450: | | | | |
| Grassval-------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Allker---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Zadvar---------- | Fair: slope | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3460: | | | | |
| Zadvar---------- | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| Handpah--------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| 3463: | | | | |
| Zadvar---------- | Good | Probable | Probable | Poor: cemented pan small stones too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| 3467: | | | | |
| Zadvar | Fair: slope | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3468: | | | | |
| Zadvar | Fair: slope | Probable | Probable | Poor: cemented pan small stones too sandy |
| Allker | Good | Probable | Probable | Poor: area reclaim small stones |
| Peeko | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan slope small stones |
| 3470: | | | | |
| Cirac | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too sandy |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Nyserva | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium excess salt too sandy |
| 3471: | | | | |
| Cirac | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too sandy |
| Nyserva | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium excess salt too sandy |
| 3473: | | | | |
| Cirac | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too sandy |
| Slaw | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too clayey |
| Nyserva | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium excess salt too sandy |
| 3474: | | | | |
| Cirac | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Nyserva | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium excess salt too sandy |
| Kawich | Fair: slope | Improbable: excess fines | Improbable: excess fines | Poor: slope too sandy |
| 3475: | | | | |
| Cirac | Good | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too sandy |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Slaw | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too clayey |
| 3480: | | | | |
| Chuckridge | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim cemented pan small stones |
| Zadvar | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3481: | | | | |
| Chuckridge | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim cemented pan small stones |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| 3491: | | | | |
| Slaw | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too clayey |
| Easychair | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3520: | | | | |
| Rustigate | Fair: shrink-swell | Improbable: excess fines | Improbable: excess fines | Good |
| 3521: | | | | |
| Rustigate | Fair: shrink-swell | Improbable: excess fines | Improbable: excess fines | Good |
| Nuyobe | Poor: low strength | Improbable: excess fines | Improbable: excess fines | Poor: excess sodium |
| 3522: | | | | |
| Rustigate | Fair: shrink-swell | Improbable: excess fines | Improbable: excess fines | Good |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Nuyobe | Poor:<br>low strength | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>excess sodium |
| Kawich | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>too sandy |
| 3530: | | | | |
| Rebel | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Fair:<br>small stones |
| 3531: | | | | |
| Rebel | Good | Improbable:<br>excess fines | Improbable:<br>excess fines | Fair:<br>small stones |
| 3540: | | | | |
| Packer | Poor:<br>slope | Improbable:<br>large stones<br>excess fines | Improbable:<br>large stones<br>excess fines | Poor:<br>area reclaim<br>slope<br>small stones |
| Suak | Poor:<br>large stones<br>depth to rock | Improbable:<br>large stones<br>excess fines | Improbable:<br>large stones<br>excess fines | Poor:<br>slope<br>small stones |
| Foxvire | Poor:<br>slope | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>area reclaim<br>slope<br>small stones |
| 3560: | | | | |
| Ubehebe | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Penelas | Poor:<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Logring | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| 3570: | | | | |
| Eaglepass | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Kyler | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3571: | | | | |
| Eaglepass | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |
| Eaglepass | Poor:<br>slope<br>depth to rock | Improbable:<br>excess fines | Improbable:<br>excess fines | Poor:<br>slope<br>small stones<br>depth to rock |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Rock Outcrop---- | --- | --- | --- | --- |
| 3572: | | | | |
| Eaglepass------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Kyler---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3580: | | | | |
| Kyler---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3581: | | | | |
| Kyler---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3590: | | | | |
| Allker---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Portmount------- | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| 3600: | | | | |
| Ardivey--------- | Fair: large stones | Improbable: small stones | Probable | Poor: area reclaim small stones |
| Hollywell------- | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones too sandy |
| Belted---------- | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3601: | | | | |
| Ardivey--------- | Fair: large stones | Improbable: small stones | Probable | Poor: area reclaim small stones |
| Zadvar---------- | Good | Probable | Probable | Poor: cemented pan small stones too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3610: | | | | |
| Tokoper | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| Garhill | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3620: | | | | |
| Argalt | Poor: low strength depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| Stewval | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Gabbvally | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| 3630: | | | | |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Geer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| 3640: | | | | |
| Armespan | Fair: slope | Probable | Probable | Poor: area reclaim slope small stones |
| Zadvar | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| 3641: | | | | |
| Armespan | Good | Probable | Probable | Poor: area reclaim small stones |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Candelaria------ | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3642: | | | | |
| Armespan-------- | Fair: slope | Probable | Probable | Poor: area reclaim slope small stones |
| 3643: | | | | |
| Armespan-------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Morbench-------- | Good | Improbable: thin layer | Improbable: thin layer | Poor: area reclaim small stones |
| 3644: | | | | |
| Armespan-------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Cliffdown------- | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |
| Candelaria------ | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3645: | | | | |
| Armespan-------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Clowfin--------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Peeko---------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| 3647: | | | | |
| Armespan-------- | Good | Probable | Probable | Poor: area reclaim small stones |
| Spager---------- | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan slope small stones |
| 3651: | | | | |
| Candelaria------ | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3655: | | | | |
| Candelaria------ | Good | Probable | Probable | Poor: area reclaim small stones too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Armespan | Good | Probable | Probable | Poor: area reclaim small stones |
| 3660: | | | | |
| Titiack | Poor: slope thin layer | Improbable: thin layer | Improbable: thin layer | Poor: slope small stones |
| Garhill | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| 3670: | | | | |
| Logring | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| Kyler | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| 3671: | | | | |
| Logring | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Eaglepass | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| 3672: | | | | |
| Logring | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Kyler | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Eaglepass | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| 3700: | | | | |
| Leo | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Delamar | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| 3702: | | | | |
| Leo | Good | Probable | Probable | Poor: area reclaim small stones too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Hollywell------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3703: | | | | |
| Leo---------- | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Koyen---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| 3710: | | | | |
| Beelem---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3730: | | | | |
| Penelas--------- | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Kyler---------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3731: | | | | |
| Penelas--------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Ubehebe--------- | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- |
| 3740: | | | | |
| Keefa---------- | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Unsel---------- | Good | Probable | Probable | Poor: area reclaim small stones |
| 3741: | | | | |
| Keefa---------- | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Koyen---------- | Good | Probable | Probable | Poor: area reclaim small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3742: | | | | |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Stargo | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| 3744: | | | | |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Garhill | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| Belted | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| 3745: | | | | |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Hollywell | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3747: | | | | |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Linoyer | Good | Improbable: small stones | Probable | Poor: area reclaim |
| 3748: | | | | |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Koyen | Good | Probable | Probable | Poor: small stones |
| Keefa | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| 3750: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Cliffdown | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3751: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| 3752: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| 3754: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Watoopah | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Geer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| 3755: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Watoopah | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3756: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3757: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| Penoyer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| 3758: | | | | |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3760: | | | | |
| Vindicator | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| 3770: | | | | |
| Yody | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| Cath | Good | Probable | Probable | Poor: area reclaim, small stones |
| Abgese | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim, small stones |
| 3780: | | | | |
| Molion | Good | Probable | Probable | Poor: area reclaim, cemented pan, small stones |
| 3800: | | | | |
| Lyda | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |
| Delamar | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| Lyx | Good | Probable | Probable | Poor: area reclaim, small stones, too sandy |
| 3801: | | | | |
| Lyda | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |
| Belted | Good | Probable | Probable | Poor: cemented pan, small stones, too sandy |
| Ardivey | Fair: large stones | Improbable: small stones | Probable | Poor: area reclaim, small stones |
| 3803: | | | | |
| Lyda | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |
| Ardivey | Fair: large stones | Improbable: small stones | Probable | Poor: area reclaim, small stones |
| Veet | Good | Probable | Probable | Poor: area reclaim, small stones |
| 3804: | | | | |
| Lyda | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| Ardivey | Fair: large stones | Improbable: small stones | Probable | Poor: area reclaim small stones |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3805: | | | | |
| Lyda | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Hardhat | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| 3810: | | | | |
| Belted | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| Univega | Poor: cemented pan | Probable | Probable | Poor: cemented pan small stones too sandy |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| 3811: | | | | |
| Belted | Good | Probable | Probable | Poor: cemented pan small stones too sandy |
| Unsel | Good | Probable | Probable | Poor: area reclaim small stones |
| Lyx | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3830: | | | | |
| Downeyville | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3831: | | | | |
| Downeyville | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Stewval | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3832: | | | | |
| Downeyville | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: small stones depth to rock |
| Tokoper | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| 3841: | | | | |
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| 3842: | | | | |
| Veet | Good | Probable | Probable | Poor: area reclaim small stones |
| Koyen | Good | Probable | Probable | Poor: area reclaim small stones |
| Geer | Good | Improbable: excess fines | Improbable: excess fines | Good |
| 3850: | | | | |
| Garhill | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| Tokoper | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| Argalt | Poor: low strength depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones depth to rock |
| 3860: | | | | |
| Hyzen | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Kyler | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Rock Outcrop | --- | --- | --- | --- |
| 3861: | | | | |
| Hyzen | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones depth to rock |
| Eganroc | Poor: slope depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope small stones |
| Rock Outcrop | --- | --- | --- | --- |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3870: | | | | |
| Lien | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan slope small stones |
| Rebel | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3880: | | | | |
| Hardhat | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| Candelaria | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3881: | | | | |
| Hardhat | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones |
| Stargo | Good | Improbable: excess fines | Improbable: excess fines | Poor: small stones too sandy |
| Yomba | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| 3890: | | | | |
| Jarab | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan small stones |
| Drewing | Good | Probable | Probable | Poor: area reclaim cemented pan small stones |
| Pharo | Fair: slope thin layer | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim slope small stones |
| 3900: | | | | |
| Playas | Poor: low strength shrink-swell wetness | Improbable: excess fines | Improbable: excess fines | Poor: excess salt too clayey wetness |
| 3901: | | | | |
| Lava Flows | --- | --- | --- | --- |
| 3910: | | | | |
| Yomba | Good | Probable | Probable | Poor: area reclaim small stones too sandy |
| Yomba | Good | Probable | Probable | Poor: area reclaim small stones too sandy |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3911: | | | | |
| Yomba | Good | Probable | Probable | Poor: area reclaim, small stones, too sandy |
| Playas | Poor: low strength, shrink-swell, wetness | Improbable: excess fines | Improbable: excess fines | Poor: excess salt, too clayey, wetness |
| 3920: | | | | |
| Puett | Poor: depth to rock | Improbable: excess fines | Improbable: excess fines | Poor: slope, small stones, depth to rock |
| Grassval | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |
| Rebel | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3940: | | | | |
| Peeko | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |
| Clowfin | Good | Probable | Probable | Poor: area reclaim, small stones |
| 3941: | | | | |
| Peeko | Poor: cemented pan | Improbable: excess fines | Improbable: excess fines | Poor: cemented pan, small stones |
| 3960: | | | | |
| Hodedo | Poor: cemented pan | Improbable: large stones, excess fines | Improbable: large stones, excess fines | Poor: area reclaim, large stones, too clayey |
| 3970: | | | | |
| Linoyer | Good | Improbable: small stones | Probable | Poor: area reclaim |
| Rebel | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3971: | | | | |
| Linoyer | Good | Improbable: small stones | Probable | Poor: area reclaim |
| Easychair | Good | Improbable: excess fines | Improbable: excess fines | Fair: small stones |
| 3972: | | | | |
| Linoyer | Good | Improbable: small stones | Probable | Poor: area reclaim |
| 3973: | | | | |
| Linoyer | Good | Improbable: small stones | Probable | Poor: area reclaim |
| Clowfin | Good | Probable | Probable | Poor: area reclaim, small stones |

TABLE 10.--CONSTRUCTION MATERIALS--Continued

| Map symbol and soil name | Roadfill | Sand | Gravel | Topsoil |
|---|---|---|---|---|
| 3974: | | | | |
| Linoyer | Good | Improbable: small stones | Probable | Poor: area reclaim |
| Kunzler | Good | Improbable: excess fines | Improbable: excess fines | Poor: area reclaim |
| W: | | | | |
| Water | --- | --- | --- | --- |

TABLE 11.--WATER MANAGEMENT

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

| Map symbol and soil name | Limitations for-- | | | Features affecting-- | | | |
|---|---|---|---|---|---|---|---|
| | Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Drainage | Irrigation | Terraces and diversions | Grassed waterways |
| 3000: | | | | | | | |
| Stumble--------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3001: | | | | | | | |
| Stumble--------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Koyen---------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Izo---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3020: | | | | | | | |
| Easychair------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3040: | | | | | | | |
| Mosida---------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding | Limitation: erodes easily | Limitation: erodes easily too arid |
| Rebel---------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: fast intake soil blowing | Limitation: soil blowing | Limitation: too arid |
| Slaw---------- | Slight | Severe: excess salt | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding percs slowly | Limitation: erodes easily percs slowly | Limitation: erodes easily excess salt too arid |
| 3041: | | | | | | | |
| Mosida---------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3050: | | | | | | | |
| Mijay---------- | Severe: seepage slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: cemented pan large stones slope | Limitation: large stones slope too arid |
| Raster---------- | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones slope too sandy | Limitation: large stones slope droughty |
| 3060: | | | | | | | |
| Morbench-------- | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3080: | | | | | | | |
| Breko---------- | Severe: seepage | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones | Limitation: large stones too arid droughty |
| Veet---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Handpah--------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan percs slowly slope | Limitation: cemented pan percs slowly | Limitation: cemented pan percs slowly too arid |
| 3090: | | | | | | | |
| Univega--------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: cemented pan too sandy soil blowing | Limitation: cemented pan too arid droughty |
| Koyen---------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3091: | | | | | | | |
| Univega--------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: cemented pan too sandy soil blowing | Limitation: cemented pan too arid droughty |
| Clowfin--------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: large stones soil blowing | Limitation: large stones too arid droughty |
| Molion---------- | Severe: cemented pan | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: erodes easily cemented pan too sandy | Limitation: erodes easily too arid droughty |
| 3101: | | | | | | | |
| Gabbvally------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope too arid depth to rock |
| Vindicator------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3102: | | | | | | | |
| Gabbvally------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope too arid depth to rock |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Beelem | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| 3110: | | | | | | | |
| Cath | Moderate: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: too sandy | Limitation: percs slowly too arid droughty |
| Zadvar | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| 3111: | | | | | | | |
| Cath | Moderate: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: too sandy | Limitation: percs slowly too arid droughty |
| 3112: | | | | | | | |
| Cath | Moderate: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: too sandy | Limitation: percs slowly too arid droughty |
| Portmount | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Favorable | Limitation: too arid droughty |
| Abgese | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3120: | | | | | | | |
| Portmount | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Favorable | Limitation: too arid droughty |
| 3130: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3131: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Geer | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| 3132: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Keefa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3134: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Hollywell | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: large stones too sandy soil blowing | Limitation: large stones too arid droughty |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3137: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3138: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Stumble | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3139: | | | | | | | |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Izo | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3140: | | | | | | | |
| Haunchee | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Eaglepass------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3150: | | | | | | | |
| Nuyobe---------- | Slight | Severe: excess sodium excess salt | Severe: slow refill | Limitation: excess sodium excess salt frost action | Limitation: erodes easily excess sodium wetness | Limitation: erodes easily wetness | Limitation: erodes easily excess sodium excess salt |
| Blueagle-------- | Severe: slope | Severe: excess salt | Severe: no water | Limitation: deep to water | Limitation: erodes easily excess salt slope | Limitation: erodes easily slope | Limitation: excess salt slope too arid |
| Playas---------- | Slight | Severe: excess salt hard to pack ponding | Severe: slow refill salty water | Limitation: excess salt percs slowly ponding | Limitation: percs slowly ponding droughty | Limitation: erodes easily percs slowly ponding | Limitation: erodes easily excess salt wetness |
| 3160: | | | | | | | |
| Cropper--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Clanalpine------ | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| 3161: | | | | | | | |
| Cropper--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Segura---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Ravenswood------ | Severe: slope | Moderate: large stones thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| 3162: | | | | | | | |
| Cropper--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Segura---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Clanalpine------ | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| 3170: | | | | | | | |
| Hackwood-------- | Severe: slope | Slight | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: slope | Limitation: slope droughty |
| Winu---------- | Severe: slope | Moderate: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope depth to rock |
| 3180: | | | | | | | |
| Hymas---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Hopeka---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Solak---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| 3190: | | | | | | | |
| Penoyer--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Geer---------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| 3191: | | | | | | | |
| Penoyer--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Watoopah-------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Easychair------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3200: | | | | | | | |
| Ganaflan-------- | Severe: seepage slope | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: excess salt slope depth to rock | Limitation: erodes easily slope depth to rock | Limitation: excess salt slope too arid |
| 3210: | | | | | | | |
| Kunzler--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Sycomat--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| 3211: | | | | | | | |
| Kunzler--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Kunzler--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Sycomat--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| 3212: | | | | | | | |
| Kunzler--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Kunzler--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Candelaria------ | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3220: | | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Beelem---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| 3221: | | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3223: | | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3224: | | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Beelem---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| 3226: | | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3228: | | | | | | | |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Gabbvally------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope too arid depth to rock |
| Beelem---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| 3231: | | | | | | | |
| Geer---------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| 3233: | | | | | | | |
| Geer---------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| Koyen---------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: soil blowing | Limitation: too sandy soil blowing | Limitation: too arid |
| 3240: | | | | | | | |
| Stargo---------- | Severe: seepage | Moderate: seepage piping | Severe: no water | Limitation: deep to water | Favorable | Limitation: erodes easily too sandy | Limitation: erodes easily too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Veet | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding droughty | Limitation: erodes easily large stones too sandy | Limitation: erodes easily large stones too arid |
| 3241: | | | | | | | |
| Stargo | Severe: seepage | Moderate: seepage piping | Severe: no water | Limitation: deep to water | Favorable | Limitation: erodes easily too sandy | Limitation: erodes easily too arid |
| Stargo | Severe: seepage | Moderate: seepage piping | Severe: no water | Limitation: deep to water | Favorable | Limitation: erodes easily too sandy | Limitation: erodes easily too arid |
| 3250: | | | | | | | |
| Wardenot | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3260: | | | | | | | |
| Springwarm | Moderate: depth to rock | Severe: excess sodium excess salt wetness | Severe: slow refill depth to rock | Limitation: large stones percs slowly depth to rock | Limitation: large stones wetness soil blowing | Limitation: erodes easily large stones depth to rock | Limitation: excess sodium excess salt large stones |
| Jotava | Moderate: seepage | Severe: excess salt piping | Severe: slow refill cutbanks cave | Limitation: excess salt frost action percs slowly | Limitation: excess salt percs slowly wetness | Limitation: wetness | Limitation: excess salt percs slowly too arid |
| Delacit | Severe: depth to rock | Severe: excess sodium excess salt | Severe: no water | Limitation: deep to water | Limitation: fast intake soil blowing depth to rock | Limitation: erodes easily soil blowing depth to rock | Limitation: excess sodium excess salt too arid |
| 3270: | | | | | | | |
| Jotava | Moderate: seepage | Severe: excess salt piping | Severe: slow refill cutbanks cave | Limitation: excess salt frost action percs slowly | Limitation: excess salt percs slowly wetness | Limitation: wetness | Limitation: excess salt percs slowly too arid |
| 3280: | | | | | | | |
| Duffer | Slight | Severe: excess salt wetness | Severe: slow refill salty water | Limitation: excess salt flooding frost action | Limitation: erodes easily flooding wetness | Limitation: erodes easily wetness | Limitation: erodes easily excess salt too arid |
| Duffer | Slight | Moderate: excess salt piping wetness | Severe: slow refill | Limitation: deep to water | Limitation: erodes easily excess salt | Limitation: erodes easily | Limitation: erodes easily excess salt too arid |
| Equis | Slight | Severe: excess sodium hard to pack wetness | Severe: slow refill | Limitation: excess sodium excess salt percs slowly | Limitation: percs slowly slow intake wetness | Limitation: percs slowly wetness | Limitation: excess sodium excess salt wetness |
| 3300: | | | | | | | |
| Palinor | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan large stones slope | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3301: | | | | | | | |
| Palinor | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan large stones too sandy | Limitation: large stones too arid droughty |
| Nuc | Severe: slope | Moderate: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: percs slowly slope | Limitation: slope too arid droughty |
| 3302: | | | | | | | |
| Palinor | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan large stones too sandy | Limitation: large stones too arid droughty |
| Parisa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan | Limitation: cemented pan too arid droughty |
| 3310: | | | | | | | |
| Ursine | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan | Limitation: cemented pan too arid droughty |
| Veet | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Armespan | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3311: | | | | | | | |
| Ursine | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan | Limitation: cemented pan too arid droughty |
| Cliffdown | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Favorable | Limitation: too arid droughty |
| 3330: | | | | | | | |
| Handpah | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan percs slowly slope | Limitation: cemented pan percs slowly | Limitation: cemented pan percs slowly too arid |
| Delamar | Severe: seepage | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope soil blowing | Limitation: cemented pan soil blowing | Limitation: cemented pan too arid |
| 3333: | | | | | | | |
| Handpah | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan percs slowly slope | Limitation: cemented pan percs slowly | Limitation: cemented pan percs slowly too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Watoopah-------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Zadvar---------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| 3334: | | | | | | | |
| Handpah--------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan percs slowly slope | Limitation: cemented pan percs slowly | Limitation: cemented pan percs slowly too arid |
| Palinor--------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan large stones too sandy | Limitation: large stones too arid droughty |
| Parisa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan | Limitation: cemented pan too arid droughty |
| 3335: | | | | | | | |
| Handpah--------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan percs slowly slope | Limitation: cemented pan percs slowly | Limitation: cemented pan percs slowly too arid |
| Watoopah-------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Candelaria------ | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3340: | | | | | | | |
| Amelar---------- | Severe: slope | Moderate: large stones | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones slope | Limitation: large stones slope droughty |
| Eoj---------- | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones percs slowly slope | Limitation: large stones slope droughty |
| Hardol---------- | Severe: slope | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope | Limitation: large stones slope droughty |
| 3380: | | | | | | | |
| Roden---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: percs slowly slope depth to rock | Limitation: slope too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Izar | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Roden | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: percs slowly slope depth to rock | Limitation: slope too arid droughty |
| 3400: | | | | | | | |
| Parisa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan | Limitation: cemented pan too arid droughty |
| 3410: | | | | | | | |
| Watoopah | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Veet | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3412: | | | | | | | |
| Watoopah | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Veet | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Zadvar | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| 3414: | | | | | | | |
| Watoopan | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Cath | Moderate: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: too sandy | Limitation: percs slowly too arid droughty |
| 3415: | | | | | | | |
| Watoopah | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Leo | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3420: | | | | | | | |
| Squawtip-------- | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3430: | | | | | | | |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3434: | | | | | | | |
| Bellehelen------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock |
| Cropper--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3440: | | | | | | | |
| Layview--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope depth to rock droughty |
| Foxvire--------- | Severe: seepage slope | Moderate: piping | Severe: no water | Limitation: deep to water | Limitation: slope | Limitation: slope | Limitation: slope |
| Suak---------- | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| 3441: | | | | | | | |
| Layview--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope depth to rock droughty |
| Labshaft-------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Winu---------- | Severe: slope | Moderate: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope depth to rock |
| 3442: | | | | | | | |
| Layview--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope depth to rock droughty |
| Suak---------- | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Winu---------- | Severe: slope | Moderate: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope depth to rock |
| 3450: | | | | | | | |
| Grassval-------- | Severe: cemented pan slope | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan slope | Limitation: cemented pan slope too arid |
| Allker---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope | Limitation: too sandy | Limitation: too arid |
| Zadvar---------- | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope too sandy | Limitation: slope too arid droughty |
| 3460: | | | | | | | |
| Zadvar---------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| Handpah--------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan percs slowly slope | Limitation: cemented pan percs slowly | Limitation: cemented pan percs slowly too arid |
| 3463: | | | | | | | |
| Zadvar---------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| Veet---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3467: | | | | | | | |
| Zadvar---------- | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope too sandy | Limitation: slope too arid droughty |
| 3468: | | | | | | | |
| Zadvar---------- | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope too sandy | Limitation: slope too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Allker---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope | Limitation: too sandy | Limitation: too arid |
| Peeko---------- | Severe: cemented pan slope | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan slope | Limitation: cemented pan slope too arid |
| 3470: | | | | | | | |
| Cirac---------- | Severe: seepage | Severe: excess salt piping | Severe: no water | Limitation: deep to water | Limitation: excess salt soil blowing | Limitation: too sandy soil blowing | Limitation: excess salt too arid |
| Keefa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt droughty | Limitation: too sandy | Limitation: too arid droughty |
| Nyserva--------- | Slight | Severe: excess sodium excess salt piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily excess sodium percs slowly | Limitation: erodes easily percs slowly too sandy | Limitation: excess sodium excess salt too arid |
| 3471: | | | | | | | |
| Cirac---------- | Severe: seepage | Severe: excess salt piping | Severe: no water | Limitation: deep to water | Limitation: excess salt soil blowing | Limitation: too sandy soil blowing | Limitation: excess salt too arid |
| Nyserva--------- | Slight | Severe: excess sodium excess salt piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily excess sodium percs slowly | Limitation: erodes easily percs slowly too sandy | Limitation: excess sodium excess salt too arid |
| 3473: | | | | | | | |
| Cirac---------- | Severe: seepage | Severe: excess salt piping | Severe: no water | Limitation: deep to water | Limitation: excess salt soil blowing | Limitation: too sandy soil blowing | Limitation: excess salt too arid |
| Slaw---------- | Slight | Severe: excess salt | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding percs slowly | Limitation: erodes easily percs slowly | Limitation: erodes easily excess salt too arid |
| Nyserva--------- | Slight | Severe: excess sodium excess salt piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily excess sodium percs slowly | Limitation: erodes easily percs slowly too sandy | Limitation: excess sodium excess salt too arid |
| 3474: | | | | | | | |
| Cirac---------- | Severe: seepage | Severe: excess salt piping | Severe: no water | Limitation: deep to water | Limitation: excess salt soil blowing | Limitation: too sandy soil blowing | Limitation: excess salt too arid |
| Nyserva--------- | Slight | Severe: excess sodium excess salt piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily excess sodium percs slowly | Limitation: erodes easily percs slowly too sandy | Limitation: excess sodium excess salt too arid |
| Kawich---------- | Severe: seepage slope | Severe: seepage piping | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: slope too sandy soil blowing | Limitation: excess salt slope too arid |
| 3475: | | | | | | | |
| Cirac---------- | Severe: seepage | Severe: excess salt piping | Severe: no water | Limitation: deep to water | Limitation: excess salt soil blowing | Limitation: too sandy soil blowing | Limitation: excess salt too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Keefa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt droughty | Limitation: too sandy | Limitation: too arid droughty |
| Slaw---------- | Slight | Severe: excess salt | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding percs slowly | Limitation: erodes easily percs slowly | Limitation: erodes easily excess salt too arid |
| 3480: | | | | | | | |
| Chuckridge------ | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| Zadvar---------- | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope too sandy | Limitation: slope too arid droughty |
| 3481: | | | | | | | |
| Chuckridge------ | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| Unsel---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Veet---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3491: | | | | | | | |
| Slaw---------- | Slight | Severe: excess salt | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding percs slowly | Limitation: erodes easily percs slowly | Limitation: erodes easily excess salt too arid |
| Easychair------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3520: | | | | | | | |
| Rustigate------- | Moderate: seepage | Severe: piping | Moderate: slow refill deep to water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3521: | | | | | | | |
| Rustigate------- | Moderate: seepage | Severe: piping | Moderate: slow refill deep to water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| Nuyobe---------- | Slight | Severe: excess sodium excess salt | Severe: slow refill | Limitation: excess sodium excess salt frost action | Limitation: erodes easily excess sodium wetness | Limitation: erodes easily wetness | Limitation: erodes easily excess sodium excess salt |
| 3522: | | | | | | | |
| Rustigate------- | Moderate: seepage | Severe: piping | Moderate: slow refill deep to water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Nuyobe | Slight | Severe: excess sodium excess salt | Severe: slow refill | Limitation: excess sodium excess salt frost action | Limitation: erodes easily excess sodium wetness | Limitation: erodes easily wetness | Limitation: erodes easily excess sodium excess salt |
| Kawich | Severe: seepage | Severe: seepage piping | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: excess salt too arid droughty |
| 3530: | | | | | | | |
| Rebel | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: soil blowing | Limitation: soil blowing | Limitation: too arid |
| 3531: | | | | | | | |
| Rebel | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: fast intake soil blowing | Limitation: soil blowing | Limitation: too arid |
| 3540: | | | | | | | |
| Packer | Severe: seepage slope | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope | Limitation: large stones slope droughty |
| Suak | Severe: slope | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Foxvire | Severe: seepage slope | Moderate: piping | Severe: no water | Limitation: deep to water | Limitation: slope | Limitation: slope | Limitation: slope |
| 3560: | | | | | | | |
| Ubehebe | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Penelas | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Logring | Severe: slope depth to rock | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| 3570: | | | | | | | |
| Eaglepass | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Kyler | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3571: | | | | | | | |
| Eaglepass------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Eaglepass------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3572: | | | | | | | |
| Eaglepass------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Kyler---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3580: | | | | | | | |
| Kyler---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3581: | | | | | | | |
| Kyler---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3590: | | | | | | | |
| Allker---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope | Limitation: too sandy | Limitation: too arid |
| Portmount------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Favorable | Limitation: too arid droughty |
| 3600: | | | | | | | |
| Ardivey--------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Hollywell------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Belted---------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: excess salt too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3601: | | | | | | | |
| Ardivey | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope too sandy | Limitation: large stones slope too arid |
| Zadvar | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope too sandy | Limitation: slope too arid droughty |
| 3610: | | | | | | | |
| Tokoper | Severe: cemented pan slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Garhill | Severe: cemented pan slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope depth to rock | Limitation: cemented pan slope depth to rock | Limitation: slope too arid depth to rock |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- |
| 3620: | | | | | | | |
| Argalt | Severe: cemented pan slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope depth to rock | Limitation: cemented pan slope depth to rock | Limitation: erodes easily slope too arid |
| Stewval | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Gabbvally | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock | Limitation: slope depth to rock | Limitation: slope too arid depth to rock |
| 3630: | | | | | | | |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Geer | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3640: | | | | | | | |
| Armespan | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| Zadvar | Severe: cemented pan seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope too sandy | Limitation: slope too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Veet | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3641: | | | | | | | |
| Armespan | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Candelaria | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3642: | | | | | | | |
| Armespan | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| 3643: | | | | | | | |
| Armespan | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| Morbench | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| 3644: | | | | | | | |
| Armespan | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| Cliffdown | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope | Limitation: slope too arid droughty |
| Candelaria | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| 3645: | | | | | | | |
| Armespan | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| Clowfin | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones | Limitation: large stones too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Peeko | Severe: cemented pan | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan | Limitation: cemented pan too arid |
| 3647: | | | | | | | |
| Armespan | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Spager | Severe: cemented pan slope | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope | Limitation: slope too arid droughty |
| 3651: | | | | | | | |
| Candelaria | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3655: | | | | | | | |
| Candelaria | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| Armespan | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| 3660: | | | | | | | |
| Titiack | Severe: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: large stones slope | Limitation: large stones slope too arid |
| Garhill | Severe: cemented pan slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: fast intake slope depth to rock | Limitation: cemented pan slope depth to rock | Limitation: slope too arid depth to rock |
| 3670: | | | | | | | |
| Logring | Severe: slope depth to rock | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- |
| Kyler | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| 3671: | | | | | | | |
| Logring | Severe: slope depth to rock | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Eaglepass | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3672: | | | | | | | |
| Logring--------- | Severe: slope depth to rock | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Kyler---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Eaglepass------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| 3700: | | | | | | | |
| Leo---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Delamar--------- | Severe: seepage | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope soil blowing | Limitation: cemented pan soil blowing | Limitation: cemented pan too arid |
| 3702: | | | | | | | |
| Leo---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Hollywell------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: large stones too sandy soil blowing | Limitation: large stones too arid droughty |
| 3703: | | | | | | | |
| Leo---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Koyen---------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3710: | | | | | | | |
| Beelem---------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3730: | | | | | | | |
| Penelas--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Kyler---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3731: | | | | | | | |
| Penelas--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Ubehebe--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3740: | | | | | | | |
| Keefa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Unsel---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3741: | | | | | | | |
| Keefa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Koyen---------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: too sandy soil blowing | Limitation: too arid |
| 3742: | | | | | | | |
| Keefa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Stargo---------- | Severe: seepage | Moderate: seepage piping | Severe: no water | Limitation: deep to water | Limitation: fast intake soil blowing droughty | Limitation: erodes easily too sandy soil blowing | Limitation: erodes easily too arid droughty |
| 3744: | | | | | | | |
| Keefa---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Garhill--------- | Severe: cemented pan depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: fast intake slope depth to rock | Limitation: cemented pan depth to rock | Limitation: cemented pan too arid depth to rock |
| Belted---------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: excess salt too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3745: | | | | | | | |
| Keefa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt droughty | Limitation: too sandy | Limitation: too arid droughty |
| Hollywell | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake soil blowing droughty | Limitation: large stones too sandy soil blowing | Limitation: large stones too arid droughty |
| 3747: | | | | | | | |
| Keefa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Linoyer | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| 3748: | | | | | | | |
| Keefa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: too sandy soil blowing | Limitation: too arid |
| Keefa | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3750: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: too sandy soil blowing | Limitation: too arid |
| Cliffdown | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Favorable | Limitation: too arid droughty |
| 3751: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt droughty | Limitation: too sandy | Limitation: too arid droughty |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3752: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: too sandy soil blowing | Limitation: too arid |
| 3754: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Watoopah | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Geer | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| 3755: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| Watoopah | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3756: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: too sandy soil blowing | Limitation: too arid |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3757: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| Veet | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: erodes easily flooding droughty | Limitation: erodes easily large stones too sandy | Limitation: erodes easily large stones too arid |
| Penoyer | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3758: | | | | | | | |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3760: | | | | | | | |
| Vindicator------ | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| 3770: | | | | | | | |
| Yody---------- | Severe: seepage | Moderate: seepage thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan too sandy | Limitation: cemented pan too arid |
| Cath---------- | Severe: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: slope too sandy | Limitation: slope too arid droughty |
| Abgese---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: soil blowing droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| 3780: | | | | | | | |
| Molion---------- | Severe: cemented pan | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: cemented pan too arid droughty |
| 3800: | | | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: cemented pan large stones percs slowly | Limitation: large stones too arid droughty |
| Delamar--------- | Severe: seepage | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan | Limitation: cemented pan too arid |
| Lyx---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3801: | | | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: cemented pan large stones percs slowly | Limitation: large stones too arid droughty |
| Belted---------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: excess salt too arid droughty |
| Ardivey--------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3803: | | | | | | | |
| Lyda---------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: cemented pan large stones percs slowly | Limitation: large stones too arid droughty |
| Ardivey--------- | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope too sandy | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Veet | Severe: seepage slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones slope too sandy | Limitation: large stones slope too arid |
| 3804: | | | | | | | |
| Lyda | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: cemented pan large stones percs slowly | Limitation: large stones too arid droughty |
| Ardivey | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3805: | | | | | | | |
| Lyda | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: percs slowly slope droughty | Limitation: cemented pan large stones percs slowly | Limitation: large stones too arid droughty |
| Hardhat | Severe: seepage | Moderate: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Favorable | Limitation: too arid droughty |
| 3810: | | | | | | | |
| Belted | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan too sandy | Limitation: excess salt too arid droughty |
| Univega | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: cemented pan too sandy soil blowing | Limitation: cemented pan too arid droughty |
| Koyen | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3811: | | | | | | | |
| Belted | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt cemented pan droughty | Limitation: cemented pan too sandy | Limitation: excess salt too arid droughty |
| Unsel | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt droughty | Limitation: too sandy | Limitation: too arid droughty |
| Lyx | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3830: | | | | | | | |
| Downeyville | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3831: | | | | | | | |
| Downeyville----- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Stewval--------- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| 3832: | | | | | | | |
| Downeyville----- | Severe: slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Tokoper--------- | Severe: cemented pan slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| 3841: | | | | | | | |
| Veet---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| 3842: | | | | | | | |
| Veet---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: large stones too sandy | Limitation: large stones too arid droughty |
| Koyen---------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: fast intake slope droughty | Limitation: too sandy soil blowing | Limitation: too arid droughty |
| Geer---------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid |
| 3850: | | | | | | | |
| Garhill--------- | Severe: cemented pan slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: fast intake slope depth to rock | Limitation: cemented pan slope depth to rock | Limitation: slope too arid depth to rock |
| Tokoper--------- | Severe: cemented pan depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope depth to rock | Limitation: cemented pan large stones depth to rock | Limitation: large stones too arid depth to rock |
| Argalt---------- | Severe: cemented pan slope depth to rock | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope depth to rock | Limitation: cemented pan slope depth to rock | Limitation: erodes easily slope too arid |
| 3860: | | | | | | | |
| Hyzen---------- | Severe: slope depth to rock | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Kyler---------- | Severe: slope depth to rock | Severe: large stones | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope too arid |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3861: | | | | | | | |
| Hyzen---------- | Severe: slope depth to rock | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: large stones slope droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Eganroc--------- | Severe: slope | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: large stones slope depth to rock | Limitation: large stones slope droughty |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3870: | | | | | | | |
| Lien---------- | Severe: cemented pan slope | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope | Limitation: slope too arid droughty |
| Rebel---------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: soil blowing | Limitation: too arid |
| 3880: | | | | | | | |
| Hardhat--------- | Severe: seepage | Moderate: seepage | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Favorable | Limitation: too arid droughty |
| Candelaria------ | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: excess salt slope droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3881: | | | | | | | |
| Hardhat--------- | Severe: seepage | Moderate: seepage | Severe: no water | Limitation: deep to water | Limitation: droughty | Favorable | Limitation: too arid droughty |
| Stargo---------- | Severe: seepage | Moderate: seepage piping | Severe: no water | Limitation: deep to water | Favorable | Limitation: erodes easily too sandy | Limitation: erodes easily too arid |
| Yomba---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3890: | | | | | | | |
| Jarab---------- | Severe: cemented pan slope | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan slope | Limitation: cemented pan slope droughty |
| Drewing--------- | Severe: cemented pan seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope droughty | Limitation: cemented pan | Limitation: cemented pan too arid droughty |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| Pharo---------- | Severe: seepage slope | Moderate: large stones thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones slope | Limitation: large stones slope too arid |
| 3900: | | | | | | | |
| Playas---------- | Slight | Severe: excess salt hard to pack ponding | Severe: slow refill salty water | Limitation: excess salt percs slowly ponding | Limitation: slow intake ponding droughty | Limitation: erodes easily percs slowly ponding | Limitation: erodes easily excess salt wetness |
| 3901: | | | | | | | |
| Lava Flows------ | --- | --- | --- | --- | --- | --- | --- |
| 3910: | | | | | | | |
| Yomba---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| Yomba---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| 3911: | | | | | | | |
| Yomba---------- | Severe: seepage | Severe: seepage | Severe: no water | Limitation: deep to water | Limitation: droughty | Limitation: too sandy | Limitation: too arid droughty |
| Playas---------- | Slight | Severe: excess salt hard to pack ponding | Severe: slow refill salty water | Limitation: excess salt percs slowly ponding | Limitation: percs slowly ponding droughty | Limitation: erodes easily percs slowly ponding | Limitation: erodes easily excess salt wetness |
| 3920: | | | | | | | |
| Puett---------- | Severe: slope depth to rock | Severe: seepage piping | Severe: no water | Limitation: deep to water | Limitation: slope depth to rock droughty | Limitation: slope depth to rock | Limitation: slope too arid droughty |
| Grassval-------- | Severe: cemented pan | Severe: thin layer | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan | Limitation: cemented pan too arid |
| Rebel---------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing | Limitation: soil blowing | Limitation: too arid |
| 3940: | | | | | | | |
| Peeko---------- | Severe: cemented pan | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan | Limitation: cemented pan too arid |
| Clowfin--------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope droughty | Limitation: large stones | Limitation: large stones too arid droughty |
| 3941: | | | | | | | |
| Peeko---------- | Severe: cemented pan | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: cemented pan slope | Limitation: cemented pan | Limitation: cemented pan too arid |
| 3960: | | | | | | | |
| Hodedo---------- | Severe: seepage slope | Severe: large stones seepage | Severe: no water | Limitation: deep to water | Limitation: large stones percs slowly slope | Limitation: cemented pan large stones slope | Limitation: large stones slope too arid |

TABLE 11.--WATER MANAGEMENT--Continued

| Map symbol and soil name | Limitations for-- Pond reservoir areas | Embankments, dikes, and levees | Aquifer-fed excavated ponds | Features affecting-- Drainage | Irrigation | Terraces and diversions | Grassed waterways |
|---|---|---|---|---|---|---|---|
| 3970: | | | | | | | |
| Linoyer--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| Rebel---------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: soil blowing | Limitation: soil blowing | Limitation: too arid |
| 3971: | | | | | | | |
| Linoyer--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| Easychair------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| 3972: | | | | | | | |
| Linoyer--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| 3973: | | | | | | | |
| Linoyer--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| Clowfin--------- | Severe: seepage | Moderate: seepage piping thin layer | Severe: no water | Limitation: deep to water | Limitation: slope soil blowing droughty | Limitation: large stones soil blowing | Limitation: large stones too arid droughty |
| 3974: | | | | | | | |
| Linoyer--------- | Severe: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily soil blowing droughty | Limitation: erodes easily soil blowing | Limitation: erodes easily too arid droughty |
| Kunzler--------- | Moderate: seepage | Severe: piping | Severe: no water | Limitation: deep to water | Limitation: erodes easily | Limitation: erodes easily | Limitation: erodes easily too arid |
| W: | | | | | | | |
| Water---------- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3000: | | | | | | | | | | | | |
| Stumble--------- | 0-3 | loamy sand | SM | A-2 | 0 | 0-5 | 85-100 | 85-100 | 75-90 | 15-25 | --- | NP |
| | 3-13 | loamy sand, loamy fine sand | SM | A-2 | 0 | 0-5 | 85-100 | 85-100 | 55-75 | 15-25 | --- | NP |
| | 13-60 | gravelly loamy sand, gravelly loamy fine sand | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 50-70 | 40-60 | 15-25 | --- | NP |
| 3001: | | | | | | | | | | | | |
| Stumble--------- | 0-3 | loamy sand | SM | A-2 | 0 | 0-5 | 85-100 | 85-100 | 75-90 | 15-25 | --- | NP |
| | 3-13 | loamy sand, loamy fine sand | SM | A-2 | 0 | 0-5 | 85-100 | 85-100 | 55-75 | 15-25 | --- | NP |
| | 13-60 | gravelly loamy sand, gravelly loamy fine sand | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 50-70 | 40-60 | 15-25 | --- | NP |
| Koyen---------- | 0-4 | sand | SM, SP-SM | A-1, A-3, A-2 | 0 | 0 | 90-100 | 75-100 | 40-60 | 5-15 | --- | NP |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Izo---------- | 0-3 | very gravelly sand | GP-GM, SP, GP, SP-SM | A-1 | 0-5 | 0-15 | 35-60 | 30-50 | 15-35 | 0-10 | --- | NP |
| | 3-60 | stratified extremely gravelly coarse sand to gravelly loamy sand | GP, GP-GM | A-1 | 0-5 | 0-15 | 20-40 | 15-35 | 10-20 | 0-10 | --- | NP |
| 3020: | | | | | | | | | | | | |
| Easychair------- | 0-9 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 9-46 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 90-100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 46-60 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| 3040: | | | | | | | | | | | | |
| Mosida---------- | 0-11 | loam | CL-ML | A-4 | 0 | 0 | 100 | 100 | 75-90 | 60-75 | 25-30 | 5-10 |
| | 11-60 | fine sandy loam, loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 80-100 | 60-85 | 55-75 | 15-30 | NP-10 |
| Rebel---------- | 0-9 | gravelly loamy coarse sand | GM, SM | A-1, A-2 | 0 | 0-5 | 60-85 | 50-75 | 40-50 | 20-30 | 0-14 | NP |
| | 9-60 | sandy loam, loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 85-95 | 70-80 | 50-60 | 20-30 | NP-10 |
| Slaw---------- | 0-9 | silty clay loam | CL, ML | A-6, A-7 | 0 | 0 | 100 | 100 | 100 | 80-95 | 35-50 | 10-25 |
| | 9-60 | stratified very fine sandy loam to silty clay | CL, ML | A-6, A-7 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 35-45 | 10-20 |
| 3041: | | | | | | | | | | | | |
| Mosida---------- | 0-11 | loam | CL-ML | A-4 | 0 | 0 | 100 | 100 | 75-90 | 60-75 | 25-30 | 5-10 |
| | 11-60 | fine sandy loam, loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 80-100 | 60-85 | 55-75 | 15-30 | NP-10 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3050: | | | | | | | | | | | | |
| Mijay---------- | 0-4 | very cobbly sandy loam | GM, SM | A-1 | 0 | 20-30 | 50-65 | 40-60 | 25-35 | 15-20 | 20-25 | NP-5 |
| | 4-11 | gravelly clay loam | GC, SC | A-6, A-7 | 0 | 0-10 | 65-80 | 50-75 | 45-60 | 35-45 | 30-45 | 15-25 |
| | 11-33 | very cobbly sandy clay loam, very cobbly clay loam | GC | A-2, A-6 | 0-5 | 30-45 | 45-65 | 40-60 | 30-45 | 25-40 | 30-40 | 15-20 |
| | 33-58 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 58-60 | very gravelly sand, very gravelly coarse sand | GP-GM | A-1 | 0-5 | 10-25 | 35-50 | 30-45 | 15-20 | 5-10 | 0-14 | NP |
| Raster---------- | 0-12 | very stony sandy loam | GM, SM | A-1 | 5-25 | 10-20 | 50-85 | 45-80 | 30-50 | 15-25 | 20-30 | NP-5 |
| | 12-27 | extremely stony sandy loam | GM | A-1, A-2 | 30-50 | 10-20 | 45-60 | 40-55 | 30-45 | 20-30 | 20-30 | NP-5 |
| | 27-60 | extremely stony sand, extremely stony loamy sand | GP-GM, SP-SM | A-1 | 30-50 | 10-20 | 45-60 | 40-55 | 15-25 | 5-10 | --- | NP |
| 3060: | | | | | | | | | | | | |
| Morbench-------- | 0-10 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-75 | 35-55 | 20-35 | 20-25 | NP-5 |
| | 10-29 | very gravelly sandy loam | GM | A-1 | 0 | 0-15 | 35-60 | 30-50 | 15-40 | 10-25 | 20-25 | NP-5 |
| | 29-50 | very gravelly loamy sand, very gravelly sandy loam | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0-15 | 35-60 | 30-50 | 10-25 | 5-15 | --- | NP |
| | 50-60 | stratified very gravelly sand to very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 35-60 | 25-50 | 15-40 | 10-25 | 20-25 | NP-5 |
| 3080: | | | | | | | | | | | | |
| Breko---------- | 0-5 | very cobbly loam | CL, GC, SC | A-6 | 0 | 25-50 | 50-100 | 45-100 | 40-85 | 35-55 | 25-35 | 10-20 |
| | 5-25 | very cobbly clay loam, very cobbly sandy clay loam, extremely cobbly sandy clay loam | GC | A-6, A-2, A-7 | 0 | 25-65 | 35-70 | 30-65 | 25-55 | 15-50 | 35-45 | 15-25 |
| | 25-34 | very cobbly sandy loam | GM, SM | A-1, A-2 | 0 | 25-45 | 50-70 | 45-65 | 30-50 | 20-30 | 15-25 | NP-5 |
| | 34-60 | very gravelly coarse sandy loam | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0-10 | 40-60 | 25-50 | 15-25 | 5-15 | 20-25 | NP-5 |
| Veet---------- | 0-4 | very stony sandy loam | SM | A-1 | 5-15 | 5-15 | 60-70 | 35-55 | 25-50 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Handpan--------- | 0-7 | gravelly sandy loam | GM, SM | A-2 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 25-35 | 15-25 | NP-5 |
| | 7-14 | gravelly clay loam, gravelly loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 60-85 | 60-75 | 50-60 | 40-50 | 35-40 | 15-20 |
| | 14-18 | very gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 40-55 | 25-45 | 20-30 | 5-15 | --- | NP |
| | 18-24 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3090: | | | | | | | | | | | | |
| Univega--------- | 0-5 | gravelly fine sand | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-80 | 40-70 | 10-20 | 0-14 | NP |
| | 5-10 | fine sandy loam, sandy loam | SM | A-4 | 0 | 0-5 | 90-100 | 75-100 | 60-80 | 35-50 | 15-25 | NP-5 |
| | 10-31 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 31-60 | gravelly coarse sand, gravelly sand | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 20-40 | 5-20 | 0-14 | NP |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, SP-SM, GP-GM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3091: | | | | | | | | | | | | |
| Univega--------- | 0-5 | gravelly fine sand | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-80 | 40-70 | 10-20 | 0-14 | NP |
| | 5-10 | fine sandy loam, sandy loam | SM | A-4 | 0 | 0-5 | 90-100 | 75-100 | 60-80 | 35-50 | 15-25 | NP-5 |
| | 10-31 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 31-60 | gravelly coarse sand, gravelly sand | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 20-40 | 5-20 | 0-14 | NP |
| Clowfin--------- | 0-6 | sandy loam | SM | A-2 | 0 | 0-5 | 80-95 | 75-90 | 60-80 | 25-35 | 20-30 | NP-5 |
| | 6-46 | stratified very gravelly sandy loam to very gravelly loam | GM | A-1, A-4, A-2 | 0 | 10-25 | 50-65 | 40-60 | 30-50 | 20-40 | 20-30 | NP-5 |
| | 46-60 | extremely gravelly sand, very gravelly sandy loam | GP, GP-GM | A-1 | 0 | 5-30 | 25-40 | 20-35 | 10-20 | 0-10 | 0-14 | NP |
| Molion---------- | 0-3 | loam | CL-ML | A-4 | 0 | 0 | 95-100 | 85-95 | 80-90 | 50-60 | 20-30 | 5-10 |
| | 3-14 | extremely gravelly sandy loam, extremely gravelly loam, very gravelly sandy loam | GC-GM, GM | A-1, A-2 | 0 | 0 | 50-60 | 20-35 | 15-25 | 10-20 | 20-30 | NP-10 |
| | 14-26 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 26-60 | stratified very gravelly loamy sand to extremely gravelly loam | GM, GP-GM | A-1 | 0 | 0-5 | 50-60 | 20-35 | 15-30 | 5-20 | 15-20 | NP-5 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3101: | | | | | | | | | | | | |
| Gabbvally------- | 0-2 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 50-60 | 35-45 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 2-11 | very gravelly sandy clay loam, very gravelly sandy loam, very gravelly loam | GC, GC-GM | A-2 | 0-5 | 0-15 | 50-60 | 35-50 | 25-35 | 15-25 | 25-35 | 5-15 |
| | 11-15 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Vindicator------ | 0-3 | very gravelly sandy loam | GM, GP-GM | A-1 | 0 | 0-10 | 35-55 | 30-50 | 20-35 | 10-20 | 20-25 | NP-5 |
| | 3-13 | very gravelly clay loam, very gravelly loam | GC | A-2 | 0 | 0-10 | 45-60 | 35-50 | 30-40 | 20-35 | 25-40 | 10-20 |
| | 13-17 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3102: | | | | | | | | | | | | |
| Gabbvally------- | 0-2 | very stony loam | GM | A-4 | 5-25 | 5-10 | 60-75 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-11 | very gravelly sandy clay loam, very gravelly sandy loam, very gravelly loam | GC, GC-GM | A-2 | 0-5 | 0-15 | 50-60 | 35-50 | 25-35 | 15-25 | 25-35 | 5-15 |
| | 11-15 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | very stony fine sandy loam | GC-GM | A-2 | 5-15 | 15-25 | 45-60 | 40-55 | 30-45 | 10-25 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | very gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 70-85 | 30-50 | 25-35 | 15-30 | 20-25 | NP-5 |
| | 2-5 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 80-90 | 55-75 | 40-50 | 25-35 | 20-25 | NP-5 |
| | 5-9 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3110: | | | | | | | | | | | | |
| Cath---------- | 0-6 | gravelly loam | GC-GM, SC-SM | A-4 | 0 | 0 | 60-85 | 50-75 | 45-65 | 35-50 | 20-30 | 5-10 |
| | 6-20 | clay loam, sandy clay loam, gravelly clay loam | CL, SC | A-6, A-7 | 0 | 0 | 80-100 | 65-100 | 60-90 | 40-85 | 35-45 | 15-25 |
| | 20-28 | very gravelly sandy clay loam | GC | A-2 | 0 | 0 | 30-60 | 25-50 | 20-40 | 15-35 | 30-40 | 10-20 |
| | 28-60 | stratified very gravelly loamy coarse sand to very gravelly loam | GM, GP-GM | A-1 | 0 | 0 | 30-60 | 25-50 | 20-40 | 5-20 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, SC, GC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3111: | | | | | | | | | | | | |
| Cath---------- | 0-6 | gravelly loam | GC-GM, SC-SM | A-4 | 0 | 0 | 60-85 | 50-75 | 45-65 | 35-50 | 20-30 | 5-10 |
| | 6-20 | clay loam, sandy clay loam, gravelly clay loam | CL, SC | A-6, A-7 | 0 | 0 | 80-100 | 65-100 | 60-90 | 40-85 | 35-45 | 15-25 |
| | 20-28 | very gravelly sandy clay loam | GC | A-2 | 0 | 0 | 30-60 | 25-50 | 20-40 | 15-35 | 30-40 | 10-20 |
| | 28-60 | stratified very gravelly loamy coarse sand to very gravelly loam | GM, GP-GM | A-1 | 0 | 0 | 30-60 | 25-50 | 20-40 | 5-20 | --- | NP |
| 3112: | | | | | | | | | | | | |
| Cath---------- | 0-6 | gravelly loam | GC-GM, SC-SM | A-4 | 0 | 0 | 60-85 | 50-75 | 45-65 | 35-50 | 20-30 | 5-10 |
| | 6-20 | clay loam, sandy clay loam, gravelly clay loam | CL, SC | A-6, A-7 | 0 | 0 | 80-100 | 65-100 | 60-90 | 40-85 | 35-45 | 15-25 |
| | 20-28 | very gravelly sandy clay loam | GC | A-2 | 0 | 0 | 30-60 | 25-50 | 20-40 | 15-35 | 30-40 | 10-20 |
| | 28-60 | stratified very gravelly loamy coarse sand to very gravelly loam | GM, GP-GM | A-1 | 0 | 0 | 30-60 | 25-50 | 20-40 | 5-20 | --- | NP |
| Portmount-------- | 0-3 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 65-75 | 55-70 | 35-45 | 20-30 | 0-14 | NP |
| | 3-12 | sandy clay loam, sandy loam | SC, SC-SM | A-2, A-4, A-6 | 0 | 0-5 | 85-100 | 80-95 | 55-70 | 30-40 | 25-35 | 5-15 |
| | 12-60 | gravelly sandy loam | GM, SM | A-1 | 0 | 0-10 | 60-80 | 50-70 | 30-40 | 15-25 | 20-25 | NP-5 |
| Abgese---------- | 0-5 | sandy loam | SM | A-2, A-4 | 0 | 0-5 | 80-100 | 75-100 | 50-65 | 30-45 | 15-20 | NP-5 |
| | 5-20 | gravelly sandy loam, gravelly sandy clay loam | SC, SC-SM | A-4, A-2, A-6 | 0 | 0-5 | 65-80 | 55-75 | 35-50 | 25-45 | 20-40 | 5-20 |
| | 20-35 | very gravelly sandy loam | GM, SM | A-1 | 0 | 0-5 | 50-60 | 35-50 | 25-35 | 15-20 | 15-20 | NP-5 |
| | 35-60 | very gravelly loamy sand, very gravelly sandy loam | GM, SM | A-1 | 0 | 0-5 | 50-60 | 25-50 | 20-30 | 10-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3120: | | | | | | | | | | | | |
| Portmount------- | 0-3 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 65-75 | 55-70 | 35-45 | 20-30 | 0-14 | NP |
| | 3-12 | sandy clay loam, sandy loam | SC, SC-SM | A-2, A-4, A-6 | 0 | 0-5 | 85-100 | 80-95 | 55-70 | 30-40 | 25-35 | 5-15 |
| | 12-60 | gravelly sandy loam | GM, SM | A-1 | 0 | 0-10 | 60-80 | 50-70 | 30-40 | 15-25 | 20-25 | NP-5 |
| 3130: | | | | | | | | | | | | |
| Unsel---------- | 0-4 | gravelly sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| 3131: | | | | | | | | | | | | |
| Unsel---------- | 0-4 | gravelly fine sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | CL-ML, ML, SM, SC-SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |
| 3132: | | | | | | | | | | | | |
| Unsel---------- | 0-4 | gravelly sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, SP-SM, GP-GM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Keefa---------- | 0-7 | gravelly sandy loam | SM | A-1 | 0 | 0 | 75-90 | 50-75 | 30-45 | 15-25 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| 3134: | | | | | | | | | | | | |
| Unsel---------- | 0-4 | gravelly fine sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| Hollywell------- | 0-4 | gravelly loamy sand | SM | A-1 | 0 | 0-10 | 60-85 | 55-75 | 30-50 | 10-20 | --- | NP |
| | 4-12 | sandy loam, gravelly fine sandy loam, gravelly sandy loam | SM | A-2, A-1, A-4 | 0 | 0-10 | 65-95 | 60-90 | 35-65 | 20-40 | 15-25 | NP-5 |
| | 12-60 | stratified very gravelly coarse sand to very gravelly sandy loam | GM, GP, SP-SM, GP-GM | A-1 | 0 | 0-25 | 30-60 | 25-50 | 10-30 | 0-15 | --- | NP |
| Lyx---------- | 0-3 | gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1, A-2, A-3 | 0 | 0-5 | 55-85 | 50-75 | 25-55 | 5-20 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3137: | | | | | | | | | | | | |
| Unsel | 0-4 | gravelly fine sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| Koyen | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3138: | | | | | | | | | | | | |
| Unsel | 0-4 | gravelly sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| Stumble | 0-3 | loamy sand | SM | A-2 | 0 | 0-5 | 85-100 | 85-100 | 75-90 | 15-25 | --- | NP |
| | 3-13 | loamy sand, loamy fine sand | SM | A-2 | 0 | 0-5 | 85-100 | 85-100 | 55-75 | 15-25 | --- | NP |
| | 13-60 | gravelly loamy sand, gravelly loamy fine sand | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 50-70 | 40-60 | 15-25 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plas-ticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3139: | | | | | | | | | | | | |
| Unsel---------- | 0-4 | gravelly fine sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| Izo---------- | 0-3 | very gravelly sand | GP-GM, GP, SP, SP-SM | A-1 | 0-5 | 0-15 | 35-60 | 30-50 | 15-35 | 0-10 | --- | NP |
| | 3-60 | stratified extremely gravelly coarse sand to gravelly loamy sand | GP, GP-GM | A-1 | 0-5 | 0-15 | 20-40 | 15-35 | 10-20 | 0-10 | --- | NP |
| 3140: | | | | | | | | | | | | |
| Haunchee-------- | 0-5 | very gravelly loam | GC-GM | A-2 | 0 | 0-10 | 35-60 | 25-50 | 20-35 | 15-30 | 20-30 | 5-10 |
| | 5-12 | very gravelly loam, very gravelly very fine sandy loam | GC-GM | A-2 | 0 | 0-30 | 35-60 | 25-50 | 20-35 | 15-30 | 20-30 | 5-10 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | very stony sandy loam | GM | A-1 | 5-25 | 15-30 | 40-60 | 30-50 | 15-40 | 10-25 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3150: | | | | | | | | | | | | |
| Nuyobe---------- | 0-5 | silt loam | CL, ML | A-6 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 35-40 | 10-15 |
| | 5-60 | stratified very fine sandy loam to silty clay loam | CL, ML | A-6 | 0 | 0 | 100 | 100 | 95-100 | 75-95 | 35-40 | 10-15 |
| Blueagle-------- | 0-13 | silt loam | CL, CL-ML | A-4, A-6 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 25-35 | 5-15 |
| | 13-60 | silt loam, silty clay loam | CL | A-6 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 25-40 | 10-25 |
| Playas---------- | 0-6 | silty clay loam | ML | A-6, A-7 | 0 | 0 | 100 | 100 | 100 | 90-100 | 35-50 | 10-20 |
| | 6-60 | silty clay loam, clay, silty clay | CH, MH, CL | A-7 | 0 | 0 | 100 | 100 | 100 | 90-100 | 45-75 | 20-40 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3160: | | | | | | | | | | | | |
| Cropper--------- | 0-4 | very stony loam | GC-GM, GM | A-2, A-4 | 5-10 | 15-35 | 55-65 | 45-60 | 35-45 | 30-40 | 25-35 | 5-10 |
| | 4-15 | extremely gravelly sandy clay loam, extremely gravelly clay loam | GC | A-2 | 0-5 | 10-30 | 30-40 | 20-35 | 15-25 | 10-20 | 35-45 | 15-20 |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Clanalpine------ | 0-13 | extremely cobbly loam | GC-GM | A-2 | 0-10 | 45-55 | 35-45 | 25-35 | 20-30 | 15-25 | 20-25 | 5-10 |
| | 13-39 | very cobbly loam, very cobbly clay loam, very gravelly clay loam | GC | A-2, A-6 | 0-10 | 15-35 | 50-70 | 35-60 | 25-50 | 20-40 | 30-40 | 10-20 |
| | 39-43 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3161: | | | | | | | | | | | | |
| Cropper--------- | 0-4 | very stony loam | GC-GM, GM | A-2, A-4 | 5-10 | 15-35 | 55-65 | 45-60 | 35-45 | 30-40 | 25-35 | 5-10 |
| | 4-15 | extremely gravelly sandy clay loam, extremely gravelly clay loam | GC | A-2 | 0-5 | 10-30 | 30-40 | 20-35 | 15-25 | 10-20 | 35-45 | 15-20 |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Segura---------- | 0-3 | very stony sandy clay loam | GC, SC | A-2, A-6 | 15-25 | 10-30 | 55-80 | 50-70 | 35-55 | 25-40 | 25-35 | 10-15 |
| | 3-10 | gravelly clay loam, gravelly loam, sandy clay loam | SC | A-2, A-7, A-6 | 0-5 | 0-15 | 65-90 | 50-85 | 40-60 | 30-50 | 30-45 | 10-25 |
| | 10-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Ravenswood------ | 0-8 | very cobbly loam | SC-SM | A-2, A-4 | 0-5 | 30-45 | 65-80 | 55-75 | 45-60 | 30-45 | 25-30 | 5-10 |
| | 8-13 | very gravelly clay loam | GC | A-2 | 0-5 | 5-15 | 45-60 | 35-50 | 30-45 | 20-35 | 40-50 | 15-25 |
| | 13-34 | very gravelly clay, very gravelly clay loam | GC | A-2, A-7 | 0-5 | 5-15 | 45-60 | 35-50 | 30-45 | 25-40 | 40-55 | 20-30 |
| | 34-38 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3162: | | | | | | | | | | | | |
| Cropper--------- | 0-4 | very stony loam | GC-GM, GM | A-2, A-4 | 5-10 | 15-35 | 55-65 | 45-60 | 35-45 | 30-40 | 25-35 | 5-10 |
| | 4-15 | extremely gravelly sandy clay loam, extremely gravelly clay loam | GC | A-2 | 0-5 | 10-30 | 30-40 | 20-35 | 15-25 | 10-20 | 35-45 | 15-20 |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Segura---------- | 0-3 | very stony sandy clay loam | GC, SC | A-2, A-6 | 15-25 | 10-30 | 55-80 | 50-70 | 35-55 | 25-40 | 25-35 | 10-15 |
| | 3-10 | gravelly clay loam, gravelly loam, sandy clay loam | SC | A-6, A-2, A-7 | 0-5 | 0-15 | 65-90 | 50-85 | 40-60 | 30-50 | 30-45 | 10-25 |
| | 10-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Clanalpine------ | 0-13 | very cobbly loam | GC-GM, SC-SM | A-4 | 0-5 | 25-40 | 65-75 | 55-70 | 45-60 | 35-50 | 20-25 | 5-10 |
| | 13-39 | very cobbly loam, very cobbly clay loam, very gravelly clay loam | GC | A-2, A-6 | 0-10 | 15-35 | 50-70 | 35-60 | 25-50 | 20-40 | 30-40 | 10-20 |
| | 39-45 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3170: | | | | | | | | | | | | |
| Hackwood-------- | 0-8 | gravelly loam | CL | A-6 | 0 | 5-10 | 75-80 | 65-80 | 60-75 | 50-65 | 25-35 | 10-15 |
| | 8-30 | gravelly loam, gravelly silt loam | CL-ML, CL, GC-GM, SC-SM | A-4, A-6 | 0 | 0 | 60-80 | 50-75 | 40-70 | 35-65 | 25-35 | 5-15 |
| | 30-60 | very gravelly clay loam, very gravelly silty clay loam, very gravelly loam | GC | A-2, A-6 | 0 | 0 | 40-60 | 35-50 | 30-45 | 25-40 | 35-40 | 15-20 |
| Winu---------- | 0-5 | gravelly loam | CL-ML, GC-GM | A-2, A-4 | 0 | 0 | 55-80 | 50-75 | 40-65 | 30-55 | 20-30 | 5-10 |
| | 5-39 | gravelly loam, gravelly sandy clay loam, gravelly clay loam | GC, SC | A-6 | 0 | 5-10 | 65-75 | 55-75 | 45-65 | 35-45 | 25-35 | 10-20 |
| | 39-43 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3180: | | | | | | | | | | | | |
| Hymas---------- | 0-2 | very cobbly loam | GC-GM, SC-SM | A-4 | 0 | 30-55 | 55-75 | 50-70 | 50-65 | 35-50 | 20-30 | 5-10 |
| | 2-13 | very cobbly loam, extremely gravelly loam, extremely cobbly loam | GC-GM, GM | A-2, A-1, A-4 | 0-10 | 20-60 | 35-65 | 30-60 | 25-55 | 20-45 | 20-30 | NP-10 |
| | 13-17 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Hopeka---------- | 0-9 | very gravelly loam | GC | A-2 | 0 | 0-15 | 40-55 | 25-50 | 25-45 | 20-35 | 25-35 | 10-15 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Solak---------- | 0-14 | very gravelly loam | GC-GM | A-2, A-4 | 0 | 0 | 30-50 | 25-50 | 20-45 | 15-40 | 20-25 | 5-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3190: | | | | | | | | | | | | |
| Penoyer--------- | 0-4 | silt loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 20-30 | NP-5 |
| | 4-60 | silt loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 20-30 | NP-5 |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | ML, CL-ML, SC-SM, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |
| 3191: | | | | | | | | | | | | |
| Penoyer--------- | 0-4 | silt loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 20-30 | NP-5 |
| | 4-60 | silt loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 20-30 | NP-5 |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-4, A-2 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-2, A-1, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| Easychair------- | 0-9 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 9-46 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 90-100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 46-60 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| 3200: | | | | | | | | | | | | |
| Ganaflan-------- | 0-4 | gravelly loam | GM, SM | A-4 | 0 | 0-5 | 60-80 | 55-75 | 50-65 | 35-50 | 20-25 | NP-5 |
| | 4-37 | stratified loam to very gravelly loam | GM, ML, SM | A-4 | 0 | 0-5 | 60-96 | 50-90 | 45-75 | 35-60 | 20-25 | NP-5 |
| | 37-50 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | stratified very gravelly coarse sand to sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-5 | 40-90 | 35-85 | 20-50 | 5-15 | --- | NP |
| 3210: | | | | | | | | | | | | |
| Kunzler--------- | 0-3 | loam | CL-ML, ML | A-4 | 0 | 0 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 3-40 | loam | CL-ML, ML | A-4 | 0 | 0-5 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 40-60 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 20-30 | NP-10 |
| Sycomat--------- | 0-10 | sandy loam | ML, SM | A-4 | 0 | 0 | 85-100 | 75-100 | 60-75 | 45-60 | 15-30 | NP-5 |
| | 10-40 | gravelly sandy loam, gravelly silt loam, loam | ML, GM, SM | A-2, A-4 | 0 | 0 | 55-100 | 50-100 | 45-75 | 30-60 | 15-30 | NP-5 |
| | 40-60 | very gravelly sand, very gravelly loamy sand | GP, GP-GM | A-1 | 0 | 0-5 | 30-55 | 25-50 | 20-35 | 0-10 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3211: | | | | | | | | | | | | |
| Kunzler--------- | 0-3 | loam | CL-ML, ML | A-4 | 0 | 0 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 3-40 | loam | CL-ML, ML | A-4 | 0 | 0-5 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 40-60 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 20-30 | NP-10 |
| Kunzler--------- | 0-3 | loam | CL-ML, ML | A-4 | 0 | 0 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 3-40 | loam | CL-ML, ML | A-4 | 0 | 0-5 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 40-60 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 20-30 | NP-10 |
| Sycomat--------- | 0-10 | sandy loam | ML, SM | A-4 | 0 | 0 | 85-100 | 75-100 | 60-75 | 45-60 | 15-30 | NP-5 |
| | 10-40 | gravelly sandy loam, gravelly silt loam, loam | GM, ML, SM | A-2, A-4 | 0 | 0 | 55-100 | 50-100 | 45-75 | 30-60 | 15-30 | NP-5 |
| | 40-60 | very gravelly sand, very gravelly loamy sand | GP, GP-GM | A-1 | 0 | 0-5 | 30-55 | 25-50 | 20-35 | 0-10 | --- | NP |
| 3212: | | | | | | | | | | | | |
| Kunzler--------- | 0-3 | loam | CL-ML, ML | A-4 | 0 | 0 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 3-40 | loam | CL-ML, ML | A-4 | 0 | 0-5 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 40-60 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 20-30 | NP-10 |
| Kunzler--------- | 0-3 | loam | CL-ML, ML | A-4 | 0 | 0 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 3-40 | loam | CL-ML, ML | A-4 | 0 | 0-5 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 40-60 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 20-30 | NP-10 |
| Candelaria------ | 0-7 | very gravelly sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |
| 3220: | | | | | | | | | | | | |
| Stewval--------- | 0-1 | very stony fine sandy loam | GC-GM | A-2 | 5-15 | 15-25 | 45-60 | 40-55 | 30-45 | 10-25 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | cobbly sandy loam | SM | A-2 | 0 | 15-40 | 85-95 | 80-90 | 45-55 | 25-35 | 20-25 | NP-5 |
| | 2-5 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 80-90 | 55-75 | 40-50 | 25-35 | 20-25 | NP-5 |
| | 5-9 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3221: | | | | | | | | | | | | |
| Stewval--------- | 0-1 | very gravelly fine sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 10-20 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | very gravelly fine sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 10-20 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3223: | | | | | | | | | | | | |
| Stewval--------- | 0-1 | very gravelly fine sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 10-20 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3224: | | | | | | | | | | | | |
| Stewval--------- | 0-1 | very gravelly fine sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 10-20 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | cobbly sandy loam | SM | A-2 | 0 | 15-40 | 85-95 | 80-90 | 45-55 | 25-35 | 20-25 | NP-5 |
| | 2-5 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 80-90 | 55-75 | 40-50 | 25-35 | 20-25 | NP-5 |
| | 5-9 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Bellehelen------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3226: | | | | | | | | | | | | |
| Stewval--------- | 0-1 | very gravelly fine sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 10-20 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3228: | | | | | | | | | | | | |
| Stewval--------- | 0-1 | very gravelly sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 15-25 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Gabbvally------- | 0-2 | very stony loam | GM | A-4 | 5-25 | 5-10 | 60-75 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-11 | very gravelly sandy clay loam, very gravelly sandy loam, very gravelly loam | GC, GC-GM | A-2 | 0-5 | 0-15 | 50-60 | 35-50 | 25-35 | 15-25 | 25-35 | 5-15 |
| | 11-15 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | very gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 70-85 | 30-50 | 25-35 | 15-30 | 20-25 | NP-5 |
| | 2-5 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 80-90 | 55-75 | 40-50 | 25-35 | 20-25 | NP-5 |
| | 5-9 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3231: | | | | | | | | | | | | |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | CL-ML, SM, ML, SC-SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3233: | | | | | | | | | | | | |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | ML, CL-ML, SC-SM, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |
| Koyen---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 90-95 | 85-95 | 50-75 | 35-50 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3240: | | | | | | | | | | | | |
| Stargo---------- | 0-5 | loam | CL-ML, CL, SC, SC-SM | A-4, A-6 | 0 | 0 | 85-100 | 75-100 | 55-75 | 45-65 | 25-35 | 5-15 |
| | 5-15 | clay loam, sandy clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 85-95 | 75-85 | 65-75 | 35-45 | 15-20 |
| | 15-60 | stratified very gravelly sand to sandy loam | SM | A-1, A-2 | 0 | 0-5 | 80-90 | 75-85 | 45-60 | 20-35 | --- | NP |
| Veet---------- | 0-8 | loam | CL-ML | A-4 | 0 | 0 | 85-100 | 75-100 | 65-90 | 50-70 | 25-30 | 5-10 |
| | 8-20 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 20-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 45-55 | 30-50 | 15-30 | 5-25 | 0-14 | NP |
| 3241: | | | | | | | | | | | | |
| Stargo---------- | 0-5 | loam | CL-ML, SC, CL, SC-SM | A-4, A-6 | 0 | 0 | 85-100 | 75-100 | 55-75 | 45-65 | 25-35 | 5-15 |
| | 5-15 | clay loam, sandy clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 85-95 | 75-85 | 65-75 | 35-45 | 15-20 |
| | 15-60 | stratified very gravelly sand to sandy loam | SM | A-1, A-2 | 0 | 0-5 | 80-90 | 75-85 | 45-60 | 20-35 | --- | NP |
| Stargo---------- | 0-5 | loam | CL, CL-ML, SC-SM, SC | A-4, A-6 | 0 | 0 | 85-100 | 75-100 | 55-75 | 45-65 | 25-35 | 5-15 |
| | 5-15 | clay loam, sandy clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 85-95 | 75-85 | 65-75 | 35-45 | 15-20 |
| | 15-60 | stratified very gravelly sand to sandy loam | SM | A-1, A-2 | 0 | 0-5 | 80-90 | 75-85 | 45-60 | 20-35 | --- | NP |
| 3250: | | | | | | | | | | | | |
| Wardenot-------- | 0-6 | gravelly sandy loam | SM | A-2, A-1, A-4 | 0 | 0 | 60-80 | 50-75 | 40-60 | 20-40 | 20-25 | NP-5 |
| | 6-60 | stratified extremely cobbly loamy sand to very gravelly fine sandy loam | GM, GP-GM | A-1 | 0-5 | 10-40 | 25-50 | 20-45 | 15-40 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3260: | | | | | | | | | | | | |
| Springwarm------ | 0-1 | sandy loam | SC-SM | A-4 | 0 | 0 | 80-100 | 75-100 | 50-75 | 35-50 | 20-30 | 5-10 |
| | 1-10 | gravelly clay loam | CL, SC | A-6, A-7 | 0 | 0-10 | 70-85 | 60-75 | 45-65 | 40-60 | 35-45 | 15-25 |
| | 10-22 | extremely gravelly loam, very gravelly silt loam, very cobbly clay loam | GC, GC-GM | A-2 | 0 | 25-40 | 30-55 | 20-45 | 20-40 | 15-35 | 25-40 | 5-20 |
| | 22-36 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Jotava---------- | 0-8 | silty clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 75-100 | 70-100 | 65-95 | 35-45 | 15-20 |
| | 8-15 | stratified silt loam to clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 90-100 | 80-100 | 60-80 | 25-45 | 10-20 |
| | 15-57 | stratified sandy loam to silty clay loam | CL-ML, CL, ML | A-4, A-6 | 0 | 0 | 95-100 | 90-100 | 70-90 | 60-75 | 20-35 | NP-15 |
| | 57-89 | stratified loamy sand to silt loam | SM | A-2 | 0 | 0 | 100 | 95-100 | 60-70 | 30-35 | 15-20 | NP-5 |
| Delacit--------- | 0-1 | gravelly sand | SM, SP-SM | A-1 | 0 | 0-10 | 60-85 | 50-75 | 25-45 | 5-20 | 0-14 | NP |
| | 1-3 | loam | CL, CL-ML | A-4, A-6 | 0 | 0 | 85-100 | 75-100 | 60-85 | 50-70 | 25-35 | 5-15 |
| | 3-9 | very gravelly clay loam | GC | A-2, A-7, A-6 | 0 | 0-10 | 50-60 | 40-50 | 35-45 | 25-40 | 35-45 | 15-25 |
| | 9-15 | very gravelly loam, very gravelly clay loam | GC | A-2, A-6 | 0 | 0-15 | 40-60 | 30-50 | 25-45 | 20-40 | 30-40 | 10-20 |
| | 15-60 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3270: | | | | | | | | | | | | |
| Jotava---------- | 0-8 | silty clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 75-100 | 70-100 | 65-95 | 35-45 | 15-20 |
| | 8-15 | stratified silt loam to clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 90-100 | 80-100 | 60-80 | 25-45 | 10-20 |
| | 15-57 | stratified sandy loam to silty clay loam | CL, CL-ML, ML | A-4, A-6 | 0 | 0 | 95-100 | 90-100 | 70-90 | 60-75 | 20-35 | NP-15 |
| | 57-89 | stratified loamy sand to silt loam | SM | A-2 | 0 | 0 | 100 | 95-100 | 60-70 | 30-35 | 15-20 | NP-5 |
| 3280: | | | | | | | | | | | | |
| Duffer---------- | 0-4 | silt loam | CL-ML | A-4 | 0 | 0 | 100 | 100 | 90-100 | 75-90 | 25-30 | 5-10 |
| | 4-36 | silt loam, silty clay loam | CL | A-6 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 30-40 | 10-20 |
| | 36-60 | stratified very fine sandy loam to silty clay loam | CL, CL-ML | A-4, A-6 | 0 | 0 | 100 | 100 | 95-100 | 75-95 | 25-35 | 5-15 |
| Duffer---------- | 0-4 | silt loam | CL | A-6 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 30-35 | 10-15 |
| | 4-60 | silt loam, silty clay loam | CL | A-6, A-7 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 30-45 | 10-20 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Equis---------- | 0-4 | silty clay | MH | A-7 | 0 | 0 | 100 | 100 | 95-100 | 95-100 | 60-80 | 20-30 |
| | 4-29 | silty clay, clay | MH | A-7 | 0 | 0 | 100 | 100 | 95-100 | 95-100 | 60-80 | 20-30 |
| | 29-52 | silty clay, silty clay loam | MH | A-7 | 0 | 0 | 100 | 100 | 95-100 | 95-100 | 50-70 | 15-25 |
| | 52-60 | silty clay loam, silty clay, silt loam | MH, ML | A-6, A-7 | 0 | 0 | 100 | 95-100 | 90-100 | 85-95 | 35-70 | 10-25 |
| 3300: | | | | | | | | | | | | |
| Palinor--------- | 0-8 | very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 30-50 | 25-50 | 25-45 | 20-35 | 20-25 | NP-5 |
| | 8-18 | extremely gravelly loam, very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 20-45 | 15-40 | 10-35 | 10-30 | 20-25 | NP-5 |
| | 18-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | stratified extremely gravelly coarse sand to gravelly sandy loam | GM | A-1, A-2 | 0 | 0-30 | 30-50 | 20-45 | 15-35 | 10-30 | --- | NP |
| 3301: | | | | | | | | | | | | |
| Palinor--------- | 0-3 | very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 30-50 | 25-50 | 25-45 | 20-35 | 20-25 | NP-5 |
| | 3-18 | extremely gravelly loam, very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 20-45 | 15-40 | 10-35 | 10-30 | 20-25 | NP-5 |
| | 18-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | stratified extremely gravelly coarse sand to gravelly sandy loam | GM | A-1, A-2 | 0 | 0-30 | 30-50 | 20-45 | 15-35 | 10-30 | --- | NP |
| Nuc---------- | 0-9 | gravelly loam | GM, SM | A-4 | 0 | 0-10 | 70-80 | 60-70 | 50-60 | 35-50 | 25-30 | NP-5 |
| | 9-36 | very gravelly loam, very gravelly clay loam, extremely gravelly clay loam | GC | A-2 | 0 | 0-10 | 25-40 | 15-35 | 15-30 | 10-20 | 30-35 | 10-15 |
| | 36-60 | extremely gravelly loam | GM, GP-GM | A-1 | 0 | 0-10 | 20-30 | 10-20 | 10-15 | 5-15 | 25-30 | NP-5 |
| | 60-70 | extremely gravelly loamy sand | GP, GP-GM | A-1 | 0 | 0-10 | 20-30 | 10-25 | 5-15 | 0-10 | 0-14 | NP |
| 3302: | | | | | | | | | | | | |
| Palinor--------- | 0-3 | very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 30-50 | 25-50 | 25-45 | 20-35 | 20-25 | NP-5 |
| | 3-18 | extremely gravelly loam, very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 20-45 | 15-40 | 10-35 | 10-30 | 20-25 | NP-5 |
| | 18-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | stratified extremely gravelly coarse sand to gravelly sandy loam | GM | A-1, A-2 | 0 | 0-30 | 30-50 | 20-45 | 15-35 | 10-30 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Parisa---------- | 0-4 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 30-50 | 20-30 | NP-5 |
| | 4-32 | very gravelly loam, very gravelly sandy loam | GM | A-1, A-2 | 0 | 0-10 | 35-60 | 25-50 | 20-40 | 15-35 | 20-30 | NP-5 |
| | 32-50 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | extremely gravelly coarse sandy loam | GP, GP-GM | A-1 | 0 | 0-15 | 15-35 | 10-25 | 5-15 | 0-10 | --- | NP |
| 3310: | | | | | | | | | | | | |
| Ursine---------- | 0-3 | very gravelly loam | GC, GC-GM | A-2 | 0 | 0-5 | 40-60 | 30-50 | 25-45 | 20-35 | 20-35 | 5-15 |
| | 3-19 | very gravelly loam, very gravelly silt loam, very gravelly sandy loam | GC-GM | A-2 | 0 | 0-5 | 30-60 | 25-50 | 15-45 | 10-35 | 20-30 | 5-10 |
| | 19-23 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Veet---------- | 0-4 | very gravelly sandy loam | SM | A-1 | 0 | 0-10 | 60-75 | 30-50 | 20-45 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| 3311: | | | | | | | | | | | | |
| Ursine---------- | 0-3 | very gravelly loam | GC, GC-GM | A-2 | 0 | 0-5 | 40-60 | 30-50 | 25-45 | 20-35 | 20-35 | 5-15 |
| | 3-19 | very gravelly loam, very gravelly silt loam, very gravelly sandy loam | GC-GM | A-2 | 0 | 0-5 | 30-60 | 25-50 | 15-45 | 10-35 | 20-30 | 5-10 |
| | 19-23 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Cliffdown-------- | 0-3 | very gravelly sandy loam | GM | A-1, A-2 | 0 | 0-5 | 30-55 | 25-50 | 20-35 | 10-30 | 0-14 | NP |
| | 3-60 | stratified gravelly sandy loam to very gravelly fine sandy loam | GM | A-1, A-2 | 0 | 0-5 | 45-55 | 40-50 | 30-40 | 15-30 | 0-14 | NP |
| 3330: | | | | | | | | | | | | |
| Handpah---------- | 0-7 | gravelly sandy loam | GM, SM | A-2 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 25-35 | 15-25 | NP-5 |
| | 7-14 | gravelly clay loam, gravelly loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 60-85 | 60-75 | 50-60 | 40-50 | 35-40 | 15-20 |
| | 14-18 | very gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 40-55 | 25-45 | 20-30 | 5-15 | --- | NP |
| | 18-24 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Delamar---------- | 0-4 | sandy loam | SM | A-1, A-4, A-2 | 0 | 0 | 95-100 | 85-100 | 45-80 | 10-50 | 0-14 | NP |
| | 4-12 | sandy loam, sandy clay loam, gravelly clay loam | CL, SC | A-2, A-6 | 0 | 0-5 | 65-100 | 60-90 | 50-80 | 30-55 | 30-40 | 10-20 |
| | 12-20 | clay loam, gravelly clay loam | GC, SC | A-2, A-7, A-6 | 0 | 0-5 | 60-90 | 55-85 | 40-55 | 30-50 | 35-45 | 15-25 |
| | 20-25 | gravelly sandy loam, gravelly loamy coarse sand, gravelly coarse sand | SM | A-2, A-1, A-4 | 0 | 0 | 60-80 | 50-75 | 30-50 | 10-50 | 0-14 | NP |
| | 25-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3333: | | | | | | | | | | | | |
| Handpah---------- | 0-7 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 25-35 | 15-25 | NP-5 |
| | 7-14 | gravelly clay loam, gravelly loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 60-85 | 60-75 | 50-60 | 40-50 | 35-40 | 15-20 |
| | 14-18 | very gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 40-55 | 25-45 | 20-30 | 5-15 | --- | NP |
| | 18-24 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-2, A-1, A-4 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-2, A-1, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, SC, GC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3334: | | | | | | | | | | | | |
| Handpah--------- | 0-7 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 25-35 | 15-25 | NP-5 |
| | 7-14 | gravelly clay loam, gravelly loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 60-85 | 60-75 | 50-60 | 40-50 | 35-40 | 15-20 |
| | 14-18 | very gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 40-55 | 25-45 | 20-30 | 5-15 | --- | NP |
| | 18-24 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Palinor--------- | 0-3 | very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 30-50 | 25-50 | 25-45 | 20-35 | 20-25 | NP-5 |
| | 3-18 | extremely gravelly loam, very gravelly loam | GM | A-1, A-2 | 0 | 0-10 | 20-45 | 15-40 | 10-35 | 10-30 | 20-25 | NP-5 |
| | 18-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | stratified extremely gravelly coarse sand to gravelly sandy loam | GM | A-1, A-2 | 0 | 0-30 | 30-50 | 20-45 | 15-35 | 10-30 | --- | NP |
| Parisa---------- | 0-4 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 30-50 | 20-30 | NP-5 |
| | 4-32 | very gravelly loam, very gravelly sandy loam | GM | A-1, A-2 | 0 | 0-10 | 35-60 | 25-50 | 20-40 | 15-35 | 20-30 | NP-5 |
| | 32-50 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | extremely gravelly coarse sandy loam | GP, GP-GM | A-1 | 0 | 0-15 | 15-35 | 10-25 | 5-15 | 0-10 | --- | NP |
| 3335: | | | | | | | | | | | | |
| Handpah--------- | 0-7 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 25-35 | 15-25 | NP-5 |
| | 7-14 | gravelly clay loam, gravelly loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 60-85 | 60-75 | 50-60 | 40-50 | 35-40 | 15-20 |
| | 14-18 | very gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 40-55 | 25-45 | 20-30 | 5-15 | --- | NP |
| | 18-24 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-4, A-2 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-1, A-4, A-2 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| Candelaria------ | 0-7 | very gravelly fine sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |
| 3340: | | | | | | | | | | | | |
| Amelar---------- | 0-6 | gravelly silt loam | GC-GM, GC, SC, SC-SM | A-4, A-6 | 0 | 0-15 | 60-85 | 50-75 | 50-70 | 40-50 | 25-35 | 5-15 |
| | 6-15 | very cobbly silty clay loam, very cobbly clay loam | GC | A-6, A-2, A-7 | 0-5 | 20-40 | 50-75 | 40-65 | 35-50 | 30-50 | 35-45 | 15-20 |
| | 15-60 | very gravelly silt loam, very gravelly loam | GC, GC-GM | A-2 | 0-5 | 0-20 | 40-60 | 30-50 | 30-45 | 20-35 | 25-35 | 5-15 |
| Eoj---------- | 0-12 | very stony loam | GC | A-2, A-6 | 5-15 | 15-35 | 55-65 | 50-60 | 40-50 | 30-45 | 25-35 | 10-15 |
| | 12-60 | cobbly clay | CH, CL | A-7 | 0-5 | 10-40 | 85-95 | 80-90 | 75-85 | 65-75 | 45-65 | 20-35 |
| Hardol---------- | 0-3 | very gravelly silt loam | GM | A-1, A-2 | 0-5 | 10-25 | 40-55 | 35-50 | 25-45 | 20-35 | 25-35 | NP-5 |
| | 3-33 | extremely gravelly silt loam | GM | A-1 | 0-10 | 15-40 | 20-40 | 10-30 | 10-25 | 10-20 | 25-35 | NP-5 |
| | 33-60 | extremely gravelly loam | GM, GP-GM | A-1, A-2 | 0-10 | 15-40 | 20-40 | 10-30 | 10-25 | 5-20 | 25-35 | NP-10 |
| 3380: | | | | | | | | | | | | |
| Roden---------- | 0-3 | very gravelly clay loam | GC | A-6, A-2, A-7 | 0 | 0-10 | 40-65 | 35-55 | 25-45 | 20-40 | 35-45 | 15-25 |
| | 3-12 | very gravelly clay, very gravelly silty clay | GC | A-2, A-7 | 0 | 0-10 | 40-65 | 35-55 | 30-50 | 25-45 | 45-60 | 25-35 |
| | 12-20 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage Passing sieve number-- | | | | Liquid limit | Plas-ticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In | | | | Pct | Pct | | | | | Pct | |
| Izar---------- | 0-6 | very gravelly loam | GC | A-2 | 0 | 0-25 | 30-55 | 25-50 | 20-45 | 15-35 | 25-35 | 10-15 |
| | 6-13 | very gravelly loam, extremely gravelly loam | GC | A-2 | 0 | 0-25 | 20-55 | 15-50 | 15-45 | 10-35 | 25-35 | 10-15 |
| | 13-17 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Roden---------- | 0-3 | very gravelly loam | GC, GC-GM | A-2, A-4, A-6 | 0 | 0-5 | 45-60 | 25-50 | 25-45 | 20-40 | 25-35 | 5-15 |
| | 3-12 | very gravelly clay, very gravelly silty clay | GC | A-2, A-7 | 0 | 0-10 | 40-65 | 35-55 | 30-50 | 25-45 | 45-60 | 25-35 |
| | 12-20 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3400: | | | | | | | | | | | | |
| Parisa---------- | 0-4 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 30-50 | 20-30 | NP-5 |
| | 4-32 | very gravelly loam, very gravelly sandy loam | GM | A-1, A-2 | 0 | 0-10 | 35-60 | 25-50 | 20-40 | 15-35 | 20-30 | NP-5 |
| | 32-50 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | extremely gravelly coarse sandy loam | GP, GP-GM | A-1 | 0 | 0-15 | 15-35 | 10-25 | 5-15 | 0-10 | --- | NP |
| 3410: | | | | | | | | | | | | |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-4, A-2 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-2, A-1, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| Veet---------- | 0-4 | very stony sandy loam | SM | A-1 | 5-15 | 5-15 | 60-70 | 35-55 | 25-50 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3412: | | | | | | | | | | | | |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-4, A-2 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-1, A-2, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| Veet---------- | 0-4 | very stony sandy loam | SM | A-1 | 5-15 | 5-15 | 60-70 | 35-55 | 25-50 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| Zadvar---------- | 0-3 | gravelly fine sandy loam | SM | A-1, A-2 | 0 | 0-5 | 60-80 | 50-75 | 40-60 | 20-35 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, SC, GC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3414: | | | | | | | | | | | | |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-2, A-4 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-1, A-2, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Cath---------- | 0-6 | gravelly loam | GC-GM, SC-SM | A-4 | 0 | 0 | 60-85 | 50-75 | 45-65 | 35-50 | 20-30 | 5-10 |
| | 6-20 | clay loam, sandy clay loam, gravelly clay loam | CL, SC | A-6, A-7 | 0 | 0 | 80-100 | 65-100 | 60-90 | 40-85 | 35-45 | 15-25 |
| | 20-28 | very gravelly sandy clay loam | GC | A-2 | 0 | 0 | 30-60 | 25-50 | 20-40 | 15-35 | 30-40 | 10-20 |
| | 28-60 | stratified very gravelly loamy coarse sand to very gravelly loam | GM, GP-GM | A-1 | 0 | 0 | 30-60 | 25-50 | 20-40 | 5-20 | --- | NP |
| 3415: | | | | | | | | | | | | |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-2, A-4 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-2, A-1, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| Leo---------- | 0-8 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 65-85 | 50-75 | 40-60 | 20-35 | 15-25 | NP-5 |
| | 8-60 | stratified extremely gravelly coarse sand to gravelly fine sandy loam | GM, GP-GM, SP-SM, SM | A-1 | 0-5 | 0-25 | 45-60 | 40-50 | 15-35 | 5-20 | --- | NP |
| 3420: | | | | | | | | | | | | |
| Squawtip-------- | 0-6 | very stony loam | SM | A-4 | 5-20 | 20-40 | 80-90 | 70-85 | 50-60 | 35-50 | 15-25 | NP-5 |
| | 6-21 | very cobbly loam, very gravelly sandy clay loam, very gravelly sandy loam | SC, SC-SM | A-2 | 0-15 | 10-45 | 60-70 | 45-55 | 20-40 | 15-35 | 25-35 | 5-15 |
| | 21-25 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Belleneien------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3430: | | | | | | | | | | | | |
| Bellehelen------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3434: | | | | | | | | | | | | |
| Bellehelen------ | 0-2 | very stony loam | GM, SM | A-4 | 5-15 | 5-40 | 65-80 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-9 | very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam | GC, GC-GM | A-2 | 0-5 | 0-25 | 50-60 | 35-50 | 20-40 | 15-30 | 25-40 | 5-20 |
| | 9-13 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Cropper--------- | 0-4 | very stony loam | GC-GM, GM | A-2, A-4 | 5-10 | 15-35 | 55-65 | 45-60 | 35-45 | 30-40 | 25-35 | 5-10 |
| | 4-15 | extremely gravelly sandy clay loam, extremely gravelly clay loam | GC | A-2 | 0-5 | 10-30 | 30-40 | 20-35 | 15-25 | 10-20 | 35-45 | 15-20 |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3440: | | | | | | | | | | | | |
| Layview--------- | 0-4 | very gravelly sandy loam | GC-GM | A-2 | 0-5 | 5-15 | 35-60 | 30-55 | 20-35 | 10-20 | 25-30 | 5-10 |
| | 4-14 | very gravelly loam, very gravelly clay loam | GC | A-2, A-6 | 0-5 | 5-15 | 35-60 | 30-55 | 25-45 | 20-40 | 30-40 | 15-20 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Foxvire--------- | 0-13 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 60-80 | 50-75 | 40-50 | 30-40 | 15-25 | NP-5 |
| | 13-60 | gravelly loam, gravelly sandy loam | GM, SM | A-2, A-4 | 0-5 | 0-15 | 60-80 | 50-70 | 40-50 | 30-40 | 15-25 | NP-5 |
| Suak---------- | 0-6 | very stony loam | GC-GM, GM | A-1, A-2 | 10-15 | 30-40 | 45-65 | 40-60 | 30-40 | 20-35 | 20-30 | NP-10 |
| | 6-25 | extremely cobbly loam, extremely gravelly loam | GC | A-2 | 0 | 30-60 | 25-45 | 20-35 | 15-30 | 10-25 | 30-35 | 10-15 |
| | 25-29 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3441: | | | | | | | | | | | | |
| Layview--------- | 0-4 | very gravelly sandy loam | GC-GM | A-2 | 0-5 | 5-15 | 35-60 | 30-55 | 20-35 | 10-20 | 25-30 | 5-10 |
| | 4-14 | very gravelly loam, very gravelly clay loam | GC | A-2, A-6 | 0-5 | 5-15 | 35-60 | 30-55 | 25-45 | 20-40 | 30-40 | 15-20 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Labshaft-------- | 0-8 | extremely stony loam | CL, SC | A-2, A-6 | 25-50 | 0-40 | 65-80 | 60-75 | 40-65 | 30-55 | 30-35 | 10-15 |
| | 8-14 | very gravelly loam, very gravelly clay loam, extremely gravelly sandy clay loam | GC | A-2 | 0-10 | 15-25 | 35-60 | 25-50 | 20-40 | 10-30 | 35-45 | 15-20 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Winu---------- | 0-5 | gravelly loam | CL-ML, GC-GM | A-2, A-4 | 0 | 0 | 55-80 | 50-75 | 40-65 | 30-55 | 20-30 | 5-10 |
| | 5-39 | gravelly loam, gravelly sandy clay loam, gravelly clay loam | GC, SC | A-6 | 0 | 5-10 | 65-75 | 55-75 | 45-65 | 35-45 | 25-35 | 10-20 |
| | 39-43 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3442: | | | | | | | | | | | | |
| Layview--------- | 0-4 | very gravelly sandy loam | GC-GM | A-2 | 0-5 | 5-15 | 35-60 | 30-55 | 20-35 | 10-20 | 25-30 | 5-10 |
| | 4-14 | very gravelly loam, very gravelly clay loam | GC | A-2, A-6 | 0-5 | 5-15 | 35-60 | 30-55 | 25-45 | 20-40 | 30-40 | 15-20 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Suak---------- | 0-6 | very stony loam | GC-GM, GM | A-1, A-2 | 10-15 | 30-40 | 45-65 | 40-60 | 30-40 | 20-35 | 20-30 | NP-10 |
| | 6-25 | extremely cobbly loam, extremely gravelly loam | GC | A-2 | 0 | 30-60 | 25-45 | 20-35 | 15-30 | 10-25 | 30-35 | 10-15 |
| | 25-29 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Winu---------- | 0-5 | gravelly loam | CL-ML, GC-GM | A-2, A-4 | 0 | 0 | 55-80 | 50-75 | 40-65 | 30-55 | 20-30 | 5-10 |
| | 5-39 | gravelly loam, gravelly sandy clay loam, gravelly clay loam | GC, SC | A-6 | 0 | 5-10 | 65-75 | 55-75 | 45-65 | 35-45 | 25-35 | 10-20 |
| | 39-43 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3450: | | | | | | | | | | | | |
| Grassval-------- | 0-5 | gravelly loam | SC-SM | A-2, A-4 | 0 | 0-5 | 65-80 | 55-70 | 45-60 | 30-45 | 20-25 | 5-10 |
| | 5-13 | gravelly clay loam, gravelly loam | GC | A-6 | 0 | 0-10 | 65-75 | 55-70 | 50-65 | 35-50 | 30-40 | 15-20 |
| | 13-60 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Allker---------- | 0-9 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 75-85 | 65-75 | 40-50 | 20-30 | 0-14 | NP |
| | 9-24 | gravelly loam, gravelly clay loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 65-80 | 55-75 | 45-65 | 35-50 | 30-40 | 10-15 |
| | 24-32 | gravelly loam | GM, SC-SM, GC-GM, SM | A-4 | 0 | 0-10 | 65-80 | 55-75 | 40-55 | 35-45 | 20-30 | NP-10 |
| | 32-60 | very gravelly loamy sand, very gravelly sand | GM, GP-GM | A-1 | 0 | 0-10 | 30-55 | 25-50 | 10-35 | 5-15 | 0-14 | NP |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, GC, SC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3460: | | | | | | | | | | | | |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, SC, GC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| Handpah---------- | 0-3 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0-10 | 60-85 | 50-75 | 40-65 | 25-35 | 15-25 | NP-5 |
| | 3-14 | gravelly clay loam, gravelly loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 60-85 | 60-75 | 50-60 | 40-50 | 35-40 | 15-20 |
| | 14-18 | very gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 40-55 | 25-45 | 20-30 | 5-15 | --- | NP |
| | 18-24 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3463: | | | | | | | | | | | | |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, SC, GC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| Veet---------- | 0-4 | very gravelly sandy loam | SM | A-1 | 0 | 0-10 | 60-75 | 30-50 | 20-45 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| 3467: | | | | | | | | | | | | |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, GC, SC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3468: | | | | | | | | | | | | |
| Zadvar---------- | 0-3 | cobbly sandy loam | SM | A-2 | 0-1 | 15-25 | 70-80 | 70-80 | 50-65 | 25-35 | --- | NP |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, SC, GC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Allker---------- | 0-9 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 75-85 | 65-75 | 40-50 | 20-30 | 0-14 | NP |
| | 9-24 | gravelly loam, gravelly clay loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 65-80 | 55-75 | 45-65 | 35-50 | 30-40 | 10-15 |
| | 24-32 | gravelly loam | GM, GC-GM, SC-SM, SM | A-4 | 0 | 0-10 | 65-80 | 55-75 | 40-55 | 35-45 | 20-30 | NP-10 |
| | 32-60 | very gravelly loamy sand, very gravelly sand | GM, GP-GM | A-1 | 0 | 0-10 | 30-55 | 25-50 | 10-35 | 5-15 | 0-14 | NP |
| Peeko---------- | 0-4 | gravelly loam | GC-GM, GC, GM, SC-SM | A-4, A-6 | 0 | 0-5 | 60-80 | 50-75 | 45-65 | 35-50 | 20-35 | NP-15 |
| | 4-13 | gravelly silt loam | CL-ML, GC, CL, GC-GM | A-4, A-6 | 0 | 10-15 | 60-90 | 55-80 | 50-75 | 45-65 | 25-35 | 5-15 |
| | 13-60 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3470: | | | | | | | | | | | | |
| Cirac---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| | 4-60 | stratified gravelly sand to silt loam | SM | A-4 | 0 | 0 | 90-100 | 75-100 | 50-70 | 35-50 | 15-25 | NP-5 |
| Keefa---------- | 0-7 | gravelly sandy loam | SM | A-1 | 0 | 0 | 75-90 | 50-75 | 30-45 | 15-25 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Nyserva--------- | 0-6 | loam | ML | A-4 | 0 | 0 | 100 | 100 | 75-95 | 60-80 | 20-25 | NP-5 |
| | 6-15 | loam, clay loam | CL | A-6 | 0 | 0 | 100 | 100 | 65-80 | 55-70 | 25-35 | 10-15 |
| | 15-60 | stratified gravelly sand to clay loam | CL-ML, SC-SM | A-4 | 0 | 0 | 75-100 | 70-100 | 65-85 | 35-55 | 20-30 | 5-10 |
| 3471: | | | | | | | | | | | | |
| Cirac---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| | 4-60 | stratified gravelly sand to silt loam | SM | A-4 | 0 | 0 | 90-100 | 75-100 | 50-70 | 35-50 | 15-25 | NP-5 |
| Nyserva--------- | 0-6 | loam | ML | A-4 | 0 | 0 | 100 | 100 | 75-95 | 60-80 | 20-25 | NP-5 |
| | 6-15 | loam, clay loam | CL | A-6 | 0 | 0 | 100 | 100 | 65-80 | 55-70 | 25-35 | 10-15 |
| | 15-60 | stratified gravelly sand to clay loam | CL-ML, SC-SM | A-4 | 0 | 0 | 75-100 | 70-100 | 65-85 | 35-55 | 20-30 | 5-10 |
| 3473: | | | | | | | | | | | | |
| Cirac---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| | 4-60 | stratified gravelly sand to silt loam | SM | A-4 | 0 | 0 | 90-100 | 75-100 | 50-70 | 35-50 | 15-25 | NP-5 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Slaw---------- | 0-9 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 95-100 | 95-100 | 85-100 | 75-90 | 25-35 | 5-10 |
| | 9-60 | stratified very fine sandy loam to silty clay | CL, ML | A-6, A-7 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 35-45 | 10-20 |
| Nyserva--------- | 0-6 | loam | ML | A-4 | 0 | 0 | 100 | 100 | 75-95 | 60-80 | 20-25 | NP-5 |
| | 6-15 | loam, clay loam | CL | A-6 | 0 | 0 | 100 | 100 | 65-80 | 55-70 | 25-35 | 10-15 |
| | 15-60 | stratified gravelly sand to clay loam | CL-ML, SC-SM | A-4 | 0 | 0 | 75-100 | 70-100 | 65-85 | 35-55 | 20-30 | 5-10 |
| 3474: | | | | | | | | | | | | |
| Cirac---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| | 4-60 | stratified gravelly sand to silt loam | SM | A-4 | 0 | 0 | 90-100 | 75-100 | 50-70 | 35-50 | 15-25 | NP-5 |
| Nyserva--------- | 0-6 | loam | ML | A-4 | 0 | 0 | 100 | 100 | 75-95 | 60-80 | 20-25 | NP-5 |
| | 6-15 | loam, clay loam | CL | A-6 | 0 | 0 | 100 | 100 | 65-80 | 55-70 | 25-35 | 10-15 |
| | 15-60 | stratified gravelly sand to clay loam | CL-ML, SC-SM | A-4 | 0 | 0 | 75-100 | 70-100 | 65-85 | 35-55 | 20-30 | 5-10 |
| Kawich---------- | 0-4 | fine sand | SM | A-2 | 0 | 0 | 100 | 100 | 75-90 | 15-30 | --- | NP |
| | 4-60 | fine sand | SM | A-2 | 0 | 0 | 100 | 100 | 75-90 | 15-30 | --- | NP |
| 3475: | | | | | | | | | | | | |
| Cirac---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| | 4-60 | stratified gravelly sand to silt loam | SM | A-4 | 0 | 0 | 90-100 | 75-100 | 50-70 | 35-50 | 15-25 | NP-5 |
| Keefa---------- | 0-7 | gravelly sandy loam | SM | A-1 | 0 | 0 | 75-90 | 50-75 | 30-45 | 15-25 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Slaw---------- | 0-9 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 95-100 | 95-100 | 85-100 | 75-90 | 25-35 | 5-10 |
| | 9-60 | stratified very fine sandy loam to silty clay | CL, ML | A-6, A-7 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 35-45 | 10-20 |
| 3480: | | | | | | | | | | | | |
| Chuckridge------ | 0-3 | very cobbly loam | GM, SM | A-2 | 0-5 | 25-50 | 60-70 | 45-65 | 30-45 | 25-35 | 20-25 | NP-5 |
| | 3-14 | gravelly loam, gravelly sandy clay loam, gravelly clay loam | SC | A-6 | 0 | 0-5 | 70-85 | 50-75 | 45-60 | 35-50 | 30-40 | 10-15 |
| | 14-27 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 27-60 | very gravelly sandy loam, very gravelly loamy sand | GM | A-1 | 0 | 0-15 | 40-55 | 25-50 | 15-35 | 10-20 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage Passing sieve number-- | | | | Liquid limit | Plas-ticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In | | | | Pct | Pct | | | | | Pct | |
| Zadvar---------- | 0-3 | cobbly sandy loam | SM | A-2 | 0-1 | 15-25 | 70-80 | 70-80 | 50-65 | 25-35 | --- | NP |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | GC, CL, SC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3481: | | | | | | | | | | | | |
| Chuckridge------ | 0-3 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 70-80 | 50-75 | 30-45 | 20-35 | 20-25 | NP-5 |
| | 3-14 | gravelly loam, gravelly sandy clay loam, gravelly clay loam | SC | A-6 | 0 | 0-5 | 70-85 | 50-75 | 45-60 | 35-50 | 30-40 | 10-15 |
| | 14-27 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 27-60 | very gravelly sandy loam, very gravelly loamy sand | GM | A-1 | 0 | 0-15 | 40-55 | 25-50 | 15-35 | 10-20 | --- | NP |
| Unsel---------- | 0-4 | gravelly fine sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| Veet---------- | 0-4 | very gravelly sandy loam | SM | A-1 | 0 | 0-10 | 60-75 | 30-50 | 20-45 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| 3491: | | | | | | | | | | | | |
| Slaw---------- | 0-9 | silt loam | CL-ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-90 | 15-25 | 5-10 |
| | 9-60 | stratified very fine sandy loam to silty clay | CL, ML | A-6, A-7 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 35-45 | 10-20 |
| Easychair------- | 0-9 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 9-46 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 90-100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 46-60 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3520: | | | | | | | | | | | | |
| Rustigate | 0-4 | loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 85-95 | 60-75 | 25-35 | 5-10 |
| | 4-25 | loam, sandy loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 85-95 | 50-75 | 25-35 | 5-10 |
| | 25-60 | loam, sandy loam | CL-ML, ML, SM, SC-SM | A-4 | 0 | 0 | 100 | 100 | 70-85 | 40-55 | 15-25 | NP-10 |
| 3521: | | | | | | | | | | | | |
| Rustigate | 0-4 | loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 85-95 | 60-75 | 25-35 | 5-10 |
| | 4-25 | loam, sandy loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 85-95 | 50-75 | 25-35 | 5-10 |
| | 25-60 | loam, sandy loam | CL-ML, ML, SM, SC-SM | A-4 | 0 | 0 | 100 | 100 | 70-85 | 40-55 | 15-25 | NP-10 |
| Nuyobe | 0-5 | silt loam | CL, ML | A-6 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 35-40 | 10-15 |
| | 5-60 | stratified very fine sandy loam to silty clay loam | CL, ML | A-6 | 0 | 0 | 100 | 100 | 95-100 | 75-95 | 35-40 | 10-15 |
| 3522: | | | | | | | | | | | | |
| Rustigate | 0-4 | loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 85-95 | 60-75 | 25-35 | 5-10 |
| | 4-25 | loam, sandy loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 85-95 | 50-75 | 25-35 | 5-10 |
| | 25-60 | loam, sandy loam | ML, CL-ML, SC-SM, SM | A-4 | 0 | 0 | 100 | 100 | 70-85 | 40-55 | 15-25 | NP-10 |
| Nuyobe | 0-5 | silt loam | CL, ML | A-6 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 35-40 | 10-15 |
| | 5-60 | stratified very fine sandy loam to silty clay loam | CL, ML | A-6 | 0 | 0 | 100 | 100 | 95-100 | 75-95 | 35-40 | 10-15 |
| Kawich | 0-4 | fine sand | SM | A-2 | 0 | 0 | 100 | 100 | 75-90 | 15-30 | --- | NP |
| | 4-60 | fine sand | SM | A-2 | 0 | 0 | 100 | 100 | 75-90 | 15-30 | --- | NP |
| 3530: | | | | | | | | | | | | |
| Rebel | 0-16 | sandy loam | SM | A-2 | 0 | 0 | 95-100 | 90-100 | 50-65 | 20-35 | 20-25 | NP-5 |
| | 16-60 | fine sandy loam, sandy loam, loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 85-95 | 70-80 | 50-60 | 20-30 | NP-10 |
| 3531: | | | | | | | | | | | | |
| Rebel | 0-9 | gravelly loamy coarse sand | GM, SM | A-1, A-2 | 0 | 0-5 | 60-85 | 50-75 | 40-50 | 20-30 | 0-14 | NP |
| | 9-60 | sandy loam, loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 85-95 | 70-80 | 50-60 | 20-30 | NP-10 |
| 3540: | | | | | | | | | | | | |
| Packer | 0-5 | very gravelly loam | GC-GM | A-2 | 0 | 5-10 | 45-60 | 35-50 | 30-45 | 20-35 | 20-30 | 5-10 |
| | 5-13 | extremely cobbly clay loam, extremely cobbly loam | GC | A-2 | 0 | 40-55 | 40-55 | 30-45 | 25-40 | 15-30 | 30-40 | 10-15 |
| | 13-60 | extremely cobbly sandy loam, extremely cobbly loam | GM | A-1 | 0 | 40-55 | 40-55 | 30-45 | 20-35 | 10-25 | 20-25 | NP-5 |
| Suak | 0-6 | very stony loam | GC-GM, GM | A-1, A-2 | 10-15 | 30-40 | 45-65 | 40-60 | 30-40 | 20-35 | 20-30 | NP-10 |
| | 6-25 | extremely cobbly loam, extremely gravelly loam | GC | A-2 | 0 | 30-60 | 25-45 | 20-35 | 15-30 | 10-25 | 30-35 | 10-15 |
| | 25-29 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Foxvire--------- | 0-13 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 60-80 | 50-75 | 40-50 | 30-40 | 15-25 | NP-5 |
| | 13-60 | gravelly loam, gravelly sandy loam | GM, SM | A-2, A-4 | 0-5 | 0-15 | 60-80 | 50-70 | 40-50 | 30-40 | 15-25 | NP-5 |
| 3560: | | | | | | | | | | | | |
| Ubehebe--------- | 0-1 | very gravelly sandy loam | GM, SM | A-1 | 0 | 0-10 | 55-65 | 40-50 | 30-40 | 15-25 | 15-25 | NP-5 |
| | 1-4 | very gravelly loam | GC-GM, SC-SM | A-2 | 0 | 0-10 | 60-70 | 45-55 | 35-45 | 25-35 | 25-30 | 5-10 |
| | 4-15 | very gravelly loam | GC, GC-GM | A-2 | 0 | 5-15 | 50-60 | 40-55 | 35-50 | 25-35 | 25-35 | 5-15 |
| | 15-19 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Penelas--------- | 0-2 | very channery loam | GC-GM, GM | A-1, A-2 | 0 | 0-5 | 30-55 | 25-50 | 20-40 | 15-35 | 20-30 | NP-10 |
| | 2-10 | extremely channery silty clay loam, extremely channery clay loam | GC, GP-GC | A-2 | 0 | 0-5 | 15-30 | 10-25 | 5-25 | 5-25 | 35-45 | 15-20 |
| | 10-14 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Logring--------- | 0-3 | very gravelly loam | GM | A-1, A-2 | 0-5 | 10-15 | 45-60 | 35-55 | 25-50 | 20-35 | 15-25 | NP-5 |
| | 3-12 | very cobbly loam, very cobbly fine sandy loam, extremely cobbly loam | GM, SM | A-1, A-2 | 0-10 | 30-50 | 50-70 | 40-60 | 20-45 | 15-30 | 15-25 | NP-5 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3570: | | | | | | | | | | | | |
| Eaglepass------- | 0-1 | extremely stony loam | GM | A-1, A-2 | 25-40 | 30-45 | 30-65 | 25-60 | 20-50 | 15-35 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | extremely cobbly loam | GC-GM, GM | A-1, A-2 | 0-10 | 40-50 | 30-40 | 25-40 | 20-35 | 15-25 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GM, SC-SM, GC-GM, SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3571: | | | | | | | | | | | | |
| Eaglepass------- | 0-1 | extremely stony loam | GM | A-1, A-2 | 25-40 | 30-45 | 30-65 | 25-60 | 20-50 | 15-35 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | extremely stony loam | GM | A-1, A-2 | 25-40 | 30-45 | 30-65 | 25-60 | 20-50 | 15-35 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3572: | | | | | | | | | | | | |
| Eaglepass------- | 0-1 | extremely stony loam | GM | A-1, A-2 | 25-40 | 30-45 | 30-65 | 25-60 | 20-50 | 15-35 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | extremely cobbly loam | GC-GM, GM | A-1, A-2 | 0-10 | 40-50 | 30-40 | 25-40 | 20-35 | 15-25 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GC-GM, GM, SM, SC-SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3580: | | | | | | | | | | | | |
| Kyler---------- | 0-5 | very gravelly very fine sandy loam | GC-GM, GM | A-1, A-2 | 0-5 | 20-30 | 40-65 | 35-60 | 30-55 | 20-30 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GM, GC-GM, SC-SM, SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3581: | | | | | | | | | | | | |
| Kyler---------- | 0-5 | very gravelly very fine sandy loam | GC-GM, GM | A-1, A-2 | 0-5 | 20-30 | 40-65 | 35-60 | 30-55 | 20-30 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GM, GC-GM, SC-SM, SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3590: | | | | | | | | | | | | |
| Allker---------- | 0-9 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 75-85 | 65-75 | 40-50 | 20-30 | 0-14 | NP |
| | 9-24 | gravelly loam, gravelly clay loam, gravelly sandy clay loam | GC, SC | A-6 | 0 | 0-10 | 65-80 | 55-75 | 45-65 | 35-50 | 30-40 | 10-15 |
| | 24-32 | gravelly loam | GM, GC-GM, SC-SM, SM | A-4 | 0 | 0-10 | 65-80 | 55-75 | 40-55 | 35-45 | 20-30 | NP-10 |
| | 32-60 | very gravelly loamy sand, very gravelly sand | GM, GP-GM | A-1 | 0 | 0-10 | 30-55 | 25-50 | 10-35 | 5-15 | 0-14 | NP |
| Portmount------- | 0-3 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 65-75 | 55-70 | 35-45 | 20-30 | 0-14 | NP |
| | 3-12 | sandy clay loam, sandy loam | SC, SC-SM | A-2, A-4, A-6 | 0 | 0-5 | 85-100 | 80-95 | 55-70 | 30-40 | 25-35 | 5-15 |
| | 12-60 | gravelly sandy loam | GM, SM | A-1 | 0 | 0-10 | 60-80 | 50-70 | 30-40 | 15-25 | 20-25 | NP-5 |
| 3600: | | | | | | | | | | | | |
| Ardivey--------- | 0-8 | very gravelly sandy loam | GC-GM | A-2 | 0 | 0-15 | 30-55 | 25-50 | 15-30 | 10-20 | 20-25 | 5-10 |
| | 8-17 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2 | 0-5 | 10-25 | 40-55 | 30-45 | 20-40 | 15-30 | 25-40 | 10-20 |
| | 17-60 | extremely gravelly loamy sand | GP, GP-GM | A-1 | 0-10 | 10-45 | 15-35 | 10-30 | 5-20 | 0-10 | --- | NP |
| Hollywell------- | 0-4 | very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0-10 | 40-65 | 25-50 | 15-35 | 5-15 | --- | NP |
| | 4-12 | sandy loam, gravelly fine sandy loam, gravelly sandy loam | SM | A-1, A-2, A-4 | 0 | 0-10 | 65-95 | 60-90 | 35-70 | 20-40 | 15-25 | NP-5 |
| | 12-60 | stratified very gravelly coarse sand to very gravelly sandy loam | GM | A-1 | 0 | 0-25 | 45-60 | 35-50 | 25-35 | 10-20 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Belted---------- | 0-4 | very gravelly loam | GC-GM | A-2 | 0-2 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly loam | SC | A-6 | 0-2 | 0-10 | 70-85 | 55-75 | 45-60 | 35-50 | 30-35 | 10-15 |
| | 11-17 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | extremely gravelly coarse sand, very gravelly coarse sand | GP | A-1 | 0-5 | 0-10 | 30-50 | 20-35 | 5-15 | 0-5 | --- | NP |
| 3601: | | | | | | | | | | | | |
| Ardivey--------- | 0-8 | very gravelly sandy loam | GC-GM | A-2 | 0 | 0-15 | 30-55 | 25-50 | 15-30 | 10-20 | 20-25 | 5-10 |
| | 8-17 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2 | 0-5 | 10-25 | 40-55 | 30-45 | 20-40 | 15-30 | 25-40 | 10-20 |
| | 17-60 | extremely gravelly loamy sand | GP, GP-GM | A-1 | 0-10 | 10-45 | 15-35 | 10-30 | 5-20 | 0-10 | --- | NP |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, GC, SC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| 3610: | | | | | | | | | | | | |
| Tokoper--------- | 0-2 | very cobbly sandy loam | GM, SM | A-1, A-2 | 0-5 | 30-45 | 55-75 | 45-70 | 30-45 | 20-30 | 15-25 | NP-5 |
| | 2-5 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2, A-6 | 0-5 | 10-25 | 50-60 | 40-55 | 30-45 | 20-40 | 30-40 | 10-15 |
| | 5-9 | very gravelly loam, extremely gravelly loam, very gravelly sandy loam | GM, GP-GC, GC-GM, GP-GM | A-2 | 0-5 | 25-40 | 30-50 | 20-40 | 10-30 | 5-25 | 25-35 | 5-10 |
| | 9-15 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Garhill--------- | 0-1 | very gravelly sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 35-60 | 25-50 | 15-35 | 5-15 | 20-25 | NP-5 |
| | 1-6 | fine sandy loam | SM | A-2, A-4 | 0 | 0-5 | 80-90 | 75-90 | 55-80 | 20-40 | 20-25 | NP-5 |
| | 6-10 | gravelly loam, gravelly sandy loam | CL-ML, SM, ML, SC-SM | A-2, A-4 | 0 | 0-5 | 70-85 | 50-75 | 40-60 | 30-55 | 25-35 | 5-10 |
| | 10-21 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3620: | | | | | | | | | | | | |
| Argalt---------- | 0-1 | very stony fine sandy loam | GM, SM | A-2 | 5-25 | 20-30 | 50-70 | 45-65 | 40-60 | 25-35 | --- | NP |
| | 1-4 | very fine sandy loam | ML | A-4 | 0 | 0 | 90-100 | 90-100 | 80-90 | 50-60 | 20-25 | NP-5 |
| | 4-11 | loam, clay loam | CL | A-6 | 0 | 0-5 | 80-95 | 75-90 | 60-75 | 55-70 | 35-40 | 15-20 |
| | 11-15 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | very stony fine sandy loam | GC-GM | A-2 | 5-15 | 15-25 | 45-60 | 40-55 | 30-45 | 10-25 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Gabbvally------- | 0-2 | very stony loam | GM | A-4 | 5-25 | 5-10 | 60-75 | 55-70 | 45-55 | 35-50 | 20-25 | NP-5 |
| | 2-11 | very gravelly sandy clay loam, very gravelly sandy loam, very gravelly loam | GC, GC-GM | A-2 | 0-5 | 0-15 | 50-60 | 35-50 | 25-35 | 15-25 | 25-35 | 5-15 |
| | 11-15 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3630: | | | | | | | | | | | | |
| Lyx---------- | 0-3 | very gravelly loamy sand | GP, GM, SM, SP | A-1 | 0 | 0-10 | 35-60 | 30-50 | 15-30 | 0-15 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | ML, SC-SM, CL-ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3640: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| Zadvar---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 35-50 | 25-40 | 15-25 | 20-25 | NP-5 |
| | 3-10 | gravelly clay loam, sandy clay loam, gravelly sandy clay loam | CL, GC, SC | A-6 | 0 | 0-5 | 60-90 | 55-85 | 45-75 | 35-60 | 35-40 | 15-20 |
| | 10-14 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | stratified very gravelly coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 0-15 | 35-55 | 25-50 | 15-35 | 5-15 | --- | NP |
| Veet---------- | 0-4 | very gravelly sandy loam | SM | A-1 | 0 | 0-10 | 60-75 | 30-50 | 20-45 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| 3641: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Lyx---------- | 0-3 | very gravelly loamy sand | GP, GM, SM, SP | A-1 | 0 | 0-10 | 35-60 | 30-50 | 15-30 | 0-15 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| Candelaria------ | 0-7 | very gravelly sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |
| 3642: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3643: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GM, SP-SM, GP-GM, SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| Morbench-------- | 0-4 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-75 | 35-55 | 20-35 | 20-25 | NP-5 |
| | 4-29 | very gravelly sandy loam | GM | A-1 | 0 | 0-15 | 35-60 | 30-50 | 15-40 | 10-25 | 20-25 | NP-5 |
| | 29-50 | very gravelly loamy sand, very gravelly sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-15 | 35-60 | 30-50 | 10-25 | 5-15 | --- | NP |
| | 50-60 | stratified very gravelly sand to very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 35-60 | 25-50 | 15-40 | 10-25 | 20-25 | NP-5 |
| 3644: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| Cliffdown------- | 0-3 | very gravelly sandy loam | GM | A-1, A-2 | 0 | 0-5 | 30-55 | 25-50 | 20-35 | 10-30 | 0-14 | NP |
| | 3-60 | stratified gravelly sandy loam to very gravelly fine sandy loam | GM | A-1, A-2 | 0 | 0-5 | 45-55 | 40-50 | 30-40 | 15-30 | 0-14 | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Candelaria------ | 0-7 | very gravelly sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |
| 3645: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| Clowfin--------- | 0-6 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-5 | 60-80 | 50-75 | 35-60 | 30-50 | 20-30 | NP-5 |
| | 6-46 | stratified very gravelly sandy loam to very gravelly loam | GM | A-2, A-1, A-4 | 0 | 10-25 | 50-65 | 40-60 | 30-50 | 20-40 | 20-30 | NP-5 |
| | 46-60 | extremely gravelly sand, very gravelly sandy loam | GP, GP-GM | A-1 | 0 | 5-30 | 25-40 | 20-35 | 10-20 | 0-10 | 0-14 | NP |
| Peeko---------- | 0-8 | gravelly loam | GC, GC-GM, SC-SM, GM | A-4, A-6 | 0 | 0-5 | 60-80 | 50-75 | 45-65 | 35-50 | 20-35 | NP-15 |
| | 8-13 | gravelly silt loam | CL-ML, CL, GC, GC-GM | A-4, A-6 | 0 | 10-15 | 60-90 | 55-80 | 50-75 | 45-65 | 25-35 | 5-15 |
| | 13-60 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3647: | | | | | | | | | | | | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| Spager---------- | 0-2 | gravelly loam | GC-GM, SC-SM | A-4 | 0 | 0-10 | 65-75 | 60-70 | 50-60 | 40-50 | 20-30 | 5-10 |
| | 2-12 | very gravelly loam, very gravelly fine sandy loam | GC-GM | A-2, A-4 | 0 | 0-15 | 35-55 | 30-50 | 25-45 | 15-40 | 20-30 | 5-10 |
| | 12-16 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3651: | | | | | | | | | | | | |
| Candelaria------ | 0-7 | very gravelly sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |
| 3655: | | | | | | | | | | | | |
| Candelaria------ | 0-7 | very gravelly sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Armespan-------- | 0-1 | very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 45-60 | 30-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 1-7 | sandy loam, gravelly sandy loam, gravelly loam | SM | A-1, A-2 | 0 | 0-5 | 80-95 | 65-90 | 45-65 | 20-35 | 20-25 | NP-5 |
| | 7-18 | gravelly sandy loam, gravelly loam | GM, SM | A-2, A-4 | 0 | 0-10 | 55-85 | 50-75 | 35-60 | 25-45 | 20-25 | NP-5 |
| | 18-28 | very gravelly sandy loam, very gravelly coarse sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-50 | 20-40 | 10-25 | 20-25 | NP-5 |
| | 28-60 | very gravelly loamy coarse sand, very gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-35 | 5-15 | --- | NP |
| 3660: | | | | | | | | | | | | |
| Titiack--------- | 0-10 | very gravelly sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 35-60 | 25-50 | 15-25 | 5-15 | 0-14 | NP |
| | 10-15 | very cobbly sandy loam, extremely cobbly sandy loam | GM, GP-GM | A-1 | 0-5 | 25-45 | 35-55 | 25-50 | 15-25 | 5-15 | 15-30 | NP-5 |
| | 15-60 | cinders | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Garhill--------- | 0-1 | very stony loamy fine sand | SM | A-1, A-2 | 10-20 | 0-25 | 65-80 | 50-75 | 40-60 | 15-30 | --- | NP |
| | 1-6 | fine sandy loam | SM | A-2, A-4 | 0 | 0-5 | 80-90 | 75-90 | 55-80 | 20-40 | 20-25 | NP-5 |
| | 6-10 | gravelly loam, gravelly sandy loam | ML, CL-ML, SC-SM, SM | A-2, A-4 | 0 | 0-5 | 70-85 | 50-75 | 40-60 | 30-55 | 25-35 | 5-10 |
| | 10-21 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3670: | | | | | | | | | | | | |
| Logring--------- | 0-3 | very cobbly fine sandy loam | GM, SM | A-1, A-2 | 0-5 | 30-45 | 50-75 | 40-65 | 30-55 | 15-35 | 15-25 | NP-5 |
| | 3-12 | very cobbly loam, very cobbly fine sandy loam, extremely cobbly loam | GM, SM | A-1, A-2 | 0-10 | 30-50 | 50-70 | 40-60 | 20-45 | 15-30 | 15-25 | NP-5 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | extremely cobbly loam | GC-GM, GM | A-1, A-2 | 0-10 | 40-50 | 30-40 | 25-40 | 20-35 | 15-25 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GC-GM, SM, GM, SC-SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3671: | | | | | | | | | | | | |
| Logring--------- | 0-3 | very cobbly fine sandy loam | GM, SM | A-1, A-2 | 0-5 | 30-45 | 50-75 | 40-65 | 30-55 | 15-35 | 15-25 | NP-5 |
| | 3-12 | very cobbly loam, very cobbly fine sandy loam, extremely cobbly loam | GM, SM | A-1, A-2 | 0-10 | 30-50 | 50-70 | 40-60 | 20-45 | 15-30 | 15-25 | NP-5 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | extremely stony loam | GM | A-1, A-2 | 25-40 | 30-45 | 30-65 | 25-60 | 20-50 | 15-35 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3672: | | | | | | | | | | | | |
| Logring--------- | 0-3 | very gravelly loam | GM | A-1, A-2 | 0-5 | 10-15 | 45-60 | 35-55 | 25-50 | 20-35 | 15-25 | NP-5 |
| | 3-12 | very cobbly loam, very cobbly fine sandy loam, extremely cobbly loam | GM, SM | A-1, A-2 | 0-10 | 30-50 | 50-70 | 40-60 | 20-45 | 15-30 | 15-25 | NP-5 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | extremely cobbly loam | GC-GM, GM | A-1, A-2 | 0-10 | 40-50 | 30-40 | 25-40 | 20-35 | 15-25 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GM, GC-GM, SC-SM, SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | extremely stony loam | GM | A-1, A-2 | 25-40 | 30-45 | 30-65 | 25-60 | 20-50 | 15-35 | 15-25 | NP-5 |
| | 1-4 | extremely stony loam, very cobbly fine sandy loam, extremely gravelly sandy loam | GM | A-1, A-2 | 0-40 | 25-45 | 30-65 | 25-60 | 20-50 | 10-35 | 15-25 | NP-5 |
| | 4-14 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3700: | | | | | | | | | | | | |
| Leo---------- | 0-8 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 65-85 | 50-75 | 40-60 | 20-35 | 15-25 | NP-5 |
| | 8-60 | stratified extremely gravelly coarse sand to gravelly fine sandy loam | GM, GP-GM, SP-SM, SM | A-1 | 0-5 | 0-25 | 45-60 | 40-50 | 15-35 | 5-20 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Delamar--------- | 0-4 | sandy loam | SM | A-1, A-2, A-4 | 0 | 0 | 95-100 | 85-100 | 45-80 | 10-50 | 0-14 | NP |
| | 4-12 | sandy loam, sandy clay loam, gravelly clay loam | CL, SC | A-2, A-6 | 0 | 0-5 | 65-100 | 60-90 | 50-80 | 30-55 | 30-40 | 10-20 |
| | 12-20 | clay loam, gravelly clay loam | GC, SC | A-2, A-7, A-6 | 0 | 0-5 | 60-90 | 55-85 | 40-55 | 30-50 | 35-45 | 15-25 |
| | 20-25 | gravelly sandy loam, gravelly loamy coarse sand, gravelly coarse sand | SM | A-1, A-4, A-2 | 0 | 0 | 60-80 | 50-75 | 30-50 | 10-50 | 0-14 | NP |
| | 25-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3702: | | | | | | | | | | | | |
| Leo---------- | 0-8 | very gravelly sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0 | 45-65 | 25-50 | 20-40 | 5-25 | 15-25 | NP-5 |
| | 8-60 | stratified extremely gravelly coarse sand to gravelly fine sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0-5 | 0-25 | 45-60 | 40-50 | 15-35 | 5-20 | --- | NP |
| Hollywell------- | 0-4 | gravelly loamy sand | SM | A-1 | 0 | 0-10 | 60-85 | 55-75 | 30-50 | 10-20 | --- | NP |
| | 4-12 | sandy loam, gravelly fine sandy loam, gravelly sandy loam | SM | A-2, A-1, A-4 | 0 | 0-10 | 65-95 | 60-90 | 35-65 | 20-40 | 15-25 | NP-5 |
| | 12-60 | stratified very gravelly coarse sand to very gravelly sandy loam | GP, GM, GP-GM, SP-SM | A-1 | 0 | 0-25 | 30-60 | 25-50 | 10-30 | 0-15 | --- | NP |
| 3703: | | | | | | | | | | | | |
| Leo---------- | 0-8 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 65-85 | 50-75 | 40-60 | 20-35 | 15-25 | NP-5 |
| | 8-60 | stratified extremely gravelly coarse sand to gravelly fine sandy loam | GM, GP-GM, SP-SM, SM | A-1 | 0-5 | 0-25 | 45-60 | 40-50 | 15-35 | 5-20 | --- | NP |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3710: | | | | | | | | | | | | |
| Beelem---------- | 0-2 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 80-90 | 55-75 | 40-50 | 25-35 | 20-25 | NP-5 |
| | 2-5 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 80-90 | 55-75 | 40-50 | 25-35 | 20-25 | NP-5 |
| | 5-9 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3730: | | | | | | | | | | | | |
| Penelas--------- | 0-2 | very channery loam | GC-GM, GM | A-1, A-2 | 0 | 0-5 | 30-55 | 25-50 | 20-40 | 15-35 | 20-30 | NP-10 |
| | 2-10 | extremely channery silty clay loam, extremely channery clay loam | GC, GP-GC | A-2 | 0 | 0-5 | 15-30 | 10-25 | 5-25 | 5-25 | 35-45 | 15-20 |
| | 10-14 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | very gravelly very fine sandy loam | GC-GM, GM | A-1, A-2 | 0-5 | 20-30 | 40-65 | 35-60 | 30-55 | 20-30 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GM, SC-SM, GC-GM, SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3731: | | | | | | | | | | | | |
| Penelas--------- | 0-2 | very channery loam | GC-GM, GM | A-1, A-2 | 0 | 0-5 | 30-55 | 25-50 | 20-40 | 15-35 | 20-30 | NP-10 |
| | 2-10 | extremely channery silty clay loam, extremely channery clay loam | GC, GP-GC | A-2 | 0 | 0-5 | 15-30 | 10-25 | 5-25 | 5-25 | 35-45 | 15-20 |
| | 10-14 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Ubehebs--------- | 0-1 | very gravelly sandy loam | GM, SM | A-1 | 0 | 0-10 | 55-65 | 40-50 | 30-40 | 15-25 | 15-25 | NP-5 |
| | 1-4 | very gravelly loam | GC-GM, SC-SM | A-2 | 0 | 0-10 | 60-70 | 45-55 | 35-45 | 25-35 | 25-30 | 5-10 |
| | 4-15 | very gravelly loam | GC, GC-GM | A-2 | 0 | 5-15 | 50-60 | 40-55 | 35-50 | 25-35 | 25-35 | 5-15 |
| | 15-19 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3740: | | | | | | | | | | | | |
| Keefa---------- | 0-7 | sandy loam | SM | A-2 | 0 | 0 | 90-100 | 80-100 | 60-75 | 25-30 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Unsel---------- | 0-4 | gravelly sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |
| 3741: | | | | | | | | | | | | |
| Keefa---------- | 0-7 | sandy loam | SM | A-2 | 0 | 0 | 90-100 | 80-100 | 60-75 | 25-30 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Koyen---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 90-95 | 85-95 | 50-75 | 35-50 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3742: | | | | | | | | | | | | |
| Keefa---------- | 0-7 | sandy loam | SM | A-2 | 0 | 0 | 90-100 | 80-100 | 60-75 | 25-30 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Stargo---------- | 0-5 | gravelly loamy sand | GM, SM | A-1, A-2 | 0 | 0 | 55-85 | 50-75 | 35-60 | 10-25 | --- | NP |
| | 5-15 | clay loam, sandy clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 85-95 | 75-85 | 65-75 | 35-45 | 15-20 |
| | 15-60 | stratified very gravelly sand to sandy loam | SM | A-1, A-2 | 0 | 0-5 | 80-90 | 75-85 | 45-60 | 20-35 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3744: | | | | | | | | | | | | |
| Keefa---------- | 0-3 | gravelly sandy loam | SM | A-1 | 0 | 0 | 75-90 | 50-75 | 30-45 | 15-25 | 15-25 | NP-5 |
| | 3-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Garhill--------- | 0-1 | very stony loamy fine sand | SM | A-1, A-2 | 10-20 | 0-25 | 65-80 | 50-75 | 40-60 | 15-30 | --- | NP |
| | 1-6 | fine sandy loam | SM | A-2, A-4 | 0 | 0-5 | 80-90 | 75-90 | 55-80 | 20-40 | 20-25 | NP-5 |
| | 6-10 | gravelly loam, gravelly sandy loam | CL-ML, ML, SM, SC-SM | A-2, A-4 | 0 | 0-5 | 70-85 | 50-75 | 40-60 | 30-55 | 25-35 | 5-10 |
| | 10-21 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Belted---------- | 0-4 | very cobbly sandy loam | GC-GM, SM, GM, SC-SM | A-1, A-2 | 0-5 | 30-45 | 50-65 | 45-60 | 30-50 | 15-25 | 20-30 | NP-10 |
| | 4-11 | gravelly clay loam, gravelly loam | SC | A-6 | 0-2 | 0-10 | 70-85 | 55-75 | 45-60 | 35-50 | 30-35 | 10-15 |
| | 11-17 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | extremely gravelly coarse sand, very gravelly coarse sand | GP | A-1 | 0-5 | 0-10 | 30-50 | 20-35 | 5-15 | 0-5 | 0-14 | NP |
| 3745: | | | | | | | | | | | | |
| Keefa---------- | 0-7 | gravelly sandy loam | SM | A-1 | 0 | 0 | 75-90 | 50-75 | 30-45 | 15-25 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Hollywell------- | 0-4 | gravelly loamy sand | SM | A-1 | 0 | 0-10 | 60-85 | 55-75 | 30-50 | 10-20 | --- | NP |
| | 4-12 | sandy loam, gravelly fine sandy loam, gravelly sandy loam | SM | A-1, A-4, A-2 | 0 | 0-10 | 65-95 | 60-90 | 35-65 | 20-40 | 15-25 | NP-5 |
| | 12-60 | stratified very gravelly coarse sand to very gravelly sandy loam | GP, GP-GM, GM, SP-SM | A-1 | 0 | 0-25 | 30-60 | 25-50 | 10-30 | 0-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3747. | | | | | | | | | | | | |
| Keefa---------- | 0-7 | sandy loam | SM | A-2 | 0 | 0 | 90-100 | 80-100 | 60-75 | 25-30 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Lyx---------- | 0-3 | gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1, A-3, A-2 | 0 | 0-5 | 55-85 | 50-75 | 25-55 | 5-20 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| Linoyer--------- | 0-3 | very fine sandy loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 55-70 | 15-25 | NP-5 |
| | 3-46 | very fine sandy loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 15-30 | NP-10 |
| | 46-60 | extremely gravelly loamy sand | GM, GP-GM, GP | A-1 | 0 | 0 | 20-40 | 10-25 | 5-20 | 0-15 | 15-20 | NP |
| 3748: | | | | | | | | | | | | |
| Keefa---------- | 0-7 | sandy loam | SM | A-2 | 0 | 0 | 90-100 | 80-100 | 60-75 | 25-30 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| Koyen---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 90-95 | 85-95 | 50-75 | 35-50 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-40 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Keefa---------- | 0-7 | sandy loam | SM | A-2 | 0 | 0 | 90-100 | 80-100 | 60-75 | 25-30 | 15-25 | NP-5 |
| | 7-15 | sandy loam, gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 85-100 | 65-100 | 40-75 | 20-35 | 15-25 | NP-5 |
| | 15-26 | gravelly sandy loam, gravelly coarse sandy loam | SM | A-1, A-2 | 0 | 0 | 75-90 | 50-75 | 30-55 | 15-25 | 15-25 | NP-5 |
| | 26-60 | stratified very gravelly sand to gravelly sandy loam | SM | A-1, A-2 | 0 | 0 | 60-90 | 50-75 | 30-55 | 10-15 | 15-25 | NP-5 |
| 3750: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 90-95 | 85-95 | 50-75 | 35-50 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, SP-SM, GP-GM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Cliffdown------- | 0-3 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-5 | 70-80 | 65-75 | 40-50 | 20-30 | 0-14 | NP |
| | 3-60 | stratified gravelly sandy loam to very gravelly fine sandy loam | GM | A-1, A-2 | 0 | 0-5 | 45-55 | 40-50 | 30-40 | 15-30 | 0-14 | NP |
| 3751: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Unsel---------- | 0-4 | gravelly sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3752: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 90-95 | 85-95 | 50-75 | 35-50 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3754: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-2, A-4 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-2, A-1, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | CL-ML, SM, ML, SC-SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |
| 3755: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Watoopah-------- | 0-2 | gravelly loamy sand | SM | A-1, A-2 | 0 | 0 | 70-100 | 55-75 | 35-60 | 10-30 | --- | NP |
| | 2-12 | sandy loam, gravelly sandy loam | SM | A-1, A-2, A-4 | 0 | 0 | 70-100 | 60-100 | 40-80 | 20-50 | 15-25 | NP-5 |
| | 12-18 | gravelly loamy sand, gravelly sandy loam, sandy loam | SM | A-2, A-1, A-4 | 0 | 0-5 | 60-100 | 50-95 | 30-70 | 20-50 | --- | NP |
| | 18-60 | stratified very gravelly coarse sand to coarse sandy loam | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 30-50 | 5-25 | --- | NP |
| 3756: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | sandy loam | SM | A-4 | 0 | 0 | 90-95 | 85-95 | 50-75 | 35-50 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Lyx---------- | 0-3 | very gravelly loamy sand | GM, SP, GP, SM | A-1 | 0 | 0-10 | 35-60 | 30-50 | 15-30 | 0-15 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| 3757: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Veet---------- | 0-8 | loam | CL-ML | A-4 | 0 | 0 | 85-100 | 75-100 | 65-90 | 50-70 | 25-30 | 5-10 |
| | 8-20 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 20-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0-5 | 10-25 | 45-55 | 30-50 | 15-30 | 5-25 | 0-14 | NP |
| Penoyer--------- | 0-4 | silt loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 20-30 | NP-5 |
| | 4-60 | silt loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 85-95 | 20-30 | NP-5 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3758: | | | | | | | | | | | | |
| Koyen---------- | 0-4 | sand | SM, SP-SM | A-1, A-3, A-2 | 0 | 0 | 90-100 | 75-100 | 40-60 | 5-15 | --- | NP |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GP-GM, SM, GM, SP-SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3760: | | | | | | | | | | | | |
| Vindicator------ | 0-3 | very gravelly sandy loam | GM, GP-GM | A-1 | 0 | 0-10 | 35-55 | 30-50 | 20-35 | 10-20 | 20-25 | NP-5 |
| | 3-13 | very gravelly clay loam, very gravelly loam | GC | A-2 | 0 | 0-10 | 45-60 | 35-50 | 30-40 | 20-35 | 25-40 | 10-20 |
| | 13-17 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3770: | | | | | | | | | | | | |
| Yody---------- | 0-3 | gravelly sandy loam | SM | A-1 | 0 | 0-5 | 70-80 | 65-75 | 40-50 | 20-25 | --- | NP |
| | 3-16 | gravelly sandy clay loam, gravelly clay loam | SC | A-6 | 0 | 0-5 | 75-85 | 65-75 | 55-65 | 35-50 | 30-40 | 10-20 |
| | 16-38 | gravelly loam, gravelly sandy loam, gravelly loamy sand | GM, SM | A-1, A-2 | 0 | 0-5 | 60-70 | 50-60 | 35-50 | 20-35 | 20-25 | NP-5 |
| | 38-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Cath---------- | 0-6 | gravelly loam | GC-GM, SC-SM | A-4 | 0 | 0 | 60-85 | 50-75 | 45-65 | 35-50 | 20-30 | 5-10 |
| | 6-20 | clay loam, sandy clay loam, gravelly clay loam | CL, SC | A-6, A-7 | 0 | 0 | 80-100 | 65-100 | 60-90 | 40-85 | 35-45 | 15-25 |
| | 20-28 | very gravelly sandy clay loam | GC | A-2 | 0 | 0 | 30-60 | 25-50 | 20-40 | 15-35 | 30-40 | 10-20 |
| | 28-60 | stratified very gravelly loamy coarse sand to very gravelly loam | GM, GP-GM | A-1 | 0 | 0 | 30-60 | 25-50 | 20-40 | 5-20 | --- | NP |
| Abgese---------- | 0-5 | sandy loam | SM | A-2, A-4 | 0 | 0-5 | 80-100 | 75-100 | 50-65 | 30-45 | 15-20 | NP-5 |
| | 5-20 | gravelly sandy loam, gravelly sandy clay loam | SC, SC-SM | A-2, A-4, A-6 | 0 | 0-5 | 65-80 | 55-75 | 35-50 | 25-45 | 20-40 | 5-20 |
| | 20-35 | very gravelly sandy loam | GM, SM | A-1 | 0 | 0-5 | 50-60 | 35-50 | 25-35 | 15-20 | 15-20 | NP-5 |
| | 35-60 | very gravelly loamy sand, very gravelly sandy loam | GM, SM | A-1 | 0 | 0-5 | 50-60 | 25-50 | 20-30 | 10-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3780: | | | | | | | | | | | | |
| Molion---------- | 0-3 | very gravelly sandy loam | GM | A-1 | 0 | 0-5 | 50-60 | 30-50 | 25-35 | 15-20 | 15-20 | NP-5 |
| | 3-14 | extremely gravelly sandy loam, extremely gravelly loam, very gravelly sandy loam | GC-GM, GM | A-1, A-2 | 0 | 0 | 50-60 | 20-35 | 15-25 | 10-20 | 20-30 | NP-10 |
| | 14-26 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 26-60 | stratified very gravelly loamy sand to extremely gravelly loam | GM, GP-GM | A-1 | 0 | 0-5 | 50-60 | 20-35 | 15-30 | 5-20 | 15-20 | NP-5 |
| 3800: | | | | | | | | | | | | |
| Lyda---------- | 0-5 | very gravelly fine sandy loam | GM | A-1 | 0 | 5-20 | 35-60 | 30-55 | 25-45 | 10-25 | 15-25 | NP-5 |
| | 5-14 | very gravelly clay loam, very gravelly sandy clay loam | GC | A-2 | 0 | 10-25 | 50-60 | 45-55 | 30-45 | 20-35 | 35-40 | 15-20 |
| | 14-20 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Delamar--------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0-5 | 65-80 | 50-75 | 40-65 | 30-50 | 0-14 | NP |
| | 4-12 | sandy loam, sandy clay loam, gravelly clay loam | CL, SC | A-2, A-6 | 0 | 0-5 | 65-100 | 60-90 | 50-80 | 30-55 | 30-40 | 10-20 |
| | 12-20 | clay loam, gravelly clay loam | GC, SC | A-2, A-6, A-7 | 0 | 0-5 | 60-90 | 55-85 | 40-55 | 30-50 | 35-45 | 15-25 |
| | 20-25 | gravelly sandy loam, gravelly loamy coarse sand, gravelly coarse sand | SM | A-1, A-4, A-2 | 0 | 0 | 60-80 | 50-75 | 30-50 | 10-50 | 0-14 | NP |
| | 25-29 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Lyx---------- | 0-3 | very gravelly loamy sand | GM, GP, SP, SM | A-1 | 0 | 0-10 | 35-60 | 30-50 | 15-30 | 0-15 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| 3801: | | | | | | | | | | | | |
| Lyda---------- | 0-5 | very gravelly fine sandy loam | GM | A-1 | 0 | 5-20 | 35-60 | 30-55 | 25-45 | 10-25 | 15-25 | NP-5 |
| | 5-14 | very gravelly clay loam, very gravelly sandy clay loam | GC | A-2 | 0 | 10-25 | 50-60 | 45-55 | 30-45 | 20-35 | 35-40 | 15-20 |
| | 14-20 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Belted---------- | 0-4 | very gravelly loam | GC-GM | A-2 | 0-2 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly loam | SC | A-6 | 0-2 | 0-10 | 70-85 | 55-75 | 45-60 | 35-50 | 30-35 | 10-15 |
| | 11-17 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | extremely gravelly coarse sand, very gravelly coarse sand | GP | A-1 | 0-5 | 0-10 | 30-50 | 20-35 | 5-15 | 0-5 | --- | NP |
| Ardivey--------- | 0-8 | very gravelly sandy loam | GC-GM | A-2 | 0 | 0-15 | 30-55 | 25-50 | 15-30 | 10-20 | 20-25 | 5-10 |
| | 8-17 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2 | 0-5 | 10-25 | 40-55 | 30-45 | 20-40 | 15-30 | 25-40 | 10-20 |
| | 17-60 | extremely gravelly loamy sand | GP, GP-GM | A-1 | 0-10 | 10-45 | 15-35 | 10-30 | 5-20 | 0-10 | --- | NP |
| 3803: | | | | | | | | | | | | |
| Lyda---------- | 0-5 | very gravelly fine sandy loam | GM | A-1 | 0 | 5-20 | 35-60 | 30-55 | 25-45 | 10-25 | 15-25 | NP-5 |
| | 5-14 | very gravelly clay loam, very gravelly sandy clay loam | GC | A-2 | 0 | 10-25 | 50-60 | 45-55 | 30-45 | 20-35 | 35-40 | 15-20 |
| | 14-20 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Ardivey--------- | 0-8 | very gravelly sandy loam | GC-GM | A-2 | 0 | 0-15 | 30-55 | 25-50 | 15-30 | 10-20 | 20-25 | 5-10 |
| | 8-17 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2 | 0-5 | 10-25 | 40-55 | 30-45 | 20-40 | 15-30 | 25-40 | 10-20 |
| | 17-60 | extremely gravelly loamy sand | GP, GP-GM | A-1 | 0-10 | 10-45 | 15-35 | 10-30 | 5-20 | 0-10 | --- | NP |
| Veet---------- | 0-4 | very gravelly sandy loam | SM | A-1 | 0 | 0-10 | 60-75 | 30-50 | 20-45 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3804: | | | | | | | | | | | | |
| Lyda---------- | 0-5 | very gravelly fine sandy loam | GM | A-1 | 0 | 5-20 | 35-60 | 30-55 | 25-45 | 10-25 | 15-25 | NP-5 |
| | 5-14 | very gravelly clay loam, very gravelly sandy clay loam | GC | A-2 | 0 | 10-25 | 50-60 | 45-55 | 30-45 | 20-35 | 35-40 | 15-20 |
| | 14-20 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Ardivey--------- | 0-8 | very gravelly sandy loam | GC-GM | A-2 | 0 | 0-15 | 30-55 | 25-50 | 15-30 | 10-20 | 20-25 | 5-10 |
| | 8-17 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2 | 0-5 | 10-25 | 40-55 | 30-45 | 20-40 | 15-30 | 25-40 | 10-20 |
| | 17-60 | extremely gravelly loamy sand | GP, GP-GM | A-1 | 0-10 | 10-45 | 15-35 | 10-30 | 5-20 | 0-10 | --- | NP |
| Lyx---------- | 0-3 | very gravelly loamy sand | GP, GM, SM, SP | A-1 | 0 | 0-10 | 35-60 | 30-50 | 15-30 | 0-15 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GP-GM, GM, SM, SP-SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| 3805: | | | | | | | | | | | | |
| Lyda---------- | 0-5 | very gravelly fine sandy loam | GM | A-1 | 0 | 5-20 | 35-60 | 30-55 | 25-45 | 10-25 | 15-25 | NP-5 |
| | 5-14 | very gravelly clay loam, very gravelly sandy clay loam | GC | A-2 | 0 | 10-25 | 50-60 | 45-55 | 30-45 | 20-35 | 35-40 | 15-20 |
| | 14-20 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Hardhat--------- | 0-8 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-75 | 35-45 | 20-30 | 15-25 | NP-5 |
| | 8-17 | gravelly fine sandy loam | SM | A-2 | 0 | 0-10 | 75-85 | 70-75 | 50-60 | 20-30 | 15-25 | NP-5 |
| | 17-23 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 70-75 | 40-45 | 20-30 | 15-25 | NP-5 |
| | 23-60 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 70-75 | 40-45 | 20-30 | 15-25 | NP-5 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3810: | | | | | | | | | | | | |
| Belted---------- | 0-4 | very gravelly loam | GC-GM | A-2 | 0-2 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly loam | SC | A-6 | 0-2 | 0-10 | 70-85 | 55-75 | 45-60 | 35-50 | 30-35 | 10-15 |
| | 11-17 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | extremely gravelly coarse sand, very gravelly coarse sand | GP | A-1 | 0-5 | 0-10 | 30-50 | 20-35 | 5-15 | 0-5 | --- | NP |
| Univega--------- | 0-5 | gravelly fine sand | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-80 | 40-70 | 10-20 | 0-14 | NP |
| | 5-10 | fine sandy loam, sandy loam | SM | A-4 | 0 | 0-5 | 90-100 | 75-100 | 60-80 | 35-50 | 15-25 | NP-5 |
| | 10-31 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 31-60 | gravelly coarse sand, gravelly sand | SM, SP-SM | A-1 | 0 | 0-5 | 60-85 | 50-75 | 20-40 | 5-20 | 0-14 | NP |
| Koyen---------- | 0-4 | gravelly sandy loam | SM | A-2, A-4 | 0 | 0 | 65-90 | 50-75 | 40-65 | 25-40 | 15-25 | NP-5 |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| 3811: | | | | | | | | | | | | |
| Belted---------- | 0-4 | very gravelly loam | GC-GM | A-2 | 0-2 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly loam | SC | A-6 | 0-2 | 0-10 | 70-85 | 55-75 | 45-60 | 35-50 | 30-35 | 10-15 |
| | 11-17 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | extremely gravelly coarse sand, very gravelly coarse sand | GP | A-1 | 0-5 | 0-10 | 30-50 | 20-35 | 5-15 | 0-5 | --- | NP |
| Unsel---------- | 0-4 | gravelly sandy loam | SC-SM | A-2 | 0 | 0 | 75-85 | 55-75 | 40-60 | 25-35 | 25-30 | 5-10 |
| | 4-11 | gravelly clay loam, gravelly sandy clay loam | SC | A-6 | 0 | 0 | 75-85 | 55-75 | 45-60 | 35-45 | 35-40 | 15-20 |
| | 11-34 | gravelly sandy loam, gravelly sandy clay loam | SC-SM | A-2 | 0 | 0 | 60-75 | 50-70 | 35-50 | 20-35 | 20-30 | 5-10 |
| | 34-60 | very gravelly sand, very gravelly loamy sand, extremely gravelly sand | GP, GP-GM | A-1 | 0 | 0 | 40-50 | 20-35 | 10-25 | 0-10 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Lyx---------- | 0-3 | very gravelly loamy sand | GP, GM, SM, SP | A-1 | 0 | 0-10 | 35-60 | 30-50 | 15-30 | 0-15 | --- | NP |
| | 3-11 | gravelly sandy loam, very gravelly fine sandy loam | GM, SP-SM, GP-GM, SM | A-1 | 0 | 0-10 | 45-70 | 40-60 | 25-50 | 5-20 | 20-25 | NP-5 |
| | 11-60 | stratified extremely gravelly coarse sand to very gravelly sandy loam | GP-GM, SP-SM | A-1 | 0 | 0-10 | 30-60 | 25-50 | 10-25 | 5-10 | --- | NP |
| 3830: | | | | | | | | | | | | |
| Downeyville----- | 0-5 | very cobbly fine sandy loam | SC-SM, SM | A-1, A-2 | 0-5 | 30-50 | 70-85 | 45-65 | 35-50 | 15-35 | 15-25 | NP-10 |
| | 5-13 | very gravelly loam, very gravelly fine sandy loam | GC | A-2, A-6 | 0-5 | 10-25 | 40-60 | 30-50 | 25-50 | 20-40 | 25-35 | 10-15 |
| | 13-17 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3831: | | | | | | | | | | | | |
| Downeyville----- | 0-5 | very stony fine sandy loam | SC-SM, SM | A-1, A-2 | 5-10 | 30-50 | 70-85 | 45-65 | 35-50 | 15-35 | 15-25 | NP-10 |
| | 5-13 | very gravelly loam, very gravelly fine sandy loam | GC | A-2, A-6 | 0-5 | 10-25 | 40-60 | 30-50 | 25-50 | 20-40 | 25-35 | 10-15 |
| | 13-17 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | very gravelly fine sandy loam | GC-GM | A-2 | 0 | 0-10 | 35-55 | 30-45 | 20-35 | 10-20 | 20-25 | 5-10 |
| | 1-7 | extremely gravelly loam, very gravelly clay loam, very gravelly loam | GC | A-2 | 0-10 | 0-25 | 20-55 | 15-45 | 10-35 | 10-30 | 30-40 | 10-20 |
| | 7-11 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3832: | | | | | | | | | | | | |
| Downeyville----- | 0-5 | very cobbly fine sandy loam | SC-SM, SM | A-1, A-2 | 0-5 | 30-50 | 70-85 | 45-65 | 35-50 | 15-35 | 15-25 | NP-10 |
| | 5-13 | very gravelly loam, very gravelly fine sandy loam | GC | A-2, A-6 | 0-5 | 10-25 | 40-60 | 30-50 | 25-50 | 20-40 | 25-35 | 10-15 |
| | 13-17 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Tokoper--------- | 0-2 | very cobbly sandy loam | GM, SM | A-1, A-2 | 0-5 | 30-45 | 55-75 | 45-70 | 30-45 | 20-30 | 15-25 | NP-5 |
| | 2-5 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2, A-6 | 0-5 | 10-25 | 50-60 | 40-55 | 30-45 | 20-40 | 30-40 | 10-15 |
| | 5-9 | very gravelly loam, extremely gravelly loam, very gravelly sandy loam | GM, GP-GC, GC-GM, GP-GM | A-2 | 0-5 | 25-40 | 30-50 | 20-40 | 10-30 | 5-25 | 25-35 | 5-10 |
| | 9-15 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3841: | | | | | | | | | | | | |
| Veet---------- | 0-4 | very gravelly sandy loam | SM | A-1 | 0 | 0-10 | 60-75 | 30-50 | 20-45 | 15-25 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| 3842: | | | | | | | | | | | | |
| Veet---------- | 0-4 | gravelly sandy loam | SM | A-2 | 0 | 0-10 | 75-90 | 50-75 | 40-60 | 25-35 | 15-25 | NP-5 |
| | 4-12 | very gravelly sandy loam | GC-GM | A-2 | 0 | 10-25 | 40-60 | 35-55 | 25-50 | 15-25 | 20-25 | 5-10 |
| | 12-60 | stratified very gravelly loamy coarse sand to extremely gravelly sandy loam | GM, GP-GM | A-1 | 0 | 10-25 | 45-55 | 30-50 | 15-30 | 5-15 | --- | NP |
| Koyen---------- | 0-4 | sand | SM, SP-SM | A-2, A-1, A-3 | 0 | 0 | 90-100 | 75-100 | 40-60 | 5-15 | --- | NP |
| | 4-35 | stratified gravelly loamy sand to loam | SM | A-2, A-4 | 0 | 0 | 80-90 | 75-85 | 50-60 | 25-40 | 15-25 | NP-5 |
| | 35-60 | gravelly loamy sand, very gravelly loamy sand | GM, GP-GM, SP-SM, SM | A-1 | 0 | 0 | 50-60 | 45-55 | 25-35 | 5-15 | --- | NP |
| Geer---------- | 0-6 | fine sandy loam | ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 40-65 | 15-25 | NP-5 |
| | 6-60 | stratified fine sandy loam to silt loam | ML, SC-SM, CL-ML, SM | A-4 | 0 | 0 | 100 | 100 | 85-95 | 45-75 | 15-30 | NP-10 |
| 3850: | | | | | | | | | | | | |
| Garhill--------- | 0-1 | very stony loamy fine sand | SM | A-1, A-2 | 10-20 | 0-25 | 65-80 | 50-75 | 40-60 | 15-30 | --- | NP |
| | 1-6 | fine sandy loam | SM | A-2, A-4 | 0 | 0-5 | 80-90 | 75-90 | 55-80 | 20-40 | 20-25 | NP-5 |
| | 6-10 | gravelly loam, gravelly sandy loam | CL-ML, SM, ML, SC-SM | A-2, A-4 | 0 | 0-5 | 70-85 | 50-75 | 40-60 | 30-55 | 25-35 | 5-10 |
| | 10-21 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Tokoper--------- | 0-2 | very cobbly sandy loam | GM, SM | A-1, A-2 | 0-5 | 30-45 | 55-75 | 45-70 | 30-45 | 20-30 | 15-25 | NP-5 |
| | 2-5 | very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2, A-6 | 0-5 | 10-25 | 50-60 | 40-55 | 30-45 | 20-40 | 30-40 | 10-15 |
| | 5-9 | very gravelly loam, extremely gravelly loam, very gravelly sandy loam | GM, GP-GC, GC-GM, GP-GM | A-2 | 0-5 | 25-40 | 30-50 | 20-40 | 10-30 | 5-25 | 25-35 | 5-10 |
| | 9-15 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Argalt---------- | 0-1 | very stony fine sandy loam | GM, SM | A-2 | 5-25 | 20-30 | 50-70 | 45-65 | 40-60 | 25-35 | --- | NP |
| | 1-4 | very fine sandy loam | ML | A-4 | 0 | 0 | 90-100 | 90-100 | 80-90 | 50-60 | 20-25 | NP-5 |
| | 4-11 | loam, clay loam | CL | A-6 | 0 | 0-5 | 80-95 | 75-90 | 60-75 | 55-70 | 35-40 | 15-20 |
| | 11-15 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3860: | | | | | | | | | | | | |
| Hyzen---------- | 0-3 | extremely stony loam | GM | A-1, A-2 | 25-50 | 5-40 | 30-60 | 20-50 | 20-35 | 15-30 | 25-35 | NP-5 |
| | 3-12 | extremely stony loam | GM | A-1, A-2 | 25-40 | 5-25 | 30-50 | 20-45 | 10-35 | 10-30 | 25-35 | NP-5 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | very gravelly very fine sandy loam | GC-GM, GM | A-1, A-2 | 0-5 | 20-30 | 40-65 | 35-60 | 30-55 | 20-30 | 15-25 | NP-10 |
| | 5-14 | very cobbly loam, very gravelly loam | GC-GM, GM, SM, SC-SM | A-2, A-4 | 0-10 | 15-40 | 55-70 | 50-65 | 40-60 | 25-40 | 15-25 | NP-10 |
| | 14-18 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3861: | | | | | | | | | | | | |
| Hyzen---------- | 0-3 | extremely stony loam | GM | A-1, A-2 | 25-50 | 5-40 | 30-60 | 20-50 | 20-35 | 15-30 | 25-35 | NP-5 |
| | 3-12 | extremely stony loam | GM | A-1, A-2 | 25-40 | 5-25 | 30-50 | 20-45 | 10-35 | 10-30 | 25-35 | NP-5 |
| | 12-16 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Eganroc--------- | 0-10 | very stony loam | GC, GC-GM | A-2 | 15-25 | 5-20 | 25-55 | 20-50 | 15-35 | 10-30 | 25-35 | 5-15 |
| | 10-15 | extremely gravelly loam, very gravelly loam | GC-GM, GM | A-2, A-4 | 0 | 10-25 | 20-60 | 15-55 | 10-50 | 10-40 | 25-35 | 5-10 |
| | 15-30 | extremely gravelly loam, very gravelly loam | GC-GM, GM | A-2, A-4 | 0 | 10-25 | 20-60 | 15-55 | 10-50 | 10-40 | 25-35 | 5-10 |
| | 30-34 | unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3870: | | | | | | | | | | | | |
| Lien---------- | 0-2 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0 | 40-60 | 30-50 | 25-40 | 20-30 | 20-30 | NP-10 |
| | 2-8 | very gravelly fine sandy loam, very gravelly sandy loam, extremely gravelly loam | GM, GC-GM, GP-GM | A-1, A-2 | 0 | 0 | 20-50 | 15-40 | 10-35 | 5-25 | 15-30 | NP-10 |
| | 8-21 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 21-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rebel---------- | 0-16 | sandy loam | SM | A-2 | 0 | 0 | 95-100 | 90-100 | 50-65 | 20-35 | 20-25 | NP-5 |
| | 16-60 | fine sandy loam, sandy loam, loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 85-95 | 70-80 | 50-60 | 20-30 | NP-10 |
| 3880: | | | | | | | | | | | | |
| Hardhat--------- | 0-8 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-75 | 35-45 | 20-30 | 15-25 | NP-5 |
| | 8-17 | gravelly fine sandy loam | SM | A-2 | 0 | 0-10 | 75-85 | 70-75 | 50-60 | 20-30 | 15-25 | NP-5 |
| | 17-23 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 70-75 | 40-45 | 20-30 | 15-25 | NP-5 |
| | 23-60 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 70-75 | 40-45 | 20-30 | 15-25 | NP-5 |
| Candelaria------ | 0-7 | very gravelly sandy loam | GM | A-1 | 0-5 | 0-15 | 35-50 | 30-45 | 25-40 | 10-20 | 20-25 | NP-5 |
| | 7-16 | gravelly fine sandy loam | SM | A-2 | 0-5 | 0-10 | 70-80 | 65-75 | 50-60 | 20-35 | 20-25 | NP-5 |
| | 16-24 | very gravelly sandy loam, very gravelly loamy sand, extremely gravelly sandy loam | GM | A-1 | 0-5 | 0-10 | 25-45 | 20-45 | 15-25 | 10-20 | 15-25 | NP-5 |
| | 24-60 | stratified extremely gravelly sand to very gravelly loamy coarse sand | GP, GP-GM | A-1 | 0-5 | 0-10 | 25-45 | 20-35 | 10-20 | 0-10 | --- | NP |
| 3881: | | | | | | | | | | | | |
| Hardhat--------- | 0-8 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 60-85 | 50-75 | 35-45 | 20-30 | 15-25 | NP-5 |
| | 8-17 | gravelly fine sandy loam | SM | A-2 | 0 | 0-10 | 75-85 | 70-75 | 50-60 | 20-30 | 15-25 | NP-5 |
| | 17-23 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 70-75 | 40-45 | 20-30 | 15-25 | NP-5 |
| | 23-60 | gravelly sandy loam | SM | A-1, A-2 | 0 | 0-10 | 75-85 | 70-75 | 40-45 | 20-30 | 15-25 | NP-5 |
| Stargo---------- | 0-5 | loam | CL-ML, CL, SC, SC-SM | A-4, A-6 | 0 | 0 | 85-100 | 75-100 | 55-75 | 45-65 | 25-35 | 5-15 |
| | 5-15 | clay loam, sandy clay loam | CL | A-6, A-7 | 0 | 0 | 95-100 | 85-95 | 75-85 | 65-75 | 35-45 | 15-20 |
| | 15-60 | stratified very gravelly sand to sandy loam | SM | A-1, A-2 | 0 | 0-5 | 80-90 | 75-85 | 45-60 | 20-35 | --- | NP |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Yomba---------- | 0-4 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0 | 55-80 | 50-75 | 50-65 | 20-30 | 15-25 | NP-5 |
| | 4-12 | sandy loam, fine sandy loam, loam | SC-SM | A-4 | 0 | 0 | 80-100 | 75-100 | 70-85 | 35-50 | 20-30 | 5-10 |
| | 12-19 | gravelly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-55 | 20-30 | 10-20 | 15-25 | NP-5 |
| | 19-60 | extremely gravelly sand, very gravelly sand | GP | A-1 | 0 | 0-15 | 25-40 | 20-35 | 10-20 | 0-5 | --- | NP |
| 3890: | | | | | | | | | | | | |
| Jarab---------- | 0-9 | gravelly loam | GC-GM, GM | A-4 | 0 | 0-10 | 60-75 | 50-70 | 45-60 | 35-50 | 25-35 | 5-10 |
| | 9-17 | very gravelly clay loam, very gravelly loam | GC | A-2 | 0 | 0-10 | 40-60 | 30-50 | 25-45 | 20-35 | 30-40 | 10-20 |
| | 17-60 | cemented | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Drewing--------- | 0-3 | gravelly loam | GC-GM | A-4 | 0 | 0-5 | 60-70 | 50-60 | 45-55 | 35-45 | 20-25 | 5-10 |
| | 3-8 | very gravelly loam, very gravelly clay loam, very gravelly sandy clay loam | GC | A-2 | 0 | 0-5 | 40-60 | 30-50 | 25-45 | 20-35 | 30-40 | 10-20 |
| | 8-11 | extremely gravelly clay loam, very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam | GC | A-2 | 0 | 0-5 | 40-60 | 20-45 | 15-40 | 10-35 | 30-40 | 10-20 |
| | 11-18 | very gravelly sandy loam, extremely gravelly sandy loam | GM | A-1 | 0 | 0-5 | 35-45 | 20-35 | 15-25 | 10-15 | --- | NP |
| | 18-46 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 46-60 | gravel | GP | A-1 | 0 | 0-5 | 25-40 | 5-10 | 0-5 | 0-5 | --- | NP |
| Pharo---------- | 0-9 | gravelly loam | GC-GM, SC-SM | A-4 | 0-5 | 0-10 | 60-80 | 50-75 | 45-60 | 40-50 | 20-25 | 5-10 |
| | 9-60 | very gravelly loam, extremely gravelly loam | GC-GM | A-2 | 0-5 | 0-25 | 40-50 | 15-45 | 10-30 | 10-25 | 20-25 | 5-10 |
| 3900: | | | | | | | | | | | | |
| Playas---------- | 0-6 | silty clay | MH | A-7 | 0 | 0 | 100 | 100 | 100 | 90-100 | 50-80 | 20-40 |
| | 6-60 | silty clay loam, clay, silty clay | CH, MH, CL | A-7 | 0 | 0 | 100 | 100 | 100 | 90-100 | 45-75 | 20-40 |
| 3901: | | | | | | | | | | | | |
| Lava Flows------ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3910: | | | | | | | | | | | | |
| Yomba---------- | 0-4 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0 | 55-80 | 50-75 | 50-65 | 20-30 | 15-25 | NP-5 |
| | 4-12 | sandy loam, fine sandy loam, loam | SC-SM | A-4 | 0 | 0 | 80-100 | 75-100 | 70-85 | 35-50 | 20-30 | 5-10 |
| | 12-19 | gravelly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-55 | 20-30 | 10-20 | 15-25 | NP-5 |
| | 19-60 | extremely gravelly sand, very gravelly sand | GP | A-1 | 0 | 0-15 | 25-40 | 20-35 | 10-20 | 0-5 | --- | NP |
| Yomba---------- | 0-4 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0 | 55-80 | 50-75 | 50-65 | 20-30 | 15-25 | NP-5 |
| | 4-12 | sandy loam, fine sandy loam, loam | SC-SM | A-4 | 0 | 0 | 80-100 | 75-100 | 70-85 | 35-50 | 20-30 | 5-10 |
| | 12-19 | gravelly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-55 | 20-30 | 10-20 | 15-25 | NP-5 |
| | 19-60 | extremely gravelly sand, very gravelly sand | GP | A-1 | 0 | 0-15 | 25-40 | 20-35 | 10-20 | 0-5 | --- | NP |
| 3911: | | | | | | | | | | | | |
| Yomba---------- | 0-4 | gravelly fine sandy loam | GM, SM | A-2 | 0 | 0 | 55-80 | 50-75 | 50-65 | 20-30 | 15-25 | NP-5 |
| | 4-12 | sandy loam, fine sandy loam, loam | SC-SM | A-4 | 0 | 0 | 80-100 | 75-100 | 70-85 | 35-50 | 20-30 | 5-10 |
| | 12-19 | gravelly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam | GM | A-1 | 0 | 0-10 | 40-60 | 35-55 | 20-30 | 10-20 | 15-25 | NP-5 |
| | 19-60 | extremely gravelly sand, very gravelly sand | GP | A-1 | 0 | 0-15 | 25-40 | 20-35 | 10-20 | 0-5 | --- | NP |
| Playas---------- | 0-6 | silty clay loam | ML | A-6, A-7 | 0 | 0 | 100 | 100 | 100 | 90-100 | 35-50 | 10-20 |
| | 6-60 | silty clay loam, clay, silty clay | CL, CH, MH | A-7 | 0 | 0 | 100 | 100 | 100 | 90-100 | 45-75 | 20-40 |
| 3920: | | | | | | | | | | | | |
| Puett---------- | 0-5 | gravelly sandy loam | SC-SM | A-2 | 0 | 0-5 | 70-80 | 60-70 | 45-55 | 20-35 | 20-30 | 5-10 |
| | 5-11 | coarse sandy loam, gravelly loam, sandy loam | ML, GM, SM | A-1, A-2, A-4 | 0 | 0 | 55-95 | 50-90 | 30-80 | 15-55 | --- | NP |
| | 11-15 | weathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage Passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| Grassval-------- | 0-5 | gravelly loam | SC-SM | A-2, A-4 | 0 | 0-5 | 65-80 | 55-70 | 45-60 | 30-45 | 20-25 | 5-10 |
| | 5-13 | gravelly clay loam, gravelly loam | GC | A-6 | 0 | 0-10 | 65-75 | 55-70 | 50-65 | 35-50 | 30-40 | 15-20 |
| | 13-60 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rebel---------- | 0-16 | sandy loam | SM | A-2 | 0 | 0 | 95-100 | 90-100 | 50-65 | 20-35 | 20-25 | NP-5 |
| | 16-60 | fine sandy loam, sandy loam, loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 85-95 | 70-80 | 50-60 | 20-30 | NP-10 |
| 3940: | | | | | | | | | | | | |
| Peeko---------- | 0-8 | gravelly loam | GC, SC-SM, GC-GM, GM | A-4, A-6 | 0 | 0-5 | 60-80 | 50-75 | 45-65 | 35-50 | 20-35 | NP-15 |
| | 8-13 | gravelly silt loam | CL-ML, CL, GC, GC-GM | A-4, A-6 | 0 | 10-15 | 60-90 | 55-80 | 50-75 | 45-65 | 25-35 | 5-15 |
| | 13-60 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Clowfin--------- | 0-6 | gravelly loam | GM, SM | A-2, A-4 | 0 | 0-5 | 60-80 | 50-75 | 35-60 | 30-50 | 20-30 | NP-5 |
| | 6-46 | stratified very gravelly sandy loam to very gravelly loam | GM | A-2, A-1, A-4 | 0 | 10-25 | 50-65 | 40-60 | 30-50 | 20-40 | 20-30 | NP-5 |
| | 46-60 | extremely gravelly sand, very gravelly sandy loam | GP, GP-GM | A-1 | 0 | 5-30 | 25-40 | 20-35 | 10-20 | 0-10 | 0-14 | NP |
| 3941: | | | | | | | | | | | | |
| Peeko---------- | 0-8 | gravelly loam | GC-GM, GC, GM, SC-SM | A-4, A-6 | 0 | 0-5 | 60-80 | 50-75 | 45-65 | 35-50 | 20-35 | NP-15 |
| | 8-13 | gravelly silt loam | CL-ML, CL, GC, GC-GM | A-4, A-6 | 0 | 10-15 | 60-90 | 55-80 | 50-75 | 45-65 | 25-35 | 5-15 |
| | 13-60 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| 3960: | | | | | | | | | | | | |
| Hodedo---------- | 0-6 | stony loam | CL | A-6 | 1-5 | 15-25 | 85-95 | 80-90 | 65-75 | 50-60 | 25-35 | 10-15 |
| | 6-23 | cobbly clay loam, gravelly clay loam, cobbly clay | CL, SC | A-7 | 0 | 10-30 | 70-95 | 65-85 | 50-75 | 35-55 | 40-50 | 20-25 |
| | 23-32 | indurated | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 32-60 | extremely cobbly loamy coarse sand | GM, SM | A-1 | 0 | 55-65 | 50-60 | 45-55 | 30-40 | 10-15 | --- | NP |
| 3970: | | | | | | | | | | | | |
| Linoyer--------- | 0-3 | very fine sandy loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 55-70 | 15-25 | NP-5 |
| | 3-46 | very fine sandy loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 15-30 | NP-10 |
| | 46-60 | extremely gravelly loamy sand | GM, GP, GP-GM | A-1 | 0 | 0 | 20-40 | 10-25 | 5-20 | 0-15 | 15-20 | NP |
| Rebel---------- | 0-16 | sandy loam | SM | A-2 | 0 | 0 | 95-100 | 90-100 | 50-65 | 20-35 | 20-25 | NP-5 |
| | 16-60 | fine sandy loam, sandy loam, loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 85-95 | 70-80 | 50-60 | 20-30 | NP-10 |

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

| Map symbol and soil name | Depth | USDA texture | Classification: Unified | Classification: AASHTO | Fragments: >10 inches | Fragments: 3-10 inches | Percentage passing sieve number--: 4 | 10 | 40 | 200 | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | | | | Pct | Pct | | | | | Pct | |
| 3971: | | | | | | | | | | | | |
| Linoyer | 0-3 | very fine sandy loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 55-70 | 15-25 | NP-5 |
| | 3-46 | very fine sandy loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 15-30 | NP-10 |
| | 46-60 | extremely gravelly loamy sand | GM, GP-GM, GP | A-1 | 0 | 0 | 20-40 | 10-25 | 5-20 | 0-15 | 15-20 | NP |
| Easychair | 0-9 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 9-46 | silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 90-100 | 90-100 | 80-90 | 25-35 | 5-10 |
| | 46-60 | sandy loam | SM | A-4 | 0 | 0 | 100 | 90-100 | 60-70 | 35-50 | 15-25 | NP-5 |
| 3972: | | | | | | | | | | | | |
| Linoyer | 0-3 | very fine sandy loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 55-70 | 15-25 | NP-5 |
| | 3-46 | very fine sandy loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 15-30 | NP-10 |
| | 46-60 | extremely gravelly loamy sand | GM, GP-GM, GP | A-1 | 0 | 0 | 20-40 | 10-25 | 5-20 | 0-15 | 15-20 | NP |
| 3973: | | | | | | | | | | | | |
| Linoyer | 0-3 | very fine sandy loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 55-70 | 15-25 | NP-5 |
| | 3-46 | very fine sandy loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 15-30 | NP-10 |
| | 46-60 | extremely gravelly loamy sand | GM, GP, GP-GM | A-1 | 0 | 0 | 20-40 | 10-25 | 5-20 | 0-15 | 15-20 | NP |
| Clowfin | 0-6 | sandy loam | SM | A-2 | 0 | 0-5 | 80-95 | 75-90 | 60-80 | 25-35 | 20-30 | NP-5 |
| | 6-46 | stratified very gravelly sandy loam to very gravelly loam | GM | A-2, A-1, A-4 | 0 | 10-25 | 50-65 | 40-60 | 30-50 | 20-40 | 20-30 | NP-5 |
| | 46-60 | extremely gravelly sand, very gravelly sandy loam | GP, GP-GM | A-1 | 0 | 5-30 | 25-40 | 20-35 | 10-20 | 0-10 | 0-14 | NP |
| 3974: | | | | | | | | | | | | |
| Linoyer | 0-3 | very fine sandy loam | ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 55-70 | 15-25 | NP-5 |
| | 3-46 | very fine sandy loam, silt loam | CL-ML, ML | A-4 | 0 | 0 | 100 | 100 | 95-100 | 80-95 | 15-30 | NP-10 |
| | 46-60 | extremely gravelly loamy sand | GP, GM, GP-GM | A-1 | 0 | 0 | 20-40 | 10-25 | 5-20 | 0-15 | 15-20 | NP |
| Kunzler | 0-3 | loam | CL-ML, ML | A-4 | 0 | 0 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 3-40 | loam | CL-ML, ML | A-4 | 0 | 0-5 | 90-100 | 85-100 | 65-95 | 50-75 | 20-30 | NP-10 |
| | 40-60 | very gravelly loam | GC-GM, GM | A-1, A-2 | 0 | 0-10 | 35-65 | 30-50 | 20-45 | 15-35 | 20-30 | NP-10 |
| W: | | | | | | | | | | | | |
| Water | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3000: | | | | | | | | | | | | | | |
| Stumble | 0-3 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .20 | 5 | 2 | 134 |
| | 3-13 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .20 | | | |
| | 13-60 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3001: | | | | | | | | | | | | | | |
| Stumble | 0-3 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .20 | 5 | 2 | 134 |
| | 3-13 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .20 | | | |
| | 13-60 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Koyen | 0-4 | --- | --- | 0-6 | 1.45-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.5-0.7 | .15 | .17 | 4 | 1 | 220 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3020: | | | | | | | | | | | | | | |
| Easychair | 0-9 | --- | --- | 18-27 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 9-46 | --- | --- | 18-25 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 46-60 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .37 | .37 | | | |
| 3040: | | | | | | | | | | | | | | |
| Mosida | 0-11 | --- | --- | 12-18 | 1.35-1.55 | 0.6-2 | 0.13-0.19 | 0.0-2.9 | 1.0-3.0 | .37 | .37 | 5 | 5 | 56 |
| | 11-60 | --- | --- | 5-18 | 1.40-1.60 | 0.6-2 | 0.12-0.18 | 0.0-2.9 | 0.5-1.0 | .37 | .43 | | | |
| Rebel | 0-9 | --- | --- | 5-12 | 1.35-1.50 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.7-1.0 | .10 | .20 | 5 | 3 | 86 |
| | 9-60 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| Slaw | 0-9 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.5-1.0 | .37 | .37 | 5 | 4L | 86 |
| | 9-60 | --- | --- | 25-35 | 1.35-1.50 | 0.06-0.2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .37 | .37 | | | |
| 3041: | | | | | | | | | | | | | | |
| Mosida | 0-11 | --- | --- | 12-18 | 1.35-1.55 | 0.6-2 | 0.13-0.19 | 0.0-2.9 | 1.0-3.0 | .37 | .37 | 5 | 5 | 56 |
| | 11-60 | --- | --- | 5-18 | 1.40-1.60 | 0.6-2 | 0.12-0.18 | 0.0-2.9 | 0.5-1.0 | .37 | .43 | | | |
| 3050: | | | | | | | | | | | | | | |
| Mijay | 0-4 | --- | --- | 10-20 | 1.35-1.50 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .37 | 2 | 5 | 56 |
| | 4-11 | --- | --- | 27-40 | 1.40-1.55 | 0.06-0.2 | 0.14-0.16 | 6.0-8.9 | 0.0-0.5 | .17 | .32 | | | |
| | 11-33 | --- | --- | 27-35 | 1.30-1.45 | 0.2-0.6 | 0.06-0.08 | 3.0-5.9 | 0.0-0.5 | .10 | .49 | | | |
| | 33-58 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 58-60 | --- | --- | 3-7 | 1.50-1.70 | 2-6 | 0.02-0.04 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| Raster | 0-12 | --- | --- | 11-17 | 1.35-1.50 | 2-6 | 0.04-0.06 | 0.0-2.9 | 1.0-2.0 | .05 | .24 | 3 | 5 | 56 |
| | 12-27 | --- | --- | 9-16 | 1.35-1.50 | 2-6 | 0.03-0.05 | 0.0-2.9 | 1.0-2.0 | .05 | .32 | | | |
| | 27-60 | --- | --- | 2-9 | 1.45-1.65 | 20-101 | 0.03-0.05 | 0.0-2.9 | 0.5-1.0 | .02 | .28 | | | |
| 3060: | | | | | | | | | | | | | | |
| Morbench | 0-10 | --- | --- | 10-18 | 1.25-1.45 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .17 | .37 | 5 | 4 | 86 |
| | 10-29 | --- | --- | 11-18 | 1.30-1.50 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.5-1.0 | .10 | .37 | | | |
| | 29-50 | --- | --- | 4-10 | 1.40-1.60 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 50-60 | --- | --- | 10-16 | 1.40-1.60 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| 3080: | | | | | | | | | | | | | | |
| Breko | 0-5 | --- | --- | 18-25 | 1.40-1.60 | 0.6-2 | 0.10-0.12 | 0.0-2.9 | 1.0-2.0 | .10 | .43 | 5 | 7 | 38 |
| | 5-25 | --- | --- | 25-35 | 1.40-1.60 | 0.2-0.6 | 0.09-0.13 | 0.0-2.9 | 0.5-1.0 | .10 | .55 | | | |
| | 25-34 | --- | --- | 5-18 | 1.50-1.65 | 0.2-0.6 | 0.00-0.00 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 34-60 | --- | --- | 10-18 | 1.50-1.65 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.8-2.0 | .10 | .37 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| Handpah | 0-7 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 4 | 86 |
| | 7-14 | --- | --- | 25-35 | 1.20-1.40 | 0.06-0.2 | 0.15-0.17 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 14-18 | --- | --- | 4-10 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| | 18-24 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 24-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| 3090: | | | | | | | | | | | | | | |
| Univega | 0-5 | --- | --- | 3-8 | 1.55-1.60 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 1 | 2 | 134 |
| | 5-10 | --- | --- | 8-18 | 1.35-1.55 | 2-6 | 0.11-0.14 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 10-31 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 31-60 | --- | --- | 2-8 | 1.50-1.65 | 20-101 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3091: | | | | | | | | | | | | | | |
| Univega | 0-5 | --- | --- | 3-8 | 1.55-1.60 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 1 | 2 | 134 |
| | 5-10 | --- | --- | 8-18 | 1.35-1.55 | 2-6 | 0.11-0.14 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 10-31 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 31-60 | --- | --- | 2-8 | 1.50-1.65 | 20-101 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Clowfin | 0-6 | --- | --- | 8-18 | 1.40-1.60 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.5-1.0 | .24 | .32 | 4 | 3 | 86 |
| | 6-46 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .55 | | | |
| | 46-60 | --- | --- | 0-5 | 1.45-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| Molion | 0-3 | --- | --- | 10-16 | 1.35-1.45 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 1.0-2.0 | .37 | .43 | 2 | 4L | 86 |
| | 3-14 | --- | --- | 8-18 | 1.30-1.40 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | | | |
| | 14-26 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 26-60 | --- | --- | 8-12 | 1.50-1.55 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3101: | | | | | | | | | | | | | | |
| Gabbvally | 0-2 | --- | --- | 10-18 | 1.30-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 5 | 56 |
| | 2-11 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 0.5-2.0 | .15 | .32 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Vindicator | 0-3 | --- | --- | 10-18 | 1.45-1.65 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 3-13 | --- | --- | 20-30 | 1.30-1.50 | 0.6-2 | 0.09-0.14 | 3.0-5.9 | 0.0-0.5 | .05 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3102: | | | | | | | | | | | | | | |
| Gabbvally | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-11 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 0.0-0.8 | .15 | .32 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Stewvai | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.5-2.0 | .10 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Beelem | 0-2 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .28 | 1 | 5 | 56 |
| | 2-5 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 5-9 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3110: | | | | | | | | | | | | | | |
| Cath | 0-6 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.13 | 0.0-2.9 | 1.0-2.0 | .28 | .49 | 5 | 6 | 48 |
| | 6-20 | --- | --- | 25-35 | 1.30-1.50 | 0.06-0.2 | 0.13-0.15 | 3.0-5.9 | 0.5-2.0 | .32 | .43 | | | |
| | 20-28 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.06-0.08 | 3.0-5.9 | 0.5-1.0 | .05 | .37 | | | |
| | 28-60 | --- | --- | 5-10 | 1.50-1.70 | 0.2-0.6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.3 | .05 | .28 | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3111: | | | | | | | | | | | | | | |
| Cath | 0-6 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.13 | 0.0-2.9 | 1.0-2.0 | .28 | .49 | 5 | 6 | 48 |
| | 6-20 | --- | --- | 25-35 | 1.30-1.50 | 0.06-0.2 | 0.13-0.15 | 3.0-5.9 | 0.5-2.0 | .32 | .43 | | | |
| | 20-28 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.06-0.08 | 3.0-5.9 | 0.5-1.0 | .05 | .37 | | | |
| | 28-60 | --- | --- | 5-10 | 1.50-1.70 | 0.2-0.6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.3 | .05 | .28 | | | |
| 3112: | | | | | | | | | | | | | | |
| Cath | 0-6 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.13 | 0.0-2.9 | 1.0-2.0 | .28 | .49 | 5 | 6 | 48 |
| | 6-20 | --- | --- | 25-35 | 1.30-1.50 | 0.06-0.2 | 0.13-0.15 | 3.0-5.9 | 0.5-2.0 | .32 | .43 | | | |
| | 20-28 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.06-0.08 | 3.0-5.9 | 0.5-1.0 | .05 | .37 | | | |
| | 28-60 | --- | --- | 5-10 | 1.50-1.70 | 0.2-0.6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.3 | .05 | .28 | | | |
| Portmount | 0-3 | --- | --- | 5-15 | 1.45-1.65 | 2-6 | 0.08-0.09 | 0.0-2.9 | 0.7-2.0 | .20 | .37 | 5 | 4 | 86 |
| | 3-12 | --- | --- | 15-25 | 1.45-1.65 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 12-60 | --- | --- | 5-15 | 1.50-1.70 | 2-6 | 0.08-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .43 | | | |
| Abgese | 0-5 | --- | --- | 5-15 | 1.40-1.50 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.7-1.0 | .17 | .32 | 3 | 3 | 86 |
| | 5-20 | --- | --- | 18-30 | 1.35-1.45 | 0.6-2 | 0.12-0.15 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 20-35 | --- | --- | 5-10 | 1.50-1.60 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 35-60 | --- | --- | 0-5 | 1.55-1.65 | 6-20 | 0.06-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | | | |
| 3120: | | | | | | | | | | | | | | |
| Portmount | 0-3 | --- | --- | 5-15 | 1.45-1.65 | 2-6 | 0.08-0.09 | 0.0-2.9 | 0.7-2.0 | .20 | .37 | 5 | 4 | 86 |
| | 3-12 | --- | --- | 15-25 | 1.45-1.65 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 12-60 | --- | --- | 5-15 | 1.50-1.70 | 2-6 | 0.08-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .43 | | | |
| 3130: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3131: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |
| 3132: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 5 | 4 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3134: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Hollywell | 0-4 | --- | --- | 2-6 | 1.50-1.70 | 6-20 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | 4 | 3 | 86 |
| | 4-12 | --- | --- | 8-15 | 1.45-1.65 | 2-6 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 12-60 | --- | --- | 0-6 | 1.55-1.75 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | 5 | 3 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| 3137: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3138: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Stumble | 0-3 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .20 | 5 | 2 | 134 |
| | 3-13 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .20 | | | |
| | 13-60 | --- | --- | 3-10 | 1.40-1.60 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3139: | | | | | | | | | | | | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Izo | 0-3 | --- | --- | 0-5 | 1.50-1.70 | 20-101 | 0.02-0.04 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | 5 | 3 | 86 |
| | 3-60 | --- | --- | 0-5 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .10 | | | |
| 3140: | | | | | | | | | | | | | | |
| Haunchee | 0-5 | --- | --- | 10-20 | 1.05-1.25 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 3.0-5.0 | .15 | .49 | 1 | 6 | 48 |
| | 5-12 | --- | --- | 10-20 | 1.05-1.25 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | 1 | 5 | 56 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3150: | | | | | | | | | | | | | | |
| Nuyobe | 0-5 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.5-1.0 | .43 | .43 | 5 | 4L | 86 |
| | 5-60 | --- | --- | 18-27 | 1.30-1.50 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.0-1.0 | .43 | .43 | | | |
| Blueagle | 0-13 | --- | --- | 18-27 | 1.35-1.50 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .49 | .49 | 5 | 4L | 86 |
| | 13-60 | --- | --- | 25-35 | 1.25-1.45 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .37 | .37 | | | |
| Playas | 0-6 | --- | --- | 27-40 | 1.50-1.70 | 0.00-0.06 | 0.02-0.04 | 6.0-8.9 | 0.0-0.1 | .37 | .37 | - | 4L | 86 |
| | 6-60 | --- | --- | 35-70 | 1.60-1.80 | 0.00-0.06 | 0.02-0.04 | 6.0-8.9 | 0.0-0.1 | .37 | .37 | | | |
| 3160: | | | | | | | | | | | | | | |
| Cropper | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-4.0 | .15 | .55 | 1 | 7 | 38 |
| | 4-15 | --- | --- | 27-35 | 1.35-1.55 | 0.2-0.6 | 0.05-0.08 | 3.0-5.9 | 1.0-2.0 | .05 | .32 | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Clanalpine | 0-13 | --- | --- | 12-20 | 1.20-1.40 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 1.0-3.0 | .10 | .43 | 3 | 8 | 0 |
| | 13-39 | --- | --- | 25-35 | 1.30-1.50 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .17 | .43 | | | |
| | 39-43 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Bellenelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3161: | | | | | | | | | | | | | | |
| Cropper | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-4.0 | .15 | .55 | 1 | 7 | 38 |
| | 4-15 | --- | --- | 27-35 | 1.35-1.55 | 0.2-0.6 | 0.05-0.08 | 3.0-5.9 | 1.0-2.0 | .05 | .32 | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Segura | 0-3 | --- | --- | 20-27 | 1.35-1.55 | 0.6-2 | 0.10-0.12 | 3.0-5.9 | 1.0-3.0 | .15 | .37 | 1 | 7 | 38 |
| | 3-10 | --- | --- | 20-35 | 1.40-1.60 | 0.6-2 | 0.14-0.16 | 3.0-5.9 | 1.0-2.0 | .24 | .43 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Ravenswood | 0-8 | --- | --- | 14-22 | 1.15-1.35 | 0.6-2 | 0.08-0.11 | 3.0-5.9 | 1.0-3.0 | .15 | .49 | 2 | 7 | 38 |
| | 8-13 | --- | --- | 32-40 | 1.25-1.45 | 0.06-0.2 | 0.14-0.16 | 3.0-5.9 | 0.8-2.0 | .24 | .43 | | | |
| | 13-34 | --- | --- | 35-50 | 1.20-1.40 | 0.06-0.2 | 0.14-0.16 | 3.0-5.9 | 0.0-0.5 | .10 | .32 | | | |
| | 34-38 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3162: | | | | | | | | | | | | | | |
| Cropper | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-4.0 | .15 | .55 | 1 | 7 | 38 |
| | 4-15 | --- | --- | 27-35 | 1.35-1.55 | 0.2-0.6 | 0.05-0.08 | 3.0-5.9 | 1.0-2.0 | .05 | .32 | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Segura | 0-3 | --- | --- | 20-27 | 1.35-1.55 | 0.6-2 | 0.10-0.12 | 3.0-5.9 | 1.0-3.0 | .15 | .37 | 1 | 7 | 38 |
| | 3-10 | --- | --- | 20-35 | 1.40-1.60 | 0.6-2 | 0.14-0.16 | 3.0-5.9 | 1.0-2.0 | .24 | .43 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Clanalpine | 0-13 | --- | --- | 12-20 | 1.20-1.40 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-3.0 | .17 | .55 | 3 | 7 | 38 |
| | 13-39 | --- | --- | 25-35 | 1.30-1.50 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .17 | .43 | | | |
| | 39-45 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| 3170: | | | | | | | | | | | | | | |
| Hackwood | 0-8 | --- | --- | 17-27 | 1.10-1.25 | 0.6-2 | 0.12-0.15 | 3.0-5.9 | 2.0-4.0 | .10 | .55 | 5 | 7 | 38 |
| | 8-30 | --- | --- | 15-27 | 1.25-1.35 | 0.6-2 | 0.10-0.17 | 3.0-5.9 | 1.0-2.0 | .28 | .49 | | | |
| | 30-60 | --- | --- | 25-35 | 1.35-1.45 | 0.6-2 | 0.08-0.14 | 3.0-5.9 | 0.5-1.0 | .15 | .43 | | | |
| Winu | 0-5 | --- | --- | 15-25 | 1.00-1.10 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 4.0-5.0 | .20 | .37 | 2 | 7 | 38 |
| | 5-39 | --- | --- | 20-30 | 1.10-1.20 | 0.2-0.6 | 0.10-0.13 | 3.0-5.9 | 1.0-2.0 | .24 | .49 | | | |
| | 39-43 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3180: | | | | | | | | | | | | | | |
| Hymas | 0-2 | --- | --- | 10-20 | 1.15-1.30 | 0.6-2 | 0.08-0.14 | 0.0-2.9 | 1.0-3.0 | .17 | .43 | 1 | 6 | 48 |
| | 2-13 | --- | --- | 10-25 | 1.20-1.30 | 0.6-2 | 0.06-0.11 | 0.0-2.9 | 0.5-1.0 | .17 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | |
| Hopeka | 0-9 | --- | --- | 18-27 | 1.15-1.25 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 1.0-2.0 | .20 | .43 | 1 | 6 | 48 |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Solak | 0-14 | --- | --- | 12-18 | 1.35-1.40 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-1.0 | .05 | .37 | 1 | 6 | 48 |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3190: | | | | | | | | | | | | | | |
| Penoyer | 0-4 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.0-0.5 | .55 | .55 | 5 | 4L | 86 |
| | 4-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.0-0.5 | .55 | .55 | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3191: | | | | | | | | | | | | | | |
| Penoyer | 0-4 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.0-0.5 | .55 | .55 | 5 | 4L | 86 |
| | 4-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.0-0.5 | .55 | .55 | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Easychair | 0-9 | --- | --- | 18-27 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 9-46 | --- | --- | 18-25 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 46-60 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .37 | .37 | | | |
| 3200: | | | | | | | | | | | | | | |
| Ganaflan | 0-4 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 0.0-0.5 | .28 | .49 | 3 | 5 | 56 |
| | 4-37 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.10-0.17 | 0.0-2.9 | 0.0-0.5 | .37 | .43 | | | |
| | 37-50 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 50-60 | --- | --- | 2-10 | 1.40-1.60 | 20-101 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3210: | | | | | | | | | | | | | | |
| Kunzler | 0-3 | --- | --- | 10-18 | 1.15-1.35 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 4 | 4L | 86 |
| | 3-40 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 0.0-1.0 | .24 | .37 | | | |
| | 40-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | | | |
| Sycomat | 0-10 | --- | --- | 5-15 | 1.45-1.65 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .43 | .49 | 4 | 3 | 86 |
| | 10-40 | --- | --- | 5-18 | 1.40-1.60 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .28 | .43 | | | |
| | 40-60 | --- | --- | 2-5 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| 3211: | | | | | | | | | | | | | | |
| Kunzler | 0-3 | --- | --- | 10-18 | 1.15-1.35 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 4 | 4L | 86 |
| | 3-40 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 0.0-1.0 | .24 | .37 | | | |
| | 40-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | | | |
| Kunzler | 0-3 | --- | --- | 10-18 | 1.15-1.35 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 4 | 4L | 86 |
| | 3-40 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 0.0-1.0 | .24 | .37 | | | |
| | 40-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | | | |
| Sycomat | 0-10 | --- | --- | 5-15 | 1.45-1.65 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .43 | .49 | 4 | 3 | 86 |
| | 10-40 | --- | --- | 5-18 | 1.40-1.60 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .28 | .43 | | | |
| | 40-60 | --- | --- | 2-5 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| 3212: | | | | | | | | | | | | | | |
| Kunzler | 0-3 | --- | --- | 10-18 | 1.15-1.35 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 4 | 4L | 86 |
| | 3-40 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 0.0-1.0 | .24 | .37 | | | |
| | 40-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | | | |
| Kunzler | 0-3 | --- | --- | 10-18 | 1.15-1.35 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 4 | 4L | 86 |
| | 3-40 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 0.0-1.0 | .24 | .37 | | | |
| | 40-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3220: | | | | | | | | | | | | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.5-2.0 | .10 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Beelem | 0-2 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .28 | 1 | 4 | 86 |
| | 2-5 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 5-9 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3221: | | | | | | | | | | | | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-2.0 | .15 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-2.0 | .15 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3223: | | | | | | | | | | | | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-2.0 | .15 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3224: | | | | | | | | | | | | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-2.0 | .15 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Beelem | 0-2 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .28 | 1 | 4 | 86 |
| | 2-5 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 5-9 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Bellehelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3226: | | | | | | | | | | | | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-2.0 | .15 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Bellehelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3228: | | | | | | | | | | | | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Gabbvally | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-11 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 0.0-0.8 | .15 | .32 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Beelem | 0-2 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .28 | 1 | 5 | 56 |
| | 2-5 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 5-9 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3231: | | | | | | | | | | | | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |
| 3233: | | | | | | | | | | | | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-0.7 | .28 | .32 | 4 | 3 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3240: | | | | | | | | | | | | | | |
| Stargo | 0-5 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.10-0.18 | 3.0-5.9 | 0.5-1.0 | .32 | .37 | 3 | 4L | 86 |
| | 5-15 | --- | --- | 27-35 | 1.25-1.35 | 0.2-0.6 | 0.18-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .43 | | | |
| | 15-60 | --- | --- | 2-8 | 1.50-1.65 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.0-0.5 | .17 | .24 | | | |
| Veet | 0-8 | --- | --- | 14-20 | 1.35-1.50 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.8-2.0 | .43 | .49 | 3 | 4L | 86 |
| | 8-20 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 20-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| 3241: | | | | | | | | | | | | | | |
| Stargo | 0-5 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.10-0.18 | 3.0-5.9 | 0.5-1.0 | .32 | .37 | 3 | 4L | 86 |
| | 5-15 | --- | --- | 27-35 | 1.25-1.35 | 0.2-0.6 | 0.18-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .43 | | | |
| | 15-60 | --- | --- | 2-8 | 1.50-1.65 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.0-0.5 | .17 | .24 | | | |
| Stargo | 0-5 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.10-0.18 | 3.0-5.9 | 0.5-1.0 | .32 | .37 | 3 | 4L | 86 |
| | 5-15 | --- | --- | 27-35 | 1.25-1.35 | 0.2-0.6 | 0.18-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .43 | | | |
| | 15-60 | --- | --- | 2-8 | 1.50-1.65 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.0-0.5 | .17 | .24 | | | |
| 3250: | | | | | | | | | | | | | | |
| Wardenot | 0-6 | --- | --- | 5-18 | 1.40-1.55 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | 5 | 4 | 86 |
| | 6-60 | --- | --- | 5-10 | 1.35-1.55 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3260: | | | | | | | | | | | | | | |
| Springwarm | 0-1 | --- | --- | 13-20 | 1.10-1.20 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.5-1.0 | .28 | .32 | 2 | 3 | 86 |
| | 1-10 | --- | --- | 27-40 | 1.50-1.60 | 0.06-0.2 | 0.19-0.21 | 6.0-8.9 | 0.5-1.0 | .37 | .43 | | | |
| | 10-22 | --- | --- | 18-35 | 1.40-1.60 | 0.2-0.6 | 0.13-0.15 | 3.0-5.9 | 0.0-0.5 | .15 | .64 | | | |
| | 22-36 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Jotava | 0-8 | --- | --- | 27-40 | 1.35-1.55 | 0.06-0.2 | 0.17-0.20 | 6.0-8.9 | 0.6-0.9 | .32 | .37 | 5 | 4L | 86 |
| | 8-15 | --- | --- | 18-40 | 1.40-1.60 | 0.2-0.6 | 0.18-0.21 | 6.0-8.9 | 0.0-0.6 | .32 | .32 | | | |
| | 15-57 | --- | --- | 12-30 | 1.45-1.65 | 0.2-0.6 | 0.11-0.18 | 0.0-2.9 | 0.0-0.5 | .28 | .28 | | | |
| | 57-89 | --- | --- | 5-15 | 1.40-1.60 | 0.6-2 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .20 | | | |
| Delacit | 0-1 | --- | --- | 3-6 | 1.60-1.80 | 20-101 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | 2 | 2 | 134 |
| | 1-3 | --- | --- | 17-23 | 1.45-1.65 | 0.6-2 | 0.16-0.18 | 3.0-5.9 | 0.0-0.5 | .55 | .64 | | | |
| | 3-9 | --- | --- | 27-35 | 1.40-1.60 | 0.2-0.6 | 0.13-0.15 | 3.0-5.9 | 0.0-0.5 | .17 | .49 | | | |
| | 9-15 | --- | --- | 18-31 | 1.40-1.60 | 0.2-0.6 | 0.13-0.15 | 3.0-5.9 | 0.0-0.5 | .20 | .43 | | | |
| | 15-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| 3270: | | | | | | | | | | | | | | |
| Jotava | 0-8 | --- | --- | 27-40 | 1.35-1.55 | 0.06-0.2 | 0.17-0.20 | 6.0-8.9 | 0.6-0.9 | .32 | .37 | 5 | 4L | 86 |
| | 8-15 | --- | --- | 18-40 | 1.40-1.60 | 0.2-0.6 | 0.18-0.21 | 6.0-8.9 | 0.0-0.6 | .32 | .32 | | | |
| | 15-57 | --- | --- | 12-30 | 1.45-1.65 | 0.2-0.6 | 0.11-0.18 | 0.0-2.9 | 0.0-0.5 | .28 | .28 | | | |
| | 57-89 | --- | --- | 5-15 | 1.40-1.60 | 0.6-2 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .20 | | | |
| 3280: | | | | | | | | | | | | | | |
| Duffer | 0-4 | --- | --- | 15-20 | 1.35-1.50 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 1.0-3.0 | .37 | .37 | 5 | 4L | 86 |
| | 4-36 | --- | --- | 20-35 | 1.35-1.55 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 36-60 | --- | --- | 15-30 | 1.45-1.65 | 0.2-0.6 | 0.15-0.21 | 3.0-5.9 | 0.0-0.5 | .49 | .49 | | | |
| Duffer | 0-4 | --- | --- | 20-27 | 1.35-1.50 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.5-1.0 | .49 | .49 | 5 | 4L | 86 |
| | 4-60 | --- | --- | 20-35 | 1.35-1.55 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .49 | .49 | | | |
| Equis | 0-4 | --- | --- | 40-50 | 1.25-1.45 | 0.00-0.06 | 0.09-0.11 | 6.0-8.9 | 1.0-2.0 | .28 | .28 | 5 | 4 | 86 |
| | 4-29 | --- | --- | 40-50 | 1.25-1.45 | 0.00-0.06 | 0.14-0.17 | 6.0-8.9 | 0.5-1.0 | .28 | .28 | | | |
| | 29-52 | --- | --- | 30-45 | 1.35-1.55 | 0.00-0.06 | 0.14-0.17 | 6.0-8.9 | 0.0-0.5 | .24 | .24 | | | |
| | 52-60 | --- | --- | 20-45 | 1.45-1.65 | 0.06-0.2 | 0.15-0.21 | 6.0-8.9 | 0.0-0.5 | .32 | .32 | | | |
| 3300: | | | | | | | | | | | | | | |
| Palinor | 0-8 | --- | --- | 10-18 | 1.30-1.50 | 0.6-2 | 0.05-0.11 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | 1 | 6 | 48 |
| | 8-18 | --- | --- | 10-18 | 1.40-1.60 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .49 | | | |
| | 18-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 29-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3301: | | | | | | | | | | | | | | |
| Palinor | 0-3 | --- | --- | 10-18 | 1.30-1.50 | 0.6-2 | 0.05-0.11 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | 1 | 6 | 48 |
| | 3-18 | --- | --- | 10-18 | 1.40-1.60 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .49 | | | |
| | 18-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 29-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Nuc | 0-9 | --- | --- | 10-15 | 1.20-1.30 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 1.0-2.0 | .28 | .49 | 5 | 5 | 56 |
| | 9-36 | --- | --- | 15-30 | 1.25-1.30 | 0.06-0.2 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .05 | .43 | | | |
| | 36-60 | --- | --- | 10-15 | 1.55-1.65 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .05 | .37 | | | |
| 3302: | | | | | | | | | | | | | | |
| Palinor | 0-3 | --- | --- | 10-18 | 1.30-1.50 | 0.6-2 | 0.05-0.11 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | 1 | 6 | 48 |
| | 3-18 | --- | --- | 10-18 | 1.40-1.60 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .49 | | | |
| | 18-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 29-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Parisa | 0-4 | --- | --- | 8-18 | 1.50-1.65 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .20 | .37 | 2 | 5 | 56 |
| | 4-32 | --- | --- | 8-18 | 1.50-1.70 | 0.6-2 | 0.04-0.12 | 0.0-2.9 | 0.5-1.0 | .10 | .37 | | | |
| | 32-50 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 50-60 | --- | --- | 0-8 | 1.60-1.75 | 6-20 | 0.03-0.11 | 0.0-2.9 | 0.0-0.5 | .02 | .15 | | | |
| 3310: | | | | | | | | | | | | | | |
| Ursine | 0-3 | --- | --- | 10-25 | 1.35-1.50 | 2-6 | 0.07-0.10 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 6 | 48 |
| | 3-19 | --- | --- | 8-20 | 1.35-1.55 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.5-1.0 | .15 | .32 | | | |
| | 19-23 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3311: | | | | | | | | | | | | | | |
| Ursine | 0-3 | --- | --- | 10-25 | 1.35-1.50 | 2-6 | 0.07-0.10 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 6 | 48 |
| | 3-19 | --- | --- | 8-20 | 1.35-1.55 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.5-1.0 | .15 | .32 | | | |
| | 19-23 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Cliffdown | 0-3 | --- | --- | 10-15 | 1.40-1.55 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 3-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.06-0.07 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3330: | | | | | | | | | | | | | | |
| Handpah | 0-7 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 4 | 86 |
| | 7-14 | --- | --- | 25-35 | 1.20-1.40 | 0.06-0.2 | 0.15-0.17 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 14-18 | --- | --- | 4-10 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| | 18-24 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 24-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Delamar | 0-4 | --- | --- | 5-10 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-1.0 | .24 | .28 | 2 | 3 | 86 |
| | 4-12 | --- | --- | 18-30 | 1.40-1.60 | 0.2-0.6 | 0.16-0.19 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 12-20 | --- | --- | 27-35 | 1.40-1.60 | 0.2-0.6 | 0.16-0.19 | 3.0-5.9 | 0.0-0.5 | .24 | .37 | | | |
| | 20-25 | --- | --- | 2-10 | 1.45-1.65 | 2-6 | 0.04-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .17 | | | |
| | 25-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3333: | | | | | | | | | | | | | | |
| Handpah | 0-7 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 4 | 86 |
| | 7-14 | --- | --- | 25-35 | 1.20-1.40 | 0.06-0.2 | 0.15-0.17 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 14-18 | --- | --- | 4-10 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| | 18-24 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 24-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3334: | | | | | | | | | | | | | | |
| Handpah | 0-7 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 4 | 86 |
| | 7-14 | --- | --- | 25-35 | 1.20-1.40 | 0.06-0.2 | 0.15-0.17 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 14-18 | --- | --- | 4-10 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| | 18-24 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 24-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Palinor | 0-3 | --- | --- | 10-18 | 1.30-1.50 | 0.6-2 | 0.05-0.11 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | 1 | 6 | 48 |
| | 3-18 | --- | --- | 10-18 | 1.40-1.60 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .49 | | | |
| | 18-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 29-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Parisa | 0-4 | --- | --- | 8-18 | 1.50-1.65 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .20 | .37 | 2 | 5 | 56 |
| | 4-32 | --- | --- | 8-18 | 1.50-1.70 | 0.6-2 | 0.04-0.12 | 0.0-2.9 | 0.5-1.0 | .10 | .37 | | | |
| | 32-50 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 50-60 | --- | --- | 0-8 | 1.60-1.75 | 6-20 | 0.03-0.11 | 0.0-2.9 | 0.0-0.5 | .02 | .15 | | | |
| 3335: | | | | | | | | | | | | | | |
| Handpah | 0-7 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 4 | 86 |
| | 7-14 | --- | --- | 25-35 | 1.20-1.40 | 0.06-0.2 | 0.15-0.17 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 14-18 | --- | --- | 4-10 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| | 18-24 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 24-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3340: | | | | | | | | | | | | | | |
| Amelar | 0-6 | --- | --- | 18-27 | 1.05-1.25 | 0.6-2 | 0.13-0.17 | 3.0-5.9 | 2.0-4.0 | .24 | .49 | 5 | 7 | 38 |
| | 6-15 | --- | --- | 27-35 | 1.15-1.30 | 0.2-0.6 | 0.08-0.13 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | | | |
| | 15-60 | --- | --- | 18-27 | 1.20-1.40 | 0.6-2 | 0.08-0.14 | 0.0-2.9 | 0.5-1.0 | .15 | .55 | | | |
| Eoj | 0-12 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-3.0 | .10 | .37 | 3 | 7 | 38 |
| | 12-60 | --- | --- | 40-60 | 1.25-1.45 | 0.00-0.06 | 0.10-0.12 | 6.0-8.9 | 1.0-2.0 | .15 | .28 | | | |
| Hardol | 0-3 | --- | --- | 18-27 | 1.10-1.30 | 0.6-2 | 0.07-0.13 | 0.0-2.9 | 2.0-3.0 | .28 | .64 | 5 | 6 | 48 |
| | 3-33 | --- | --- | 20-27 | 1.10-1.30 | 0.6-2 | 0.03-0.08 | 0.0-2.9 | 1.0-3.0 | .10 | .64 | | | |
| | 33-60 | --- | --- | 20-27 | 1.10-1.30 | 0.6-2 | 0.03-0.07 | 0.0-2.9 | 1.0-2.0 | .10 | .43 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3380: | | | | | | | | | | | | | | |
| Roden | 0-3 | --- | --- | 30-40 | 1.30-1.50 | 0.2-0.6 | 0.07-0.13 | 3.0-5.9 | 1.0-2.0 | .15 | .43 | 2 | 6 | 48 |
| | 3-12 | --- | --- | 40-50 | 1.30-1.50 | 0.06-0.2 | 0.06-0.11 | 3.0-5.9 | 0.5-1.0 | .15 | .37 | | | |
| | 12-20 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Izar | 0-6 | --- | --- | 18-25 | 1.15-1.25 | 0.6-2 | 0.07-0.11 | 0.0-2.9 | 1.0-2.0 | .15 | .55 | 1 | 6 | 48 |
| | 6-13 | --- | --- | 18-25 | 1.20-1.30 | 0.6-2 | 0.05-0.11 | 0.0-2.9 | 0.0-1.0 | .10 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Roden | 0-3 | --- | --- | 18-27 | 1.30-1.50 | 0.2-0.6 | 0.07-0.12 | 0.0-2.9 | 1.0-2.0 | .10 | .32 | 2 | 6 | 48 |
| | 3-12 | --- | --- | 40-50 | 1.30-1.50 | 0.06-0.2 | 0.06-0.11 | 3.0-5.9 | 0.5-1.0 | .15 | .37 | | | |
| | 12-20 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| 3400: | | | | | | | | | | | | | | |
| Parisa | 0-4 | --- | --- | 8-18 | 1.50-1.65 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .20 | .37 | 2 | 5 | 56 |
| | 4-32 | --- | --- | 8-18 | 1.50-1.70 | 0.6-2 | 0.04-0.12 | 0.0-2.9 | 0.5-1.0 | .10 | .37 | | | |
| | 32-50 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 50-60 | --- | --- | 0-8 | 1.60-1.75 | 6-20 | 0.03-0.11 | 0.0-2.9 | 0.0-0.5 | .02 | .15 | | | |
| 3410: | | | | | | | | | | | | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.8-2.0 | .10 | .37 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3412: | | | | | | | | | | | | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.8-2.0 | .10 | .37 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.40-1.60 | 2-6 | 0.11-0.14 | 0.0-2.9 | 0.5-2.0 | .20 | .37 | 2 | 4 | 86 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3414: | | | | | | | | | | | | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Cath | 0-6 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.13 | 0.0-2.9 | 1.0-2.0 | .28 | .49 | 5 | 6 | 48 |
| | 6-20 | --- | --- | 25-35 | 1.30-1.50 | 0.06-0.2 | 0.13-0.15 | 3.0-5.9 | 0.5-2.0 | .32 | .43 | | | |
| | 20-28 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.06-0.08 | 3.0-5.9 | 0.5-1.0 | .05 | .37 | | | |
| | 28-60 | --- | --- | 5-10 | 1.50-1.70 | 0.2-0.6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.3 | .05 | .28 | | | |
| 3415: | | | | | | | | | | | | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Leo | 0-8 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | 5 | 4 | 86 |
| | 8-60 | --- | --- | 0-5 | 1.50-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| 3420: | | | | | | | | | | | | | | |
| Squawtip | 0-6 | --- | --- | 8-18 | 1.25-1.40 | 0.6-2 | 0.10-0.12 | 0.0-2.9 | 1.0-2.0 | .15 | .37 | 3 | 7 | 38 |
| | 6-21 | --- | --- | 18-25 | 1.30-1.45 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .37 | | | |
| | 21-25 | --- | --- | --- | --- | 0.06-0.2 | --- | --- | --- | --- | --- | | | |
| Bellehelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3430: | | | | | | | | | | | | | | |
| Bellehelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Bellehelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Erosion factors Kf | Erosion factors T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3434: | | | | | | | | | | | | | | |
| Bellehelen | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-9 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.12-0.14 | 3.0-5.9 | 0.5-2.0 | .10 | .32 | | | |
| | 9-13 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Cropper | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-4.0 | .15 | .55 | 1 | 7 | 38 |
| | 4-15 | --- | --- | 27-35 | 1.35-1.55 | 0.2-0.6 | 0.05-0.08 | 3.0-5.9 | 1.0-2.0 | .05 | .32 | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3440: | | | | | | | | | | | | | | |
| Layview | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 2-6 | 0.06-0.08 | 0.0-2.9 | 1.0-3.0 | .10 | .37 | 1 | 5 | 56 |
| | 4-14 | --- | --- | 22-35 | 1.30-1.50 | 0.2-0.6 | 0.08-0.10 | 0.0-2.9 | 1.0-2.0 | .10 | .32 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Foxvire | 0-13 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.12-0.14 | 0.0-2.9 | 1.0-2.0 | .24 | .49 | 5 | 6 | 48 |
| | 13-60 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.12-0.14 | 0.0-2.9 | 0.5-1.0 | .24 | .55 | | | |
| Suak | 0-6 | --- | --- | 10-20 | 1.20-1.40 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 2.0-5.0 | .05 | .43 | 2 | 7 | 38 |
| | 6-25 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.03-0.06 | 3.0-5.9 | 0.5-1.0 | .02 | .43 | | | |
| | 25-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3441: | | | | | | | | | | | | | | |
| Layview | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 2-6 | 0.06-0.08 | 0.0-2.9 | 1.0-3.0 | .10 | .37 | 1 | 5 | 56 |
| | 4-14 | --- | --- | 22-35 | 1.30-1.50 | 0.2-0.6 | 0.08-0.10 | 0.0-2.9 | 1.0-2.0 | .10 | .32 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Labshaft | 0-8 | --- | --- | 22-27 | 1.05-1.15 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 3.0-5.0 | .10 | .49 | 1 | 8 | 0 |
| | 8-14 | --- | --- | 25-35 | 1.30-1.40 | 0.2-0.6 | 0.07-0.09 | 0.0-2.9 | 1.0-2.0 | .10 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Winu | 0-5 | --- | --- | 15-25 | 1.00-1.10 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 4.0-5.0 | .20 | .37 | 2 | 7 | 38 |
| | 5-39 | --- | --- | 20-30 | 1.10-1.20 | 0.2-0.6 | 0.10-0.13 | 3.0-5.9 | 1.0-2.0 | .24 | .49 | | | |
| | 39-43 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3442: | | | | | | | | | | | | | | |
| Layview | 0-4 | --- | --- | 15-20 | 1.25-1.45 | 2-6 | 0.06-0.08 | 0.0-2.9 | 1.0-3.0 | .10 | .37 | 1 | 5 | 56 |
| | 4-14 | --- | --- | 22-35 | 1.30-1.50 | 0.2-0.6 | 0.08-0.10 | 0.0-2.9 | 1.0-2.0 | .10 | .32 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Suak | 0-6 | --- | --- | 10-20 | 1.20-1.40 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 2.0-5.0 | .05 | .43 | 2 | 7 | 38 |
| | 6-25 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.03-0.06 | 3.0-5.9 | 0.5-1.0 | .02 | .43 | | | |
| | 25-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Winu | 0-5 | --- | --- | 15-25 | 1.00-1.10 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 4.0-5.0 | .20 | .37 | 2 | 7 | 38 |
| | 5-39 | --- | --- | 20-30 | 1.10-1.20 | 0.2-0.6 | 0.10-0.13 | 3.0-5.9 | 1.0-2.0 | .24 | .49 | | | |
| | 39-43 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3450: | | | | | | | | | | | | | | |
| Grassval | 0-5 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 6 | 48 |
| | 5-13 | --- | --- | 25-35 | 1.30-1.50 | 0.2-0.6 | 0.13-0.15 | 3.0-5.9 | 0.5-0.8 | .20 | .37 | | | |
| | 13-60 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Allker | 0-9 | --- | --- | 5-10 | 1.35-1.50 | 2-6 | 0.10-0.12 | 0.0-2.9 | 1.0-2.0 | .17 | .28 | 3 | 4 | 86 |
| | 9-24 | --- | --- | 20-30 | 1.40-1.60 | 0.2-0.6 | 0.14-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 24-32 | --- | --- | 10-20 | 1.45-1.65 | 0.2-0.6 | 0.12-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 32-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3460: | | | | | | | | | | | | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Handpah | 0-3 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 1 | 4 | 86 |
| | 3-14 | --- | --- | 25-35 | 1.20-1.40 | 0.06-0.2 | 0.15-0.17 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 14-18 | --- | --- | 4-10 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| | 18-24 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 24-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| 3463: | | | | | | | | | | | | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3467: | | | | | | | | | | | | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3468: | | | | | | | | | | | | | | |
| Zadvar | 0-3 | --- | --- | 8-12 | 1.40-1.60 | 2-6 | 0.08-0.10 | 0.0-2.9 | 0.5-2.0 | .20 | .37 | 2 | 4 | 86 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Allker | 0-9 | --- | --- | 5-10 | 1.35-1.50 | 2-6 | 0.10-0.12 | 0.0-2.9 | 1.0-2.0 | .17 | .28 | 3 | 4 | 86 |
| | 9-24 | --- | --- | 20-30 | 1.40-1.60 | 0.2-0.6 | 0.14-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 24-32 | --- | --- | 10-20 | 1.45-1.65 | 0.2-0.6 | 0.12-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 32-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Peeko | 0-4 | --- | --- | 10-27 | 1.35-1.55 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 5 | 56 |
| | 4-13 | --- | --- | 18-27 | 1.35-1.55 | 0.6-2 | 0.13-0.18 | 3.0-5.9 | 0.5-1.0 | .28 | .55 | | | |
| | 13-60 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3470: | | | | | | | | | | | | | | |
| Cirac | 0-4 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .24 | 5 | 3 | 86 |
| | 4-60 | --- | --- | 8-18 | 1.45-1.65 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .28 | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 5 | 4 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Nyserva | 0-6 | --- | --- | 10-15 | 1.30-1.40 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 6-15 | --- | --- | 20-30 | 1.25-1.35 | 0.2-0.6 | 0.17-0.19 | 3.0-5.9 | 0.0-0.5 | .32 | .32 | | | |
| | 15-60 | --- | --- | 10-20 | 1.20-1.35 | 0.06-0.2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .37 | | | |
| 3471: | | | | | | | | | | | | | | |
| Cirac | 0-4 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .24 | 5 | 3 | 86 |
| | 4-60 | --- | --- | 8-18 | 1.45-1.65 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .28 | | | |
| Nyserva | 0-6 | --- | --- | 10-15 | 1.30-1.40 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 6-15 | --- | --- | 20-30 | 1.25-1.35 | 0.2-0.6 | 0.17-0.19 | 3.0-5.9 | 0.0-0.5 | .32 | .32 | | | |
| | 15-60 | --- | --- | 10-20 | 1.20-1.35 | 0.06-0.2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .37 | | | |
| 3473: | | | | | | | | | | | | | | |
| Cirac | 0-4 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .24 | 5 | 3 | 86 |
| | 4-60 | --- | --- | 8-18 | 1.45-1.65 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .28 | | | |
| Slaw | 0-9 | --- | --- | 15-25 | 1.20-1.35 | 0.2-0.6 | 0.19-0.21 | 0.0-2.9 | 0.5-1.0 | .55 | .55 | 5 | 4L | 86 |
| | 9-60 | --- | --- | 25-35 | 1.35-1.50 | 0.06-0.2 | 0.16-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .37 | | | |
| Nyserva | 0-6 | --- | --- | 10-15 | 1.30-1.40 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 6-15 | --- | --- | 20-30 | 1.25-1.35 | 0.2-0.6 | 0.17-0.19 | 3.0-5.9 | 0.0-0.5 | .32 | .32 | | | |
| | 15-60 | --- | --- | 10-20 | 1.20-1.35 | 0.06-0.2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .37 | | | |
| 3474: | | | | | | | | | | | | | | |
| Cirac | 0-4 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .24 | 5 | 3 | 86 |
| | 4-60 | --- | --- | 8-18 | 1.45-1.65 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .28 | | | |
| Nyserva | 0-6 | --- | --- | 10-15 | 1.30-1.40 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 6-15 | --- | --- | 20-30 | 1.25-1.35 | 0.2-0.6 | 0.17-0.19 | 3.0-5.9 | 0.0-0.5 | .32 | .32 | | | |
| | 15-60 | --- | --- | 10-20 | 1.20-1.35 | 0.06-0.2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .37 | | | |
| Kawich | 0-4 | --- | --- | 0-5 | 1.50-1.65 | 20-101 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .15 | .15 | 5 | 1 | 250 |
| | 4-60 | --- | --- | 0-5 | 1.50-1.65 | 20-101 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .15 | .15 | | | |
| 3475: | | | | | | | | | | | | | | |
| Cirac | 0-4 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .24 | 5 | 3 | 86 |
| | 4-60 | --- | --- | 8-18 | 1.45-1.65 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .24 | .28 | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 5 | 4 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Slaw | 0-9 | --- | --- | 15-25 | 1.20-1.35 | 0.2-0.6 | 0.19-0.21 | 0.0-2.9 | 0.5-1.0 | .55 | .55 | 5 | 4L | 86 |
| | 9-60 | --- | --- | 25-35 | 1.35-1.50 | 0.06-0.2 | 0.16-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .37 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3480: | | | | | | | | | | | | | | |
| Chuckridge | 0-3 | --- | --- | 10-18 | 1.35-1.50 | 2-6 | 0.11-0.15 | 0.0-2.9 | 0.8-2.0 | .10 | .43 | 1 | 7 | 38 |
| | 3-14 | --- | --- | 25-35 | 1.40-1.60 | 0.2-0.6 | 0.14-0.16 | 3.0-5.9 | 0.5-1.0 | .15 | .32 | | | |
| | 14-27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | |
| | 27-60 | --- | --- | 8-12 | 1.55-1.75 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| Zadvar | 0-3 | --- | --- | 8-12 | 1.40-1.60 | 2-6 | 0.08-0.10 | 0.0-2.9 | 0.5-2.0 | .20 | .37 | 2 | 4 | 86 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3481: | | | | | | | | | | | | | | |
| Chuckridge | 0-3 | --- | --- | 10-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.8-2.0 | .15 | .32 | 1 | 4 | 86 |
| | 3-14 | --- | --- | 25-35 | 1.40-1.60 | 0.2-0.6 | 0.14-0.16 | 3.0-5.9 | 0.5-1.0 | .15 | .32 | | | |
| | 14-27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | |
| | 27-60 | --- | --- | 8-12 | 1.55-1.75 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3491: | | | | | | | | | | | | | | |
| Slaw | 0-9 | --- | --- | 8-18 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.5-1.0 | .55 | .55 | 5 | 4L | 86 |
| | 9-60 | --- | --- | 25-35 | 1.35-1.50 | 0.06-0.2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .37 | .37 | | | |
| Easychair | 0-9 | --- | --- | 18-27 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 9-46 | --- | --- | 18-25 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 46-60 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .37 | .37 | | | |
| 3520: | | | | | | | | | | | | | | |
| Rustigate | 0-4 | --- | --- | 15-25 | 1.30-1.50 | 0.2-0.6 | 0.16-0.18 | 3.0-5.9 | 0.5-1.0 | .43 | .43 | 5 | 4L | 86 |
| | 4-25 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.16-0.18 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 25-60 | --- | --- | 8-20 | 1.35-1.55 | 0.6-2 | 0.12-0.16 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| 3521: | | | | | | | | | | | | | | |
| Rustigate | 0-4 | --- | --- | 15-25 | 1.30-1.50 | 0.2-0.6 | 0.16-0.18 | 3.0-5.9 | 0.5-1.0 | .43 | .43 | 5 | 4L | 86 |
| | 4-25 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.16-0.18 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 25-60 | --- | --- | 8-20 | 1.35-1.55 | 0.6-2 | 0.12-0.16 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| Nuyobe | 0-5 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.5-1.0 | .43 | .43 | 5 | 4L | 86 |
| | 5-60 | --- | --- | 18-27 | 1.30-1.50 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.0-1.0 | .43 | .43 | | | |
| 3522: | | | | | | | | | | | | | | |
| Rustigate | 0-4 | --- | --- | 15-25 | 1.30-1.50 | 0.2-0.6 | 0.16-0.18 | 3.0-5.9 | 0.5-1.0 | .43 | .43 | 5 | 4L | 86 |
| | 4-25 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.16-0.18 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 25-60 | --- | --- | 8-20 | 1.35-1.55 | 0.6-2 | 0.12-0.16 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| Nuyobe | 0-5 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.5-1.0 | .43 | .43 | 5 | 4L | 86 |
| | 5-60 | --- | --- | 18-27 | 1.30-1.50 | 0.2-0.6 | 0.19-0.21 | 3.0-5.9 | 0.0-1.0 | .43 | .43 | | | |
| Kawich | 0-4 | --- | --- | 0-5 | 1.50-1.65 | 20-101 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .15 | .15 | 5 | 1 | 250 |
| | 4-60 | --- | --- | 0-5 | 1.50-1.65 | 20-101 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .15 | .15 | | | |
| 3530: | | | | | | | | | | | | | | |
| Rebel | 0-16 | --- | --- | 10-15 | 1.35-1.50 | 2-6 | 0.09-0.12 | 0.0-2.9 | 0.5-0.8 | .24 | .24 | 5 | 3 | 86 |
| | 16-60 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.13-0.15 | 0.0-2.9 | 0.0-0.6 | .20 | .24 | | | |
| 3531: | | | | | | | | | | | | | | |
| Rebel | 0-9 | --- | --- | 5-12 | 1.35-1.50 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.7-1.0 | .10 | .20 | 5 | 3 | 86 |
| | 9-60 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| 3540: | | | | | | | | | | | | | | |
| Packer | 0-5 | --- | --- | 14-20 | 1.25-1.45 | 0.6-2 | 0.10-0.13 | 0.0-2.9 | 1.0-2.0 | .15 | .49 | 5 | 8 | 0 |
| | 5-13 | --- | --- | 20-30 | 1.35-1.50 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .43 | | | |
| | 13-60 | --- | --- | 10-16 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| Suak | 0-6 | --- | --- | 10-20 | 1.20-1.40 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 2.0-5.0 | .05 | .43 | 2 | 7 | 38 |
| | 6-25 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.03-0.06 | 3.0-5.9 | 0.5-1.0 | .02 | .43 | | | |
| | 25-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Foxvire | 0-13 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.12-0.14 | 0.0-2.9 | 1.0-2.0 | .24 | .49 | 5 | 6 | 48 |
| | 13-60 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.12-0.14 | 0.0-2.9 | 0.5-1.0 | .24 | .55 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3560: | | | | | | | | | | | | | | |
| Ubehebe | 0-1 | --- | --- | 8-12 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 1.0-2.0 | .10 | .28 | 2 | 5 | 56 |
| | 1-4 | --- | --- | 15-20 | 1.30-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.5-2.0 | .15 | .37 | | | |
| | 4-15 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.08-0.11 | 3.0-5.9 | 0.5-1.0 | .10 | .43 | | | |
| | 15-19 | --- | --- | --- | --- | 0.06-20 | --- | --- | --- | --- | --- | | | |
| Penelas | 0-2 | --- | --- | 10-20 | 1.15-1.30 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 1.0-2.0 | .15 | .37 | 1 | 7 | 38 |
| | 2-10 | --- | --- | 27-35 | 1.25-1.40 | 0.2-0.6 | 0.02-0.05 | 0.0-2.9 | 0.5-1.0 | .05 | .43 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Logring | 0-3 | --- | --- | 8-15 | 1.35-1.50 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 1.0-3.0 | .17 | .55 | 1 | 6 | 48 |
| | 3-12 | --- | --- | 10-18 | 1.30-1.45 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3570: | | | | | | | | | | | | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.06-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | 1 | 8 | 0 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.04-0.06 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | 1 | 8 | 0 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3571: | | | | | | | | | | | | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.06-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | 1 | 8 | 0 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.06-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | 1 | 8 | 0 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3572: | | | | | | | | | | | | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.06-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | 1 | 8 | 0 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.04-0.06 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | 1 | 8 | 0 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3580: | | | | | | | | | | | | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .15 | .55 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3581: | | | | | | | | | | | | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .15 | .55 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3590: | | | | | | | | | | | | | | |
| Allker | 0-9 | --- | --- | 5-10 | 1.35-1.50 | 2-6 | 0.10-0.12 | 0.0-2.9 | 1.0-2.0 | .17 | .28 | 3 | 4 | 86 |
| | 9-24 | --- | --- | 20-30 | 1.40-1.60 | 0.2-0.6 | 0.14-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 24-32 | --- | --- | 10-20 | 1.45-1.65 | 0.2-0.6 | 0.12-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 32-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Portmount | 0-3 | --- | --- | 5-15 | 1.45-1.65 | 2-6 | 0.08-0.09 | 0.0-2.9 | 0.7-2.0 | .20 | .37 | 5 | 4 | 86 |
| | 3-12 | --- | --- | 15-25 | 1.45-1.65 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 12-60 | --- | --- | 5-15 | 1.50-1.70 | 2-6 | 0.08-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .43 | | | |
| 3600: | | | | | | | | | | | | | | |
| Ardivey | 0-8 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 2 | 5 | 56 |
| | 8-17 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.08-0.13 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 17-60 | --- | --- | 6-12 | 1.45-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Hollywell | 0-4 | --- | --- | 3-10 | 1.40-1.55 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | 2 | 4 | 86 |
| | 4-12 | --- | --- | 8-15 | 1.45-1.65 | 2-6 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 12-60 | --- | --- | 3-10 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| Belted | 0-4 | --- | --- | 15-20 | 1.25-1.40 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .49 | 2 | 6 | 48 |
| | 4-11 | --- | --- | 18-30 | 1.30-1.50 | 0.2-0.6 | 0.14-0.16 | 3.0-5.9 | 0.0-0.5 | .28 | .49 | | | |
| | 11-17 | --- | --- | --- | --- | 0.06-0.2 | --- | --- | --- | --- | --- | | | |
| | 17-60 | --- | --- | 2-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .10 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3601: | | | | | | | | | | | | | | |
| Ardivey | 0-8 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 2 | 5 | 56 |
| | 8-17 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.08-0.13 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 17-60 | --- | --- | 6-12 | 1.45-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3610: | | | | | | | | | | | | | | |
| Tokoper | 0-2 | --- | --- | 8-15 | 1.40-1.60 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .24 | .32 | 1 | 5 | 56 |
| | 2-5 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.15-0.18 | 3.0-5.9 | 0.0-0.5 | .15 | .49 | | | |
| | 5-9 | --- | --- | 15-25 | 1.35-1.55 | 0.6-2 | 0.12-0.15 | 0.0-2.9 | 0.0-0.5 | .05 | .37 | | | |
| | 9-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Garhill | 0-1 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 1 | 5 | 56 |
| | 1-6 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .43 | | | |
| | 6-10 | --- | --- | 18-25 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 10-21 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 21-25 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3620: | | | | | | | | | | | | | | |
| Argalt | 0-1 | --- | --- | 5-10 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .43 | 1 | 5 | 56 |
| | 1-4 | --- | --- | 10-18 | 1.30-1.50 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.8-2.0 | .43 | .43 | | | |
| | 4-11 | --- | --- | 25-35 | 1.35-1.50 | 0.2-0.6 | 0.16-0.18 | 3.0-5.9 | 0.8-2.0 | .28 | .37 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.5-2.0 | .10 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Gabbvally | 0-2 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 1.0-2.0 | .15 | .43 | 1 | 7 | 38 |
| | 2-11 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 0.0-0.8 | .15 | .32 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3630: | | | | | | | | | | | | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .24 | 5 | 4 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3640: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Zadvar | 0-3 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.11 | 0.0-2.9 | 0.5-2.0 | .10 | .32 | 2 | 5 | 56 |
| | 3-10 | --- | --- | 27-35 | 1.20-1.40 | 0.2-0.6 | 0.15-0.20 | 3.0-5.9 | 0.0-0.5 | .20 | .32 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 14-60 | --- | --- | 5-10 | 1.55-1.75 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Vear | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3641: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .24 | 5 | 4 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3642: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3643: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Morbench | 0-4 | --- | --- | 10-18 | 1.25-1.45 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.8-2.0 | .17 | .37 | 5 | 4 | 86 |
| | 4-29 | --- | --- | 11-18 | 1.30-1.50 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.5-1.0 | .10 | .37 | | | |
| | 29-50 | --- | --- | 4-10 | 1.40-1.60 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 50-60 | --- | --- | 10-16 | 1.40-1.60 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| 3644: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Cliffdown | 0-3 | --- | --- | 10-15 | 1.40-1.55 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 3-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.06-0.07 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3645: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Clowfin | 0-6 | --- | --- | 8-18 | 1.40-1.60 | 0.6-2 | 0.10-0.14 | 0.0-2.9 | 0.5-1.0 | .28 | .55 | 4 | 5 | 56 |
| | 6-46 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .55 | | | |
| | 46-60 | --- | --- | 0-5 | 1.45-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| Peeko | 0-8 | --- | --- | 10-27 | 1.35-1.55 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 5 | 56 |
| | 8-13 | --- | --- | 18-27 | 1.35-1.55 | 0.6-2 | 0.13-0.18 | 3.0-5.9 | 0.5-1.0 | .28 | .55 | | | |
| | 13-60 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3647: | | | | | | | | | | | | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Spager | 0-2 | --- | --- | 15-27 | 1.15-1.25 | 2-6 | 0.11-0.13 | 0.0-2.9 | 1.0-2.0 | .10 | .37 | 1 | 5 | 56 |
| | 2-12 | --- | --- | 15-27 | 1.15-1.30 | 2-6 | 0.08-0.11 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-16 | --- | --- | --- | --- | 0.06-0.6 | --- | --- | --- | --- | --- | | | |
| 3651: | | | | | | | | | | | | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3655: | | | | | | | | | | | | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| Armespan | 0-1 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 1-7 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .37 | | | |
| | 7-18 | --- | --- | 12-18 | 1.35-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .24 | .37 | | | |
| | 18-28 | --- | --- | 10-18 | 1.45-1.65 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 28-60 | --- | --- | 5-10 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Erosion factors Kf | Erosion factors T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3660: | | | | | | | | | | | | | | |
| Titiack | 0-10 | --- | --- | 3-8 | 0.70-0.90 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 2 | 5 | 56 |
| | 10-15 | --- | --- | 3-8 | 0.70-0.90 | 0.2-0.6 | 0.08-0.10 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | | | |
| | 15-60 | --- | --- | --- | --- | 6-101 | --- | --- | --- | --- | --- | | | |
| Garhill | 0-1 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .28 | 1 | 4 | 86 |
| | 1-6 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .43 | | | |
| | 6-10 | --- | --- | 18-25 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 10-21 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 21-25 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3670: | | | | | | | | | | | | | | |
| Logring | 0-3 | --- | --- | 8-15 | 1.35-1.50 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 1.0-3.0 | .15 | .32 | 1 | 5 | 56 |
| | 3-12 | --- | --- | 10-18 | 1.30-1.45 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.04-0.06 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | 1 | 8 | 0 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3671: | | | | | | | | | | | | | | |
| Logring | 0-3 | --- | --- | 8-15 | 1.35-1.50 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 1.0-3.0 | .15 | .32 | 1 | 5 | 56 |
| | 3-12 | --- | --- | 10-18 | 1.30-1.45 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.06-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | 1 | 8 | 0 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3672: | | | | | | | | | | | | | | |
| Logring | 0-3 | --- | --- | 8-15 | 1.35-1.50 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 1.0-3.0 | .17 | .55 | 1 | 6 | 48 |
| | 3-12 | --- | --- | 10-18 | 1.30-1.45 | 0.6-2 | 0.08-0.10 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.04-0.06 | 0.0-2.9 | 0.5-1.0 | .15 | .43 | 1 | 8 | 0 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Eaglepass | 0-1 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.06-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | 1 | 8 | 0 |
| | 1-4 | --- | --- | 8-18 | 1.20-1.40 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 4-14 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3700: | | | | | | | | | | | | | | |
| Leo | 0-8 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | 5 | 4 | 86 |
| | 8-60 | --- | --- | 0-5 | 1.50-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| Delamar | 0-4 | --- | --- | 5-10 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-1.0 | .24 | .28 | 2 | 3 | 86 |
| | 4-12 | --- | --- | 18-30 | 1.40-1.60 | 0.2-0.6 | 0.16-0.19 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 12-20 | --- | --- | 27-35 | 1.40-1.60 | 0.2-0.6 | 0.16-0.19 | 3.0-5.9 | 0.0-0.5 | .24 | .37 | | | |
| | 20-25 | --- | --- | 2-10 | 1.45-1.65 | 2-6 | 0.04-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .17 | | | |
| | 25-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3702: | | | | | | | | | | | | | | |
| Leo | 0-8 | --- | --- | 5-15 | 1.45-1.65 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | 5 | 5 | 56 |
| | 8-60 | --- | --- | 0-5 | 1.50-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| Hollywell | 0-4 | --- | --- | 2-6 | 1.50-1.70 | 6-20 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | 4 | 3 | 86 |
| | 4-12 | --- | --- | 8-15 | 1.45-1.65 | 2-6 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 12-60 | --- | --- | 0-6 | 1.55-1.75 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| 3703: | | | | | | | | | | | | | | |
| Leo | 0-8 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | 5 | 4 | 86 |
| | 8-60 | --- | --- | 0-5 | 1.50-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3710: | | | | | | | | | | | | | | |
| Beelem | 0-2 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .20 | .32 | 1 | 4 | 86 |
| | 2-5 | --- | --- | 10-18 | 1.40-1.55 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 5-9 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea- bility (Ksat) | Available water capacity | Linear extensi- bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi- bility group | Wind erodi- bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3730: | | | | | | | | | | | | | | |
| Penelas | 0-2 | --- | --- | 10-20 | 1.15-1.30 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 1.0-2.0 | .15 | .37 | 1 | 6 | 48 |
| | 2-10 | --- | --- | 27-35 | 1.25-1.40 | 0.2-0.6 | 0.02-0.05 | 0.0-2.9 | 0.5-1.0 | .05 | .43 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .15 | .55 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3731: | | | | | | | | | | | | | | |
| Penelas | 0-2 | --- | --- | 10-20 | 1.15-1.30 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 1.0-2.0 | .15 | .37 | 1 | 6 | 48 |
| | 2-10 | --- | --- | 27-35 | 1.25-1.40 | 0.2-0.6 | 0.02-0.05 | 0.0-2.9 | 0.5-1.0 | .05 | .43 | | | |
| | 10-14 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Ubehebe | 0-1 | --- | --- | 8-12 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 1.0-2.0 | .10 | .28 | 2 | 5 | 56 |
| | 1-4 | --- | --- | 15-20 | 1.30-1.50 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.5-2.0 | .15 | .37 | | | |
| | 4-15 | --- | --- | 18-27 | 1.30-1.50 | 0.6-2 | 0.08-0.11 | 3.0-5.9 | 0.5-1.0 | .10 | .43 | | | |
| | 15-19 | --- | --- | --- | --- | 0.06-20 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3740: | | | | | | | | | | | | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | 5 | 3 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3741: | | | | | | | | | | | | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | 5 | 3 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-0.7 | .28 | .32 | 4 | 3 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3742: | | | | | | | | | | | | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | 5 | 3 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Stargo | 0-5 | --- | --- | 0-5 | 1.50-1.65 | 6-20 | 0.07-0.10 | 0.0-2.9 | 0.5-1.0 | .02 | .24 | 5 | 3 | 86 |
| | 5-15 | --- | --- | 27-35 | 1.25-1.35 | 0.2-0.6 | 0.18-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .43 | | | |
| | 15-60 | --- | --- | 2-8 | 1.50-1.65 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.0-0.5 | .17 | .24 | | | |
| 3744: | | | | | | | | | | | | | | |
| Keefa | 0-3 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 5 | 4 | 86 |
| | 3-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Garhill | 0-1 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .28 | 1 | 4 | 86 |
| | 1-6 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .43 | | | |
| | 6-10 | --- | --- | 18-25 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 10-21 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 21-25 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Belted | 0-4 | --- | --- | 14-20 | 1.35-1.50 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | 2 | 5 | 56 |
| | 4-11 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.16-0.19 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-17 | --- | --- | --- | --- | 0.06-0.2 | --- | --- | --- | --- | --- | | | |
| | 17-60 | --- | --- | 2-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .10 | | | |
| 3745: | | | | | | | | | | | | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 5 | 4 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Hollywell | 0-4 | --- | --- | 2-6 | 1.50-1.70 | 6-20 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | 4 | 3 | 86 |
| | 4-12 | --- | --- | 8-15 | 1.45-1.65 | 2-6 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 12-60 | --- | --- | 0-6 | 1.55-1.75 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3747: | | | | | | | | | | | | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | 5 | 3 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | 5 | 3 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| Linoyer | 0-3 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.5-1.0 | .43 | .43 | 4 | 3 | 86 |
| | 3-46 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.05-0.18 | 0.0-2.9 | 0.0-0.5 | .49 | .49 | | | |
| | 46-60 | --- | --- | 5-10 | 1.60-1.75 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| 3748: | | | | | | | | | | | | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | 5 | 3 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-0.7 | .28 | .32 | 4 | 3 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-40 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Keefa | 0-7 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | 5 | 3 | 86 |
| | 7-15 | --- | --- | 8-15 | 1.30-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 15-26 | --- | --- | 8-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | | | |
| | 26-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3750: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-0.7 | .28 | .32 | 4 | 3 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Cliffdown | 0-3 | --- | --- | 10-15 | 1.40-1.55 | 2-6 | 0.07-0.08 | 0.0-2.9 | 0.0-0.5 | .24 | .43 | 5 | 4 | 86 |
| | 3-60 | --- | --- | 5-15 | 1.40-1.60 | 2-6 | 0.06-0.07 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| 3751: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Unsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3752: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-0.7 | .28 | .32 | 4 | 3 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3754: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |
| 3755: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Watoopah | 0-2 | --- | --- | 3-8 | 1.50-1.65 | 6-20 | 0.04-0.08 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | 3 | 3 | 86 |
| | 2-12 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.09-0.14 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 12-18 | --- | --- | 0-5 | 1.50-1.65 | 2-6 | 0.03-0.12 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | | | |
| | 18-60 | --- | --- | 0-5 | 1.50-1.70 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Kf | T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3756: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.5-0.7 | .28 | .32 | 4 | 3 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .24 | 5 | 4 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| 3757: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Veet | 0-8 | --- | --- | 14-20 | 1.35-1.50 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.8-2.0 | .43 | .49 | 3 | 4L | 86 |
| | 8-20 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 20-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| Penoyer | 0-4 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.0-0.5 | .55 | .55 | 5 | 4L | 86 |
| | 4-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.19-0.21 | 0.0-2.9 | 0.0-0.5 | .55 | .55 | | | |
| 3758: | | | | | | | | | | | | | | |
| Koyen | 0-4 | --- | --- | 0-6 | 1.45-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.5-0.7 | .15 | .17 | 4 | 1 | 220 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| 3760: | | | | | | | | | | | | | | |
| Vindicator | 0-3 | --- | --- | 10-18 | 1.45-1.65 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 3-13 | --- | --- | 20-30 | 1.30-1.50 | 0.6-2 | 0.09-0.14 | 3.0-5.9 | 0.0-0.5 | .05 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| 3770: | | | | | | | | | | | | | | |
| Yody | 0-3 | --- | --- | 5-10 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.7-2.0 | .20 | .32 | 2 | 4 | 86 |
| | 3-16 | --- | --- | 20-35 | 1.30-1.50 | 0.6-2 | 0.15-0.18 | 3.0-5.9 | 0.5-1.0 | .20 | .32 | | | |
| | 16-38 | --- | --- | 5-10 | 1.55-1.70 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .20 | .49 | | | |
| | 38-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Cath | 0-6 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.13 | 0.0-2.9 | 1.0-2.0 | .28 | .49 | 5 | 6 | 48 |
| | 6-20 | --- | --- | 25-35 | 1.30-1.50 | 0.06-0.2 | 0.13-0.15 | 3.0-5.9 | 0.5-2.0 | .32 | .43 | | | |
| | 20-28 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.06-0.08 | 3.0-5.9 | 0.5-1.0 | .05 | .37 | | | |
| | 28-60 | --- | --- | 5-10 | 1.50-1.70 | 0.2-0.6 | 0.05-0.07 | 0.0-2.9 | 0.0-0.3 | .05 | .28 | | | |
| Abgese | 0-5 | --- | --- | 5-15 | 1.40-1.50 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.7-1.0 | .17 | .32 | 3 | 3 | 86 |
| | 5-20 | --- | --- | 18-30 | 1.35-1.45 | 0.6-2 | 0.12-0.15 | 3.0-5.9 | 0.0-0.5 | .15 | .28 | | | |
| | 20-35 | --- | --- | 5-10 | 1.50-1.60 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 35-60 | --- | --- | 0-5 | 1.55-1.65 | 6-20 | 0.06-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | | | |
| 3780: | | | | | | | | | | | | | | |
| Molion | 0-3 | --- | --- | 8-15 | 1.35-1.55 | 2-6 | 0.05-0.07 | 0.0-2.9 | 1.0-2.0 | .05 | .32 | 2 | 5 | 56 |
| | 3-14 | --- | --- | 8-18 | 1.30-1.40 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .05 | .24 | | | |
| | 14-26 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| | 26-60 | --- | --- | 8-12 | 1.50-1.55 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3800: | | | | | | | | | | | | | | |
| Lyda | 0-5 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 30-40 | 1.30-1.45 | 0.06-0.2 | 0.07-0.11 | 3.0-5.9 | 0.0-0.5 | .05 | .37 | | | |
| | 14-20 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 20-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Delamar | 0-4 | --- | --- | 5-10 | 1.40-1.60 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.5-1.0 | .17 | .32 | 2 | 4 | 86 |
| | 4-12 | --- | --- | 18-30 | 1.40-1.60 | 0.2-0.6 | 0.16-0.19 | 0.0-2.9 | 0.0-0.5 | .20 | .32 | | | |
| | 12-20 | --- | --- | 27-35 | 1.40-1.60 | 0.2-0.6 | 0.16-0.19 | 3.0-5.9 | 0.0-0.5 | .24 | .37 | | | |
| | 20-25 | --- | --- | 2-10 | 1.45-1.65 | 2-6 | 0.04-0.10 | 0.0-2.9 | 0.0-0.5 | .15 | .17 | | | |
| | 25-29 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .24 | 5 | 4 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| 3801: | | | | | | | | | | | | | | |
| Lyda | 0-5 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 30-40 | 1.30-1.45 | 0.06-0.2 | 0.07-0.11 | 3.0-5.9 | 0.0-0.5 | .05 | .37 | | | |
| | 14-20 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 20-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Belted | 0-4 | --- | --- | 15-20 | 1.25-1.40 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .49 | 2 | 6 | 48 |
| | 4-11 | --- | --- | 18-30 | 1.30-1.50 | 0.2-0.6 | 0.14-0.16 | 3.0-5.9 | 0.0-0.5 | .28 | .49 | | | |
| | 11-17 | --- | --- | --- | --- | 0.06-0.2 | --- | --- | --- | --- | --- | | | |
| | 17-60 | --- | --- | 2-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .10 | | | |
| Ardivey | 0-8 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 2 | 5 | 56 |
| | 8-17 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.08-0.13 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 17-60 | --- | --- | 6-12 | 1.45-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors Kw | Erosion factors Kf | Erosion factors T | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3803: | | | | | | | | | | | | | | |
| Lyda | 0-5 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 30-40 | 1.30-1.45 | 0.06-0.2 | 0.07-0.11 | 3.0-5.9 | 0.0-0.5 | .05 | .37 | | | |
| | 14-20 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 20-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Ardivey | 0-8 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 2 | 5 | 56 |
| | 8-17 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.08-0.13 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 17-60 | --- | --- | 6-12 | 1.45-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3804: | | | | | | | | | | | | | | |
| Lyda | 0-5 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 30-40 | 1.30-1.45 | 0.06-0.2 | 0.07-0.11 | 3.0-5.9 | 0.0-0.5 | .05 | .37 | | | |
| | 14-20 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 20-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Ardivey | 0-8 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.05-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 2 | 5 | 56 |
| | 8-17 | --- | --- | 18-35 | 1.30-1.45 | 0.2-0.6 | 0.08-0.13 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 17-60 | --- | --- | 6-12 | 1.45-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .24 | 5 | 4 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| 3805: | | | | | | | | | | | | | | |
| Lyda | 0-5 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .05 | .32 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 30-40 | 1.30-1.45 | 0.06-0.2 | 0.07-0.11 | 3.0-5.9 | 0.0-0.5 | .05 | .37 | | | |
| | 14-20 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 20-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Hardhat | 0-8 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.5-1.0 | .15 | .32 | 5 | 4 | 86 |
| | 8-17 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 17-23 | --- | --- | 8-18 | 1.40-1.55 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 23-60 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| 3810: | | | | | | | | | | | | | | |
| Belted | 0-4 | --- | --- | 15-20 | 1.25-1.40 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .49 | 2 | 6 | 48 |
| | 4-11 | --- | --- | 18-30 | 1.30-1.50 | 0.2-0.6 | 0.14-0.16 | 3.0-5.9 | 0.0-0.5 | .28 | .49 | | | |
| | 11-17 | --- | --- | --- | --- | 0.06-0.2 | --- | --- | --- | --- | --- | | | |
| | 17-60 | --- | --- | 2-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .10 | | | |
| Univega | 0-5 | --- | --- | 3-8 | 1.55-1.60 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .15 | .28 | 1 | 2 | 134 |
| | 5-10 | --- | --- | 8-18 | 1.35-1.55 | 2-6 | 0.11-0.14 | 0.0-2.9 | 0.0-0.5 | .20 | .24 | | | |
| | 10-31 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 31-60 | --- | --- | 2-8 | 1.50-1.65 | 20-101 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Koyen | 0-4 | --- | --- | 5-15 | 1.30-1.45 | 2-6 | 0.10-0.12 | 0.0-2.9 | 0.5-0.7 | .20 | .32 | 4 | 4 | 86 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| 3811: | | | | | | | | | | | | | | |
| Belted | 0-4 | --- | --- | 15-20 | 1.25-1.40 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .49 | 2 | 6 | 48 |
| | 4-11 | --- | --- | 18-30 | 1.30-1.50 | 0.2-0.6 | 0.14-0.16 | 3.0-5.9 | 0.0-0.5 | .28 | .49 | | | |
| | 11-17 | --- | --- | --- | --- | 0.06-0.2 | --- | --- | --- | --- | --- | | | |
| | 17-60 | --- | --- | 2-10 | 1.50-1.65 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .10 | | | |
| Onsel | 0-4 | --- | --- | 15-20 | 1.35-1.55 | 2-6 | 0.10-0.13 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | 3 | 4 | 86 |
| | 4-11 | --- | --- | 27-35 | 1.25-1.45 | 0.2-0.6 | 0.10-0.17 | 3.0-5.9 | 0.0-0.5 | .20 | .37 | | | |
| | 11-34 | --- | --- | 10-25 | 1.35-1.55 | 0.6-2 | 0.07-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 34-60 | --- | --- | 2-8 | 1.50-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .24 | | | |
| Lyx | 0-3 | --- | --- | 5-10 | 1.50-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .02 | .24 | 5 | 4 | 86 |
| | 3-11 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 11-60 | --- | --- | 5-10 | 1.50-1.70 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .02 | .05 | | | |
| 3830: | | | | | | | | | | | | | | |
| Downeyville | 0-5 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | 1 | 5 | 56 |
| | 5-13 | --- | --- | 18-27 | 1.25-1.45 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3931: | | | | | | | | | | | | | | |
| Downeyville | 0-5 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | 1 | 5 | 56 |
| | 5-13 | --- | --- | 18-27 | 1.25-1.45 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Stewval | 0-1 | --- | --- | 12-18 | 1.35-1.50 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-2.0 | .15 | .43 | 1 | 5 | 56 |
| | 1-7 | --- | --- | 24-30 | 1.30-1.45 | 0.6-2 | 0.04-0.09 | 0.0-2.9 | 0.5-1.0 | .10 | .43 | | | |
| | 7-11 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3832: | | | | | | | | | | | | | | |
| Downeyville | 0-5 | --- | --- | 12-18 | 1.35-1.55 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .05 | .28 | 1 | 5 | 56 |
| | 5-13 | --- | --- | 18-27 | 1.25-1.45 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .43 | | | |
| | 13-17 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Tokoper | 0-2 | --- | --- | 8-15 | 1.40-1.60 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .24 | .32 | 1 | 5 | 56 |
| | 2-5 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.15-0.18 | 3.0-5.9 | 0.0-0.5 | .15 | .49 | | | |
| | 5-9 | --- | --- | 15-25 | 1.35-1.55 | 0.6-2 | 0.12-0.15 | 0.0-2.9 | 0.0-0.5 | .05 | .37 | | | |
| | 9-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3841: | | | | | | | | | | | | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .32 | 3 | 5 | 56 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3842: | | | | | | | | | | | | | | |
| Veet | 0-4 | --- | --- | 8-15 | 1.35-1.50 | 2-6 | 0.08-0.11 | 0.0-2.9 | 0.8-2.0 | .17 | .32 | 3 | 4 | 86 |
| | 4-12 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | | | |
| | 12-60 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| Koyen | 0-4 | --- | --- | 0-6 | 1.45-1.65 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.5-0.7 | .15 | .17 | 4 | 1 | 220 |
| | 4-35 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .28 | .37 | | | |
| | 35-60 | --- | --- | 0-10 | 1.35-1.55 | 6-20 | 0.04-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .20 | | | |
| Geer | 0-6 | --- | --- | 5-18 | 1.30-1.50 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 5 | 3 | 86 |
| | 6-60 | --- | --- | 5-18 | 1.40-1.55 | 0.6-2 | 0.16-0.18 | 0.0-2.9 | 0.5-2.0 | .43 | .43 | | | |
| 3850: | | | | | | | | | | | | | | |
| Garhill | 0-1 | --- | --- | 5-10 | 1.40-1.60 | 6-20 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .28 | 1 | 4 | 86 |
| | 1-6 | --- | --- | 8-15 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .32 | .43 | | | |
| | 6-10 | --- | --- | 18-25 | 1.30-1.50 | 0.6-2 | 0.13-0.15 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 10-21 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 21-25 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Tokoper | 0-2 | --- | --- | 8-15 | 1.40-1.60 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .24 | .32 | 1 | 5 | 56 |
| | 2-5 | --- | --- | 20-30 | 1.30-1.50 | 0.2-0.6 | 0.15-0.18 | 3.0-5.9 | 0.0-0.5 | .15 | .49 | | | |
| | 5-9 | --- | --- | 15-25 | 1.35-1.55 | 0.6-2 | 0.12-0.15 | 0.0-2.9 | 0.0-0.5 | .05 | .37 | | | |
| | 9-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Argalt | 0-1 | --- | --- | 5-10 | 1.35-1.55 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 0.8-2.0 | .10 | .43 | 1 | 5 | 56 |
| | 1-4 | --- | --- | 10-18 | 1.30-1.50 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.8-2.0 | .43 | .43 | | | |
| | 4-11 | --- | --- | 25-35 | 1.35-1.50 | 0.2-0.6 | 0.16-0.18 | 3.0-5.9 | 0.8-2.0 | .28 | .37 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 15-19 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3860: | | | | | | | | | | | | | | |
| Hyzen | 0-3 | --- | --- | 8-18 | 1.20-1.40 | 0.6-2 | 0.06-0.09 | 0.0-2.9 | 2.0-5.0 | .17 | .43 | 1 | 8 | 0 |
| | 3-12 | --- | --- | 10-18 | 1.20-1.40 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 2.0-4.0 | .15 | .43 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Kyler | 0-5 | --- | --- | 7-18 | 1.30-1.45 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .15 | .55 | 1 | 5 | 56 |
| | 5-14 | --- | --- | 7-18 | 1.25-1.45 | 0.6-2 | 0.08-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 14-18 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3861: | | | | | | | | | | | | | | |
| Hyzen | 0-3 | --- | --- | 8-18 | 1.20-1.40 | 0.6-2 | 0.06-0.09 | 0.0-2.9 | 2.0-5.0 | .17 | .43 | 1 | 8 | 0 |
| | 3-12 | --- | --- | 10-18 | 1.20-1.40 | 0.6-2 | 0.05-0.08 | 0.0-2.9 | 2.0-4.0 | .15 | .43 | | | |
| | 12-16 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Eganroc | 0-10 | --- | --- | 18-27 | 1.25-1.45 | 0.6-2 | 0.06-0.08 | 0.0-2.9 | 2.0-4.0 | .15 | .43 | 2 | 8 | 0 |
| | 10-15 | --- | --- | 18-27 | 1.40-1.60 | 0.6-2 | 0.03-0.06 | 0.0-2.9 | 0.8-2.0 | .10 | .43 | | | |
| | 15-30 | --- | --- | 18-27 | 1.40-1.60 | 0.6-2 | 0.03-0.06 | 0.0-2.9 | 0.8-2.0 | .10 | .43 | | | |
| | 30-34 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rock Outcrop | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3870: | | | | | | | | | | | | | | |
| Lien | 0-2 | --- | --- | 10-24 | 1.40-1.60 | 2-6 | 0.07-0.10 | 0.0-2.9 | 1.0-2.0 | .15 | .49 | 1 | 7 | 38 |
| | 2-8 | --- | --- | 8-24 | 1.40-1.60 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.8-1.0 | .15 | .43 | | | |
| | 8-21 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 21-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Rebel | 0-16 | --- | --- | 10-15 | 1.35-1.50 | 2-6 | 0.09-0.12 | 0.0-2.9 | 0.5-0.8 | .24 | .24 | 5 | 3 | 86 |
| | 16-60 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.13-0.15 | 0.0-2.9 | 0.0-0.6 | .20 | .24 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3880: | | | | | | | | | | | | | | |
| Hardhat | 0-8 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.5-1.0 | .15 | .32 | 5 | 4 | 86 |
| | 8-17 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 17-23 | --- | --- | 8-18 | 1.40-1.55 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 23-60 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| Candelaria | 0-7 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .37 | 5 | 5 | 56 |
| | 7-16 | --- | --- | 10-15 | 1.50-1.70 | 0.6-2 | 0.09-0.12 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 16-24 | --- | --- | 8-15 | 1.40-1.60 | 0.6-2 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 24-60 | --- | --- | 4-10 | 1.45-1.65 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .17 | | | |
| 3881: | | | | | | | | | | | | | | |
| Hardhat | 0-8 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.5-1.0 | .15 | .32 | 5 | 4 | 86 |
| | 8-17 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 17-23 | --- | --- | 8-18 | 1.40-1.55 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 23-60 | --- | --- | 8-18 | 1.40-1.55 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| Stargo | 0-5 | --- | --- | 20-27 | 1.30-1.50 | 0.6-2 | 0.10-0.18 | 3.0-5.9 | 0.5-1.0 | .32 | .37 | 3 | 4L | 86 |
| | 5-15 | --- | --- | 27-35 | 1.25-1.35 | 0.2-0.6 | 0.18-0.20 | 3.0-5.9 | 0.0-0.5 | .37 | .43 | | | |
| | 15-60 | --- | --- | 2-8 | 1.50-1.65 | 2-6 | 0.07-0.10 | 0.0-2.9 | 0.0-0.5 | .17 | .24 | | | |
| Yomba | 0-4 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.08-0.12 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | 3 | 4 | 86 |
| | 4-12 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.18 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 12-19 | --- | --- | 5-15 | 1.35-1.55 | 2-6 | 0.05-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| | 19-60 | --- | --- | 0-5 | 1.55-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| 3890: | | | | | | | | | | | | | | |
| Jarab | 0-9 | --- | --- | 15-25 | 1.35-1.55 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 2.0-4.0 | .24 | .49 | 1 | 5 | 56 |
| | 9-17 | --- | --- | 20-35 | 1.35-1.55 | 0.2-0.6 | 0.09-0.12 | 0.0-2.9 | 1.0-2.0 | .10 | .32 | | | |
| | 17-60 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Drewing | 0-3 | --- | --- | 10-15 | 1.35-1.55 | 0.6-2 | 0.09-0.11 | 0.0-2.9 | 1.0-2.0 | .28 | .43 | 1 | 5 | 56 |
| | 3-8 | --- | --- | 25-35 | 1.30-1.50 | 0.2-0.6 | 0.10-0.12 | 3.0-5.9 | 1.0-2.0 | .15 | .49 | | | |
| | 8-11 | --- | --- | 25-35 | 1.30-1.50 | 0.2-0.6 | 0.10-0.12 | 3.0-5.9 | 1.0-2.0 | .15 | .49 | | | |
| | 11-18 | --- | --- | 5-10 | 1.45-1.65 | 0.6-2 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .10 | .32 | | | |
| | 18-46 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 46-60 | --- | --- | 0-5 | 1.65-1.80 | 20-101 | 0.02-0.04 | 0.0-2.9 | 0.0-0.5 | .02 | .10 | | | |
| Pharo | 0-9 | --- | --- | 10-18 | 1.30-1.40 | 2-6 | 0.11-0.15 | 0.0-2.9 | 2.0-3.0 | .20 | .37 | 3 | 5 | 56 |
| | 9-60 | --- | --- | 10-18 | 1.50-1.60 | 2-6 | 0.09-0.13 | 0.0-2.9 | 0.5-1.0 | .05 | .32 | | | |
| 3900: | | | | | | | | | | | | | | |
| Playas | 0-6 | --- | --- | 40-70 | 1.50-1.70 | 0.00-0.06 | 0.02-0.04 | 6.0-8.9 | 0.0-0.1 | .37 | .37 | - | 4 | 86 |
| | 6-60 | --- | --- | 35-70 | 1.60-1.80 | 0.00-0.06 | 0.02-0.04 | 6.0-8.9 | 0.0-0.1 | .37 | .37 | | | |
| 3901: | | | | | | | | | | | | | | |
| Lava Flows | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| 3910: | | | | | | | | | | | | | | |
| Yomba | 0-4 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.08-0.12 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | 3 | 4 | 86 |
| | 4-12 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.18 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 12-19 | --- | --- | 5-15 | 1.35-1.55 | 2-6 | 0.05-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| | 19-60 | --- | --- | 0-5 | 1.55-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| Yomba | 0-4 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.08-0.12 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | 3 | 4 | 86 |
| | 4-12 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.18 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 12-19 | --- | --- | 5-15 | 1.35-1.55 | 2-6 | 0.05-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| | 19-60 | --- | --- | 0-5 | 1.55-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| 3911: | | | | | | | | | | | | | | |
| Yomba | 0-4 | --- | --- | 5-15 | 1.35-1.50 | 2-6 | 0.08-0.12 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | 3 | 4 | 86 |
| | 4-12 | --- | --- | 10-20 | 1.30-1.45 | 0.6-2 | 0.10-0.18 | 0.0-2.9 | 0.0-0.5 | .20 | .37 | | | |
| | 12-19 | --- | --- | 5-15 | 1.35-1.55 | 2-6 | 0.05-0.09 | 0.0-2.9 | 0.0-0.5 | .05 | .20 | | | |
| | 19-60 | --- | --- | 0-5 | 1.55-1.70 | 6-20 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .02 | .20 | | | |
| Playas | 0-6 | --- | --- | 27-40 | 1.50-1.70 | 0.00-0.06 | 0.02-0.04 | 6.0-8.9 | 0.0-0.1 | .37 | .37 | - | 4L | 86 |
| | 6-60 | --- | --- | 35-70 | 1.60-1.80 | 0.00-0.06 | 0.02-0.04 | 6.0-8.9 | 0.0-0.1 | .37 | .37 | | | |
| 3920: | | | | | | | | | | | | | | |
| Puett | 0-5 | --- | --- | 10-20 | 1.30-1.50 | 2-6 | 0.09-0.11 | 0.0-2.9 | 0.5-1.0 | .15 | .28 | 2 | 4 | 86 |
| | 5-11 | --- | --- | 5-10 | 1.35-1.55 | 2-6 | 0.08-0.15 | 0.0-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 11-15 | --- | --- | --- | --- | 0.00-0.06 | --- | --- | --- | --- | --- | | | |
| Grassval | 0-5 | --- | --- | 10-18 | 1.35-1.50 | 0.6-2 | 0.11-0.13 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 6 | 48 |
| | 5-13 | --- | --- | 25-35 | 1.30-1.50 | 0.2-0.6 | 0.13-0.15 | 3.0-5.9 | 0.5-0.8 | .20 | .37 | | | |
| | 13-60 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Rebel | 0-16 | --- | --- | 10-15 | 1.35-1.50 | 2-6 | 0.09-0.12 | 0.0-2.9 | 0.5-0.8 | .24 | .24 | 5 | 3 | 86 |
| | 16-60 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.13-0.15 | 0.0-2.9 | 0.0-0.6 | .20 | .24 | | | |

TABLE 13.--PHYSICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permea-bility (Ksat) | Available water capacity | Linear extensi-bility | Organic matter | Erosion factors Kw | Kf | T | Wind erodi-bility group | Wind erodi-bility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | In | Pct | Pct | Pct | g/cc | In/hr | In/in | Pct | Pct | | | | | |
| 3940: | | | | | | | | | | | | | | |
| Peeko | 0-8 | --- | --- | 10-27 | 1.35-1.55 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 5 | 56 |
| | 8-13 | --- | --- | 18-27 | 1.35-1.55 | 0.6-2 | 0.13-0.18 | 3.0-5.9 | 0.5-1.0 | .28 | .55 | | | |
| | 13-60 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| Clowfin | 0-6 | --- | --- | 8-18 | 1.40-1.60 | 0.6-2 | 0.10-0.14 | 0.0-2.9 | 0.5-1.0 | .28 | .55 | 4 | 5 | 56 |
| | 6-46 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .55 | | | |
| | 46-60 | --- | --- | 0-5 | 1.45-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3941: | | | | | | | | | | | | | | |
| Peeko | 0-8 | --- | --- | 10-27 | 1.35-1.55 | 0.6-2 | 0.10-0.15 | 0.0-2.9 | 1.0-2.0 | .24 | .43 | 1 | 5 | 56 |
| | 8-13 | --- | --- | 18-27 | 1.35-1.55 | 0.6-2 | 0.13-0.18 | 3.0-5.9 | 0.5-1.0 | .28 | .55 | | | |
| | 13-60 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| 3960: | | | | | | | | | | | | | | |
| Hodedo | 0-6 | --- | --- | 20-27 | 1.10-1.25 | 0.6-2 | 0.13-0.15 | 3.0-5.9 | 2.0-4.0 | .24 | .37 | 2 | 7 | 38 |
| | 6-23 | --- | --- | 35-45 | 1.30-1.45 | 0.06-0.2 | 0.14-0.16 | 6.0-8.9 | 0.5-2.0 | .15 | .28 | | | |
| | 23-32 | --- | --- | --- | --- | 0.00-0.00 | --- | --- | --- | --- | --- | | | |
| | 32-60 | --- | --- | 5-10 | 1.55-1.75 | 20-101 | 0.03-0.05 | 0.0-2.9 | 0.0-0.5 | .05 | .15 | | | |
| 3970: | | | | | | | | | | | | | | |
| Linoyer | 0-3 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.5-1.0 | .43 | .43 | 4 | 3 | 86 |
| | 3-46 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.05-0.18 | 0.0-2.9 | 0.0-0.5 | .49 | .49 | | | |
| | 46-60 | --- | --- | 5-10 | 1.60-1.75 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| Rebel | 0-16 | --- | --- | 10-15 | 1.35-1.50 | 2-6 | 0.09-0.12 | 0.0-2.9 | 0.5-0.8 | .24 | .24 | 5 | 3 | 86 |
| | 16-60 | --- | --- | 10-18 | 1.35-1.55 | 2-6 | 0.13-0.15 | 0.0-2.9 | 0.0-0.6 | .20 | .24 | | | |
| 3971: | | | | | | | | | | | | | | |
| Linoyer | 0-3 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.5-1.0 | .43 | .43 | 4 | 3 | 86 |
| | 3-46 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.05-0.18 | 0.0-2.9 | 0.0-0.5 | .49 | .49 | | | |
| | 46-60 | --- | --- | 5-10 | 1.60-1.75 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| Easychair | 0-9 | --- | --- | 18-27 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | 5 | 4L | 86 |
| | 9-46 | --- | --- | 18-25 | 1.15-1.35 | 0.6-2 | 0.19-0.21 | 3.0-5.9 | 0.0-0.5 | .43 | .43 | | | |
| | 46-60 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.11-0.13 | 0.0-2.9 | 0.0-0.5 | .37 | .37 | | | |
| 3972: | | | | | | | | | | | | | | |
| Linoyer | 0-3 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.5-1.0 | .43 | .43 | 4 | 3 | 86 |
| | 3-46 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.05-0.18 | 0.0-2.9 | 0.0-0.5 | .49 | .49 | | | |
| | 46-60 | --- | --- | 5-10 | 1.60-1.75 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| 3973: | | | | | | | | | | | | | | |
| Linoyer | 0-3 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.5-1.0 | .43 | .43 | 4 | 3 | 86 |
| | 3-46 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.05-0.18 | 0.0-2.9 | 0.0-0.5 | .49 | .49 | | | |
| | 46-60 | --- | --- | 5-10 | 1.60-1.75 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| Clowfin | 0-6 | --- | --- | 8-18 | 1.40-1.60 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.5-1.0 | .24 | .32 | 4 | 3 | 86 |
| | 6-46 | --- | --- | 8-18 | 1.40-1.60 | 2-6 | 0.06-0.08 | 0.0-2.9 | 0.0-0.5 | .17 | .55 | | | |
| | 46-60 | --- | --- | 0-5 | 1.45-1.65 | 6-20 | 0.03-0.06 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| 3974: | | | | | | | | | | | | | | |
| Linoyer | 0-3 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.15-0.17 | 0.0-2.9 | 0.5-1.0 | .43 | .43 | 4 | 3 | 86 |
| | 3-46 | --- | --- | 12-18 | 1.55-1.70 | 0.6-2 | 0.05-0.18 | 0.0-2.9 | 0.0-0.5 | .49 | .49 | | | |
| | 46-60 | --- | --- | 5-10 | 1.60-1.75 | 6-20 | 0.04-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .15 | | | |
| Kunzler | 0-3 | --- | --- | 10-18 | 1.15-1.35 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 1.0-2.0 | .37 | .37 | 4 | 4L | 86 |
| | 3-40 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.14-0.16 | 0.0-2.9 | 0.0-1.0 | .24 | .37 | | | |
| | 40-60 | --- | --- | 10-18 | 1.35-1.55 | 0.6-2 | 0.12-0.14 | 0.0-2.9 | 0.0-0.5 | .15 | .32 | | | |
| W: | | | | | | | | | | | | | | |
| Water | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3000: | | | | | | | | |
| Stumble--------- | 0-3 | 3-10 | 2.0-8.0 | 6.6-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-13 | 3-10 | 2.0-8.0 | 7.9-8.4 | 1-5 | 0 | 0.0-4.0 | 0-5 |
| | 13-60 | 3-10 | 2.0-8.0 | 7.9-9.0 | 1-5 | 0 | 0.0-8.0 | 0-5 |
| 3001: | | | | | | | | |
| Stumble--------- | 0-3 | 3-10 | 2.0-8.0 | 6.6-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-13 | 3-10 | 2.0-8.0 | 7.9-8.4 | 1-5 | 0 | 0.0-4.0 | 0-5 |
| | 13-60 | 3-10 | 2.0-8.0 | 7.9-9.0 | 1-5 | 0 | 0.0-8.0 | 0-5 |
| Koyen---------- | 0-4 | 0-6 | 0.0-4.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| Izo---------- | 0-3 | 0-5 | 0.0-8.0 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 3-60 | 0-5 | 0.0-8.0 | 7.9-9.0 | 5-20 | 0 | 0.0-4.0 | 0-5 |
| 3020: | | | | | | | | |
| Easychair------- | 0-9 | 18-27 | 13-20 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 9-46 | 18-25 | 13-18 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 46-60 | 8-18 | 6.0-13 | 7.9-9.0 | 1-13 | 0 | 0.0-2.0 | 0-5 |
| 3040: | | | | | | | | |
| Mosida---------- | 0-11 | 12-18 | 6.0-15 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 11-60 | 5-18 | 4.0-12 | 7.4-8.4 | 0-1 | 0 | 0.0-2.0 | 0 |
| Rebel---------- | 0-9 | 5-12 | 4.0-8.0 | 7.4-7.8 | 0-1 | 0 | 0.0-4.0 | 0-5 |
| | 9-60 | 10-18 | 6.0-12 | 7.4-9.0 | 1-10 | 0 | 0.0-4.0 | 0-12 |
| Slaw---------- | 0-9 | 27-35 | 19-26 | 8.5-9.0 | 1-4 | 0 | 8.0-16.0 | 13-30 |
| | 9-60 | 25-35 | 16-25 | 8.5-9.6 | 1-4 | 0-5 | 16.0-32.0 | 31-99 |
| 3041: | | | | | | | | |
| Mosida---------- | 0-11 | 12-18 | 6.0-15 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 11-60 | 5-18 | 4.0-12 | 7.4-8.4 | 0-1 | 0 | 0.0-2.0 | 0 |
| 3050: | | | | | | | | |
| Mijay---------- | 0-4 | 10-20 | 10-20 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 4-11 | 27-40 | 20-35 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-33 | 27-35 | 20-30 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 33-58 | --- | --- | --- | --- | --- | --- | --- |
| | 58-60 | 3-7 | 1.0-5.0 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-5 |
| Raster---------- | 0-12 | 11-17 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 12-27 | 9-16 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 27-60 | 2-9 | 1.0-10 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| 3060: | | | | | | | | |
| Morbench-------- | 0-10 | 10-18 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-1 |
| | 10-29 | 11-18 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-1 |
| | 29-50 | 4-10 | 3.0-7.0 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-1 |
| | 50-60 | 10-16 | 7.0-12 | 7.9-9.0 | 5-20 | 0 | 0.0-2.0 | 0-1 |
| 3080: | | | | | | | | |
| Breko---------- | 0-5 | 18-25 | 14-19 | 7.9-9.0 | 0-2 | 0 | 0.0-2.0 | 0-2 |
| | 5-25 | 25-35 | 15-30 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 25-34 | 5-18 | 3.0-12 | 7.9-9.0 | 10-30 | 0 | 0.0-2.0 | 0-2 |
| | 34-60 | 10-18 | 6.0-12 | 7.9-9.0 | 10-30 | 0 | 0.0-2.0 | 0-2 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Handpah--------- | 0-7 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 7-14 | 25-35 | 15-30 | 7.4-9.0 | 0-10 | 0 | 0.0-2.0 | 0-2 |
| | 14-18 | 4-10 | 2.0-5.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-2 |
| | 18-24 | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | --- | --- | --- | --- | --- | --- | --- |
| 3090: | | | | | | | | |
| Univega--------- | 0-5 | 3-8 | 2.0-6.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-10 | 8-18 | 6.0-15 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| | 10-31 | --- | --- | --- | --- | --- | --- | --- |
| | 31-60 | 2-8 | 2.0-5.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| 3091: | | | | | | | | |
| Univega--------- | 0-5 | 3-8 | 2.0-6.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-10 | 8-18 | 6.0-15 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| | 10-31 | --- | --- | --- | --- | --- | --- | --- |
| | 31-60 | 2-8 | 2.0-5.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| Clowfin--------- | 0-6 | 8-18 | 5.0-13 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 12-30 |
| | 6-46 | 8-18 | 5.0-11 | 7.9-9.0 | 3-5 | 0 | 0.0-2.0 | 12-30 |
| | 46-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 3-5 | 0 | 2.0-4.0 | 5-12 |
| Molion---------- | 0-3 | 10-16 | 8.0-14 | 7.9-8.4 | 1-3 | 0 | 0.0-2.0 | 0 |
| | 3-14 | 8-18 | 5.0-13 | 7.9-9.0 | 2-3 | 0 | 0.0-2.0 | 0 |
| | 14-26 | --- | --- | --- | --- | --- | --- | --- |
| | 26-60 | 8-12 | 5.0-7.0 | 8.5-9.0 | 2-3 | 0 | 0.0-2.0 | 1-12 |
| 3101: | | | | | | | | |
| Gabbvally------- | 0-2 | 10-18 | 5.0-20 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 2-11 | 18-27 | 10-20 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| Vindicator------ | 0-3 | 10-18 | 5.0-15 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 3-13 | 20-30 | 10-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3102: | | | | | | | | |
| Gabbvally------- | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 2-11 | 18-27 | 15-25 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | 10-18 | 5.0-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 2-5 | 10-18 | 10-25 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 5-9 | --- | --- | --- | --- | --- | --- | --- |
| 3110: | | | | | | | | |
| Cath---------- | 0-6 | 10-20 | 10-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 6-20 | 25-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-28 | 20-30 | 15-25 | 7.9-9.0 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| | 28-60 | 5-10 | 5.0-15 | 8.5-9.0 | 10-20 | 0 | 0.0-4.0 | 1-5 |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3111: | | | | | | | | |
| Cath---------- | 0-6 | 10-20 | 10-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 6-20 | 25-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-28 | 20-30 | 15-25 | 7.9-9.0 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| | 28-60 | 5-10 | 5.0-15 | 8.5-9.0 | 10-20 | 0 | 0.0-4.0 | 1-5 |
| 3112: | | | | | | | | |
| Cath---------- | 0-6 | 10-20 | 10-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 6-20 | 25-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-28 | 20-30 | 15-25 | 7.9-9.0 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| | 28-60 | 5-10 | 5.0-15 | 8.5-9.0 | 10-20 | 0 | 0.0-4.0 | 1-5 |
| Portmount------- | 0-3 | 5-15 | 5.0-15 | 7.9-8.4 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 3-12 | 15-25 | 10-20 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-15 | 3.0-10 | 7.9-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| Abgese---------- | 0-5 | 5-15 | 3.0-10 | 7.9-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 5-20 | 18-30 | 15-25 | 7.9-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-35 | 5-10 | 3.0-8.0 | 7.9-8.4 | 5-15 | 0 | 0.0-2.0 | 1-5 |
| | 35-60 | 0-5 | 1.0-3.0 | 8.5-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| 3120: | | | | | | | | |
| Portmount------- | 0-3 | 5-15 | 5.0-15 | 7.9-8.4 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 3-12 | 15-25 | 10-20 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-15 | 3.0-10 | 7.9-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| 3130: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| 3131: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| 3132: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| 3134: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Hollywell------- | 0-4 | 2-6 | 1.0-5.0 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 4-12 | 8-15 | 3.0-12 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 12-60 | 0-6 | 1.0-5.0 | 7.9-9.0 | 1-5 | 0 | 0.0-4.0 | 1-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| 3137: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| 3138: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Stumble--------- | 0-3 | 3-10 | 2.0-8.0 | 6.6-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-13 | 3-10 | 2.0-8.0 | 7.9-8.4 | 1-5 | 0 | 0.0-4.0 | 0-5 |
| | 13-60 | 3-10 | 2.0-8.0 | 7.9-9.0 | 1-5 | 0 | 0.0-8.0 | 0-5 |
| 3139: | | | | | | | | |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Izo---------- | 0-3 | 0-5 | 0.0-8.0 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 3-60 | 0-5 | 0.0-8.0 | 7.9-9.0 | 5-20 | 0 | 0.0-4.0 | 0-5 |
| 3140: | | | | | | | | |
| Haunchee-------- | 0-5 | 10-20 | 10-25 | 7.4-8.4 | 10-20 | 0 | 0 | 0 |
| | 5-12 | 10-20 | 5.0-20 | 7.9-9.0 | 30-50 | 0 | 0.0-2.0 | 1-13 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3150: | | | | | | | | |
| Nuyobe---------- | 0-5 | 18-27 | 10-20 | 8.5-9.6 | 10-30 | 0-4 | 16.0-32.0 | 13-30 |
| | 5-60 | 18-27 | 10-20 | 7.9-9.0 | 10-30 | 0-4 | 2.0-4.0 | 1-30 |
| Blueagle-------- | 0-13 | 18-27 | 13-18 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 30-90 |
| | 13-60 | 25-35 | 18-25 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 30-90 |
| Playas---------- | 0-6 | 27-40 | 24-35 | 8.5-9.6 | 1-5 | 1-5 | 16.0-32.0 | 46-90 |
| | 6-60 | 35-70 | 30-60 | 8.5-9.6 | 1-10 | 1-10 | 16.0-32.0 | 46-90 |
| 3160: | | | | | | | | |
| Cropper--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-15 | 27-35 | 20-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Clanalpine------ | 0-13 | 12-20 | 10-20 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 13-39 | 25-35 | 15-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 39-43 | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3161: | | | | | | | | |
| Cropper--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-15 | 27-35 | 20-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Segura---------- | 0-3 | 20-27 | 15-20 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 3-10 | 20-35 | 15-25 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| Ravenswood------ | 0-8 | 14-22 | 12-21 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 8-13 | 32-40 | 23-32 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 13-34 | 35-50 | 25-36 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 34-38 | --- | --- | --- | --- | --- | --- | --- |
| 3162: | | | | | | | | |
| Cropper--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-15 | 27-35 | 20-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Segura---------- | 0-3 | 20-27 | 15-20 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 3-10 | 20-35 | 15-25 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| Clanalpine------ | 0-13 | 12-20 | 10-20 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 13-39 | 25-35 | 15-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 39-45 | --- | --- | --- | --- | --- | --- | --- |
| 3170: | | | | | | | | |
| Hackwood-------- | 0-8 | 17-27 | 17-35 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 8-30 | 15-27 | 12-30 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 30-60 | 25-35 | 20-35 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| Winu---------- | 0-5 | 15-25 | 20-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 5-39 | 20-30 | 15-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 39-43 | --- | --- | --- | --- | --- | --- | --- |
| 3180: | | | | | | | | |
| Hymas---------- | 0-2 | 10-20 | 10-15 | 7.4-8.4 | 5-15 | 0 | 0 | 0 |
| | 2-13 | 10-25 | 7.0-15 | 7.4-8.4 | 40-50 | 0 | 0.0-2.0 | 0 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| Hopeka---------- | 0-9 | 18-27 | 10-20 | 7.9-9.0 | 30-50 | 0 | 0.0-2.0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| Solak---------- | 0-14 | 12-18 | 6.0-13 | 7.9-9.0 | 3-15 | 0 | 0.0-2.0 | 0 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| 3190: | | | | | | | | |
| Penoyer--------- | 0-4 | 10-18 | 5.0-10 | 7.9-9.0 | 10-20 | 0 | 0.0-4.0 | 0-5 |
| | 4-60 | 10-18 | 5.0-10 | 7.9-9.0 | 10-20 | 0-5 | 0.0-4.0 | 0-5 |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| 3191: | | | | | | | | |
| Penoyer--------- | 0-4 | 10-18 | 5.0-10 | 7.9-9.0 | 10-20 | 0 | 0.0-4.0 | 0-5 |
| | 4-60 | 10-18 | 5.0-10 | 7.9-9.0 | 10-20 | 0-5 | 0.0-4.0 | 0-5 |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Easychair------- | 0-9 | 18-27 | 13-20 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 9-46 | 18-25 | 13-18 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 46-60 | 8-18 | 6.0-13 | 7.9-9.0 | 1-13 | 0 | 0.0-2.0 | 0-5 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3200: | | | | | | | | |
| Ganaflan-------- | 0-4 | 10-18 | 5.0-15 | 7.9-9.0 | 5-15 | 0 | 8.0-16.0 | 13-30 |
| | 4-37 | 10-18 | 5.0-15 | 7.9-9.0 | 5-15 | 0 | 8.0-16.0 | 13-45 |
| | 37-50 | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | 2-10 | 2.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-4.0 | 0-12 |
| 3210: | | | | | | | | |
| Kunzler--------- | 0-3 | 10-18 | 12-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-40 | 10-18 | 10-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 40-60 | 10-18 | 8.0-15 | 7.9-9.0 | 5-10 | 0 | 4.0-8.0 | 13-45 |
| Sycomat--------- | 0-10 | 5-15 | 2.0-10 | 7.9-8.4 | 15-30 | 0 | 2.0-4.0 | 0-5 |
| | 10-40 | 5-18 | 2.0-10 | 7.9-9.6 | 10-30 | 0 | 2.0-4.0 | 0-5 |
| | 40-60 | 2-5 | 0.0-2.0 | 8.5-9.0 | 10-30 | 0 | 2.0-4.0 | 0-5 |
| 3211: | | | | | | | | |
| Kunzler--------- | 0-3 | 10-18 | 12-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-40 | 10-18 | 10-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-45 |
| | 40-60 | 10-18 | 8.0-15 | 7.9-9.0 | 5-10 | 0 | 4.0-8.0 | 13-45 |
| Kunzler--------- | 0-3 | 10-18 | 12-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-40 | 10-18 | 10-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-45 |
| | 40-60 | 10-18 | 8.0-15 | 7.9-9.0 | 5-10 | 0 | 4.0-8.0 | 13-45 |
| Sycomat--------- | 0-10 | 5-15 | 2.0-10 | 7.9-8.4 | 15-30 | 0 | 2.0-4.0 | 0-5 |
| | 10-40 | 5-18 | 2.0-10 | 7.9-9.6 | 10-30 | 0 | 2.0-4.0 | 0-5 |
| | 40-60 | 2-5 | 0.0-2.0 | 8.5-9.0 | 10-30 | 0 | 2.0-4.0 | 0-5 |
| 3212: | | | | | | | | |
| Kunzler--------- | 0-3 | 10-18 | 12-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-40 | 10-18 | 10-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-45 |
| | 40-60 | 10-18 | 8.0-15 | 7.9-9.0 | 5-10 | 0 | 4.0-8.0 | 13-45 |
| Kunzler--------- | 0-3 | 10-18 | 12-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-40 | 10-18 | 10-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-45 |
| | 40-60 | 10-18 | 8.0-15 | 7.9-9.0 | 5-10 | 0 | 4.0-8.0 | 13-45 |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 0-5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 5-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |
| 3220: | | | | | | | | |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | 10-18 | 5.0-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 2-5 | 10-18 | 10-25 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 5-9 | --- | --- | --- | --- | --- | --- | --- |
| 3221: | | | | | | | | |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3223: | | | | | | | | |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3224: | | | | | | | | |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | 10-18 | 5.0-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 2-5 | 10-18 | 10-25 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 5-9 | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| 3226: | | | | | | | | |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3228: | | | | | | | | |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Gabbvally------- | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 2-11 | 18-27 | 15-25 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| Beelem---------- | 0-2 | 10-18 | 5.0-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 2-5 | 10-18 | 10-25 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 5-9 | --- | --- | --- | --- | --- | --- | --- |
| 3231: | | | | | | | | |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| 3233: | | | | | | | | |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| 3240: | | | | | | | | |
| Stargo---------- | 0-5 | 20-27 | 10-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 5-15 | 27-35 | 20-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 15-60 | 2-8 | 5.0-10 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| Veet---------- | 0-8 | 14-20 | 10-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-20 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 20-60 | 5-10 | 2.0-8.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| 3241: | | | | | | | | |
| Stargo---------- | 0-5 | 20-27 | 10-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 5-15 | 27-35 | 20-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 15-60 | 2-8 | 5.0-10 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Stargo---------- | 0-5 | 20-27 | 10-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 5-15 | 27-35 | 20-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 15-60 | 2-8 | 5.0-10 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| 3250: | | | | | | | | |
| Wardenot--------- | 0-6 | 5-18 | 3.0-15 | 7.4-9.0 | 1-5 | 0 | 0.0-4.0 | 1-12 |
| | 6-60 | 5-10 | 3.0-8.0 | 7.4-9.0 | 1-5 | 0 | 0.0-4.0 | 1-12 |
| 3260: | | | | | | | | |
| Springwarm------ | 0-1 | 13-20 | 10-15 | 9.1-9.6 | 5-20 | 0 | 16.0-32.0 | 31-60 |
| | 1-10 | 27-40 | 20-30 | 8.5-9.0 | 5-20 | 0 | 8.0-16.0 | 13-30 |
| | 10-22 | 18-35 | 15-25 | 8.5-9.0 | 5-20 | 0-1 | 2.0-4.0 | 5-12 |
| | 22-36 | --- | --- | --- | --- | --- | --- | --- |
| Jotava---------- | 0-8 | 27-40 | 17-25 | 8.5-9.6 | 5-20 | 1-5 | 32.0-99.0 | 90-300 |
| | 8-15 | 18-40 | 17-24 | 7.9-9.6 | 20-40 | 0-2 | 4.0-16.0 | 13-45 |
| | 15-57 | 12-30 | 7.0-19 | 7.9-9.0 | 20-40 | 0-2 | 0.0-2.0 | 5-12 |
| | 57-89 | 5-15 | 2.0-10 | 7.9-9.0 | 15-25 | 0-2 | 2.0-8.0 | 5-12 |
| Delacit--------- | 0-1 | 3-6 | 1.0-5.0 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 1-3 | 17-23 | 10-15 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 3-9 | 27-35 | 15-25 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 9-15 | 18-31 | 10-20 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 15-60 | --- | --- | --- | --- | --- | --- | --- |
| 3270: | | | | | | | | |
| Jotava---------- | 0-8 | 27-40 | 17-25 | 8.5-9.6 | 5-20 | 1-5 | 32.0-99.0 | 90-300 |
| | 8-15 | 18-40 | 17-24 | 7.9-9.6 | 20-40 | 0-2 | 4.0-16.0 | 13-45 |
| | 15-57 | 12-30 | 7.0-19 | 7.9-9.0 | 20-40 | 0-2 | 0.0-2.0 | 5-12 |
| | 57-89 | 5-15 | 2.0-10 | 7.9-9.0 | 15-25 | 0-2 | 2.0-8.0 | 5-12 |
| 3280: | | | | | | | | |
| Duffer---------- | 0-4 | 15-20 | 10-20 | 8.5-9.6 | 20-40 | 1-2 | 4.0-8.0 | 31-45 |
| | 4-36 | 20-35 | 10-20 | 7.9-9.6 | 40-60 | 1-2 | 16.0-32.0 | 46-90 |
| | 36-60 | 15-30 | 5.0-20 | 7.9-9.6 | 40-60 | 1-2 | 4.0-16.0 | 13-30 |
| Duffer---------- | 0-4 | 20-27 | 10-20 | 8.5-9.6 | 20-40 | 1-2 | 8.0-16.0 | 46-90 |
| | 4-60 | 20-35 | 10-20 | 7.9-9.6 | 40-60 | 1-5 | 8.0-16.0 | 13-30 |
| Equis---------- | 0-4 | 40-50 | 20-25 | 8.5-9.0 | 35-45 | 0 | 8.0-16.0 | 31-70 |
| | 4-29 | 40-50 | 15-25 | 8.5-9.6 | 45-65 | 1-2 | 8.0-16.0 | 5-70 |
| | 29-52 | 30-45 | 10-20 | 8.5-9.0 | 45-65 | 1-2 | 4.0-8.0 | 1-5 |
| | 52-60 | 20-45 | 10-20 | 8.5-9.0 | 40-60 | 1-2 | 0.0-4.0 | 1-5 |
| 3300: | | | | | | | | |
| Palinor--------- | 0-8 | 10-18 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0 | 1-5 |
| | 8-18 | 10-18 | 5.0-10 | 7.9-9.0 | 20-40 | 0 | 2.0-4.0 | 1-5 |
| | 18-29 | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | 2-8 | 0.0-5.0 | 7.9-9.0 | 25-45 | 0 | 0 | 1-12 |
| 3301: | | | | | | | | |
| Palinor--------- | 0-3 | 10-18 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0 | 1-5 |
| | 3-18 | 10-18 | 5.0-10 | 7.9-9.0 | 20-40 | 0 | 2.0-4.0 | 1-5 |
| | 18-29 | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | 2-8 | 0.0-5.0 | 7.9-9.0 | 25-45 | 0 | 0 | 1-12 |
| Nuc---------- | 0-9 | 10-15 | 8.0-13 | 7.9-8.4 | 20-30 | 0 | 0.0-2.0 | 0 |
| | 9-36 | 15-30 | 9.0-20 | 7.9-9.0 | 20-35 | 0 | 0.0-2.0 | 0 |
| | 36-60 | 10-15 | 6.0-9.0 | 8.5-9.0 | 20-35 | 0 | 0.0-2.0 | 0 |
| | 60-70 | 0-10 | 0.0-6.0 | 8.5-9.0 | 25-40 | 0 | 0.0-2.0 | 0 |
| 3302: | | | | | | | | |
| Palinor--------- | 0-3 | 10-18 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0 | 1-5 |
| | 3-18 | 10-18 | 5.0-10 | 7.9-9.0 | 20-40 | 0 | 2.0-4.0 | 1-5 |
| | 18-29 | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | 2-8 | 0.0-5.0 | 7.9-9.0 | 25-45 | 0 | 0 | 1-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Parisa---------- | 0-4 | 8-18 | 5.0-15 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 4-32 | 8-18 | 5.0-15 | 7.9-9.0 | 15-40 | 0 | 0.0-2.0 | 5-12 |
| | 32-50 | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | 0-8 | 1.0-5.0 | 7.9-9.0 | 15-30 | 0 | 2.0-8.0 | 13-30 |
| 3310: | | | | | | | | |
| Ursine---------- | 0-3 | 10-25 | 5.0-20 | 7.9-9.0 | 5-20 | 0 | 0.0-4.0 | 1-5 |
| | 3-19 | 8-20 | 5.0-15 | 7.9-9.6 | 20-40 | 0 | 0.0-8.0 | 1-5 |
| | 19-23 | --- | --- | --- | --- | --- | --- | --- |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| 3311: | | | | | | | | |
| Ursine---------- | 0-3 | 10-25 | 5.0-20 | 7.9-9.0 | 5-20 | 0 | 0.0-4.0 | 1-5 |
| | 3-19 | 8-20 | 5.0-15 | 7.9-9.6 | 20-40 | 0 | 0.0-8.0 | 1-5 |
| | 19-23 | --- | --- | --- | --- | --- | --- | --- |
| Cliffdown------- | 0-3 | 10-15 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 3-60 | 5-15 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-8.0 | 1-12 |
| 3330: | | | | | | | | |
| Handpah--------- | 0-7 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 7-14 | 25-35 | 15-30 | 7.4-9.0 | 0-10 | 0 | 0.0-2.0 | 0-2 |
| | 14-18 | 4-10 | 2.0-5.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-2 |
| | 18-24 | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | --- | --- | --- | --- | --- | --- | --- |
| Delamar--------- | 0-4 | 5-10 | 5.0-10 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 18-30 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-12 |
| | 12-20 | 27-35 | 20-25 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-12 |
| | 20-25 | 2-10 | 1.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-12 |
| | 25-29 | --- | --- | --- | --- | --- | --- | --- |
| 3333: | | | | | | | | |
| Handpah--------- | 0-7 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 7-14 | 25-35 | 15-30 | 7.4-9.0 | 0-10 | 0 | 0.0-2.0 | 0-2 |
| | 14-18 | 4-10 | 2.0-5.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-2 |
| | 18-24 | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | --- | --- | --- | --- | --- | --- | --- |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| 3334: | | | | | | | | |
| Handpah--------- | 0-7 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 7-14 | 25-35 | 15-30 | 7.4-9.0 | 0-10 | 0 | 0.0-2.0 | 0-2 |
| | 14-18 | 4-10 | 2.0-5.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-2 |
| | 18-24 | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Palinor--------- | 0-3 | 10-18 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0 | 1-5 |
| | 3-18 | 10-18 | 5.0-10 | 7.9-9.0 | 20-40 | 0 | 2.0-4.0 | 1-5 |
| | 18-29 | --- | --- | --- | --- | --- | --- | --- |
| | 29-60 | 2-8 | 0.0-5.0 | 7.9-9.0 | 25-45 | 0 | 0 | 1-12 |
| Parisa---------- | 0-4 | 8-18 | 5.0-15 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 4-32 | 8-18 | 5.0-15 | 7.9-9.0 | 15-40 | 0 | 0.0-2.0 | 5-12 |
| | 32-50 | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | 0-8 | 1.0-5.0 | 7.9-9.0 | 15-30 | 0 | 2.0-8.0 | 13-30 |
| 3335: | | | | | | | | |
| Handpah--------- | 0-7 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 7-14 | 25-35 | 15-30 | 7.4-9.0 | 0-10 | 0 | 0.0-2.0 | 0-2 |
| | 14-18 | 4-10 | 2.0-5.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-2 |
| | 18-24 | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | --- | --- | --- | --- | --- | --- | --- |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 0-5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 5-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |
| 3340: | | | | | | | | |
| Amelar---------- | 0-6 | 18-27 | 15-24 | 7.4-8.4 | 0-2 | 0 | 0 | 0 |
| | 6-15 | 27-35 | 18-25 | 7.9-8.4 | 0-5 | 0 | 0 | 0 |
| | 15-60 | 18-27 | 11-18 | 7.9-9.0 | 5-10 | 0 | 0 | 0 |
| Eoj---------- | 0-12 | 20-27 | 14-22 | 7.4-7.8 | 0 | 0 | 0 | 0 |
| | 12-60 | 40-60 | 34-52 | 7.4-8.4 | 0-2 | 0 | 0 | 0 |
| Hardol---------- | 0-3 | 18-27 | 10-25 | 7.4-8.4 | 1-10 | 0 | 0 | 0 |
| | 3-33 | 20-27 | 10-25 | 7.4-8.4 | 10-20 | 0 | 0 | 0 |
| | 33-60 | 20-27 | 10-20 | 7.9-8.4 | 15-25 | 0 | 0 | 0 |
| 3380: | | | | | | | | |
| Roden---------- | 0-3 | 30-40 | 22-35 | 7.9-8.4 | 1-5 | 0 | 0 | 0 |
| | 3-12 | 40-50 | 28-48 | 7.9-8.4 | 1-5 | 0 | 0 | 0 |
| | 12-20 | --- | --- | --- | --- | --- | --- | --- |
| Izar---------- | 0-6 | 18-25 | 15-20 | 7.4-8.4 | 3-30 | 0 | 0.0-2.0 | 0 |
| | 6-13 | 18-25 | 10-15 | 7.4-8.4 | 5-30 | 0 | 0.0-2.0 | 0 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| Roden---------- | 0-3 | 18-27 | 22-35 | 7.9-8.4 | 1-5 | 0 | 0 | 0 |
| | 3-12 | 40-50 | 28-48 | 7.9-8.4 | 1-5 | 0 | 0 | 0 |
| | 12-20 | --- | --- | --- | --- | --- | --- | --- |
| 3400: | | | | | | | | |
| Parisa---------- | 0-4 | 8-18 | 5.0-15 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 4-32 | 8-18 | 5.0-15 | 7.9-9.0 | 15-40 | 0 | 0.0-2.0 | 5-12 |
| | 32-50 | --- | --- | --- | --- | --- | --- | --- |
| | 50-60 | 0-8 | 1.0-5.0 | 7.9-9.0 | 15-30 | 0 | 2.0-8.0 | 13-30 |
| 3410: | | | | | | | | |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3412: | | | | | | | | |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| 3414: | | | | | | | | |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Cath---------- | 0-6 | 10-20 | 10-20 | 6.6-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 6-20 | 25-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-28 | 20-30 | 15-25 | 7.9-9.0 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| | 28-60 | 5-10 | 5.0-15 | 8.5-9.0 | 10-20 | 0 | 0.0-4.0 | 1-5 |
| 3415: | | | | | | | | |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Leo---------- | 0-8 | 5-15 | 0.0-3.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 8-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 1-10 | 0 | 0.0-4.0 | 0-2 |
| 3420: | | | | | | | | |
| Squawtip-------- | 0-6 | 8-18 | 5.0-15 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 6-21 | 18-25 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 21-25 | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3430: | | | | | | | | |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3434: | | | | | | | | |
| Bellehelen------ | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 2-9 | 18-35 | 10-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 9-13 | --- | --- | --- | --- | --- | --- | --- |
| Cropper--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-15 | 27-35 | 20-30 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3440: | | | | | | | | |
| Layview--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-14 | 22-35 | 15-25 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Foxvire--------- | 0-13 | 8-15 | 7.0-14 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 13-60 | 8-15 | 6.0-12 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| Suak---------- | 0-6 | 10-20 | 18-28 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 6-25 | 20-27 | 15-25 | 7.4-7.8 | 0 | 0 | 0 | 0 |
| | 25-29 | --- | --- | --- | --- | --- | --- | --- |
| 3441: | | | | | | | | |
| Layview--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-14 | 22-35 | 15-25 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Labshaft-------- | 0-8 | 22-27 | 19-26 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 8-14 | 25-35 | 17-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Winu---------- | 0-5 | 15-25 | 20-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 5-39 | 20-30 | 15-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 39-43 | --- | --- | --- | --- | --- | --- | --- |
| 3442: | | | | | | | | |
| Layview--------- | 0-4 | 15-20 | 10-20 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 4-14 | 22-35 | 15-25 | 6.6-7.8 | 0 | 0 | 0 | 0 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Suak---------- | 0-6 | 10-20 | 18-28 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 6-25 | 20-27 | 15-25 | 7.4-7.8 | 0 | 0 | 0 | 0 |
| | 25-29 | --- | --- | --- | --- | --- | --- | --- |
| Winu---------- | 0-5 | 15-25 | 20-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 5-39 | 20-30 | 15-25 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 39-43 | --- | --- | --- | --- | --- | --- | --- |
| 3450: | | | | | | | | |
| Grassval-------- | 0-5 | 10-18 | 8.0-15 | 7.4-8.4 | 1-2 | 0 | 0 | 0 |
| | 5-13 | 25-35 | 15-22 | 7.9-9.0 | 3-5 | 0 | 0.0-2.0 | 1-12 |
| | 13-60 | --- | --- | --- | --- | --- | --- | --- |
| Allker---------- | 0-9 | 5-10 | 5.0-10 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 9-24 | 20-30 | 15-20 | 7.4-8.4 | 5-10 | 0 | 0.0-2.0 | 0-5 |
| | 24-32 | 10-20 | 7.0-15 | 7.9-9.0 | 5-15 | 0 | 2.0-4.0 | 1-12 |
| | 32-60 | 5-10 | 4.0-7.0 | 7.9-9.0 | 5-15 | 0 | 2.0-4.0 | 1-12 |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| 3460: | | | | | | | | |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| Handpah--------- | 0-3 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 3-14 | 25-35 | 15-30 | 7.4-9.0 | 0-10 | 0 | 0.0-2.0 | 0-2 |
| | 14-18 | 4-10 | 2.0-5.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-2 |
| | 18-24 | --- | --- | --- | --- | --- | --- | --- |
| | 24-60 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3463: | | | | | | | | |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| 3467: | | | | | | | | |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| 3468: | | | | | | | | |
| Zadvar---------- | 0-3 | 8-12 | 5.0-15 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| Allker---------- | 0-9 | 5-10 | 5.0-10 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 9-24 | 20-30 | 15-20 | 7.4-8.4 | 5-10 | 0 | 0.0-2.0 | 0-5 |
| | 24-32 | 10-20 | 7.0-15 | 7.9-9.0 | 5-15 | 0 | 2.0-4.0 | 1-12 |
| | 32-60 | 5-10 | 4.0-7.0 | 7.9-9.0 | 5-15 | 0 | 2.0-4.0 | 1-12 |
| Peeko---------- | 0-4 | 10-27 | 5.0-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 4-13 | 18-27 | 10-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 13-60 | --- | --- | --- | --- | --- | --- | --- |
| 3470: | | | | | | | | |
| Cirac---------- | 0-4 | 8-18 | 5.0-15 | 8.5-9.6 | 1-5 | 0 | 16.0-32.0 | 13-30 |
| | 4-60 | 8-18 | 5.0-15 | 8.5-9.6 | 10-30 | 0 | 16.0-32.0 | 13-99 |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Nyserva--------- | 0-6 | 10-15 | 5.0-10 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 6-15 | 20-30 | 10-25 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-50 |
| | 15-60 | 10-20 | 5.0-15 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-60 |
| 3471: | | | | | | | | |
| Cirac---------- | 0-4 | 8-18 | 5.0-15 | 8.5-9.6 | 1-5 | 0 | 16.0-32.0 | 13-30 |
| | 4-60 | 8-18 | 5.0-15 | 8.5-9.6 | 10-30 | 0 | 16.0-32.0 | 13-99 |
| Nyserva--------- | 0-6 | 10-15 | 5.0-10 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 6-15 | 20-30 | 10-25 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-50 |
| | 15-60 | 10-20 | 5.0-15 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-60 |
| 3473: | | | | | | | | |
| Cirac---------- | 0-4 | 8-18 | 5.0-15 | 8.5-9.6 | 1-5 | 0 | 16.0-32.0 | 13-30 |
| | 4-60 | 8-18 | 5.0-15 | 8.5-9.6 | 10-30 | 0 | 16.0-32.0 | 13-99 |
| Slaw---------- | 0-9 | 15-25 | 5.0-15 | 8.5-9.6 | 1-4 | 0 | 16.0-32.0 | 13-30 |
| | 9-60 | 25-35 | 20-25 | 8.5-9.6 | 1-4 | 0-5 | 4.0-16.0 | 13-30 |
| Nyserva--------- | 0-6 | 10-15 | 5.0-10 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 6-15 | 20-30 | 10-25 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-50 |
| | 15-60 | 10-20 | 5.0-15 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-60 |
| 3474: | | | | | | | | |
| Cirac---------- | 0-4 | 8-18 | 5.0-15 | 8.5-9.6 | 1-5 | 0 | 16.0-32.0 | 13-30 |
| | 4-60 | 8-18 | 5.0-15 | 8.5-9.6 | 10-30 | 0 | 16.0-32.0 | 13-99 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Nyserva--------- | 0-6 | 10-15 | 5.0-10 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-30 |
| | 6-15 | 20-30 | 10-25 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-50 |
| | 15-60 | 10-20 | 5.0-15 | 9.1-11.0 | 5-15 | 0 | 16.0-32.0 | 13-60 |
| Kawich---------- | 0-4 | 0-5 | 0.0-8.0 | 8.5-9.0 | 5-20 | 0 | 4.0-8.0 | 1-12 |
| | 4-60 | 0-5 | 0.0-8.0 | 8.5-9.0 | 5-20 | 0 | 4.0-8.0 | 1-12 |
| 3475: | | | | | | | | |
| Cirac---------- | 0-4 | 8-18 | 5.0-15 | 8.5-9.6 | 1-5 | 0 | 16.0-32.0 | 13-30 |
| | 4-60 | 8-18 | 5.0-15 | 8.5-9.6 | 10-30 | 0 | 16.0-32.0 | 13-99 |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 7.9-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Slaw---------- | 0-9 | 15-25 | 5.0-15 | 8.5-9.6 | 1-4 | 0 | 16.0-32.0 | 13-30 |
| | 9-60 | 25-35 | 20-25 | 8.5-9.6 | 1-4 | 0-5 | 4.0-16.0 | 13-30 |
| 3480: | | | | | | | | |
| Chuckridge------ | 0-3 | 10-18 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-14 | 25-35 | 15-30 | 7.4-9.0 | 1-10 | 0 | 0.0-2.0 | 1-5 |
| | 14-27 | --- | --- | --- | --- | --- | --- | --- |
| | 27-60 | 8-12 | 5.0-15 | 8.5-9.6 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| Zadvar---------- | 0-3 | 8-12 | 5.0-15 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| 3481: | | | | | | | | |
| Chuckridge------ | 0-3 | 10-18 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-14 | 25-35 | 15-30 | 7.4-9.0 | 1-10 | 0 | 0.0-2.0 | 1-5 |
| | 14-27 | --- | --- | --- | --- | --- | --- | --- |
| | 27-60 | 8-12 | 5.0-15 | 8.5-9.6 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| 3491: | | | | | | | | |
| Slaw---------- | 0-9 | 8-18 | 7.0-15 | 8.5-9.6 | 1-4 | 0 | 8.0-16.0 | 13-30 |
| | 9-60 | 25-35 | 16-25 | 8.5-9.6 | 1-4 | 0-5 | 16.0-32.0 | 30-99 |
| Easychair------- | 0-9 | 18-27 | 13-20 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 9-46 | 18-25 | 13-18 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 46-60 | 8-18 | 6.0-13 | 7.9-9.0 | 1-13 | 0 | 0.0-2.0 | 0-5 |
| 3520: | | | | | | | | |
| Rustigate------- | 0-4 | 15-25 | 10-20 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| | 4-25 | 18-27 | 10-20 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| | 25-60 | 8-20 | 5.0-15 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| 3521: | | | | | | | | |
| Rustigate------- | 0-4 | 15-25 | 10-20 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| | 4-25 | 18-27 | 10-20 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| | 25-60 | 8-20 | 5.0-15 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| Nuyobe---------- | 0-5 | 18-27 | 10-20 | 8.5-9.6 | 10-30 | 0-4 | 16.0-32.0 | 13-30 |
| | 5-60 | 18-27 | 10-20 | 7.9-9.0 | 10-30 | 0-4 | 2.0-4.0 | 1-30 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3522: | | | | | | | | |
| Rustigate------- | 0-4 | 15-25 | 10-20 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| | 4-25 | 18-27 | 10-20 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| | 25-60 | 8-20 | 5.0-15 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 1-12 |
| Nuyobe---------- | 0-5 | 18-27 | 10-20 | 8.5-9.6 | 10-30 | 0-4 | 16.0-32.0 | 13-30 |
| | 5-60 | 18-27 | 10-20 | 7.9-9.0 | 10-30 | 0-4 | 2.0-4.0 | 1-30 |
| Kawich---------- | 0-4 | 0-5 | 0.0-8.0 | 8.5-9.0 | 5-20 | 0 | 4.0-8.0 | 1-12 |
| | 4-60 | 0-5 | 0.0-8.0 | 8.5-9.0 | 5-20 | 0 | 4.0-8.0 | 1-12 |
| 3530: | | | | | | | | |
| Rebel---------- | 0-16 | 10-15 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-4.0 | 0-5 |
| | 16-60 | 10-18 | 8.0-20 | 7.4-9.0 | 1-10 | 0 | 0.0-4.0 | 1-12 |
| 3531: | | | | | | | | |
| Rebel---------- | 0-9 | 5-12 | 4.0-8.0 | 7.4-7.8 | 0-1 | 0 | 0.0-4.0 | 0-5 |
| | 9-60 | 10-18 | 6.0-12 | 7.4-9.0 | 1-10 | 0 | 0.0-4.0 | 0-12 |
| 3540: | | | | | | | | |
| Packer---------- | 0-5 | 14-20 | 15-20 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 5-13 | 20-30 | 15-25 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 13-60 | 10-16 | 5.0-10 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| Suak---------- | 0-6 | 10-20 | 18-28 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 6-25 | 20-27 | 15-25 | 7.4-7.8 | 0 | 0 | 0 | 0 |
| | 25-29 | --- | --- | --- | --- | --- | --- | --- |
| Foxvire--------- | 0-13 | 8-15 | 7.0-14 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| | 13-60 | 8-15 | 6.0-12 | 6.6-7.3 | 0 | 0 | 0 | 0 |
| 3560: | | | | | | | | |
| Ubehebe--------- | 0-1 | 8-12 | 5.0-15 | 7.9-8.4 | 0-5 | 0 | 0.0-4.0 | 0-2 |
| | 1-4 | 15-20 | 10-20 | 7.9-8.4 | 1-10 | 0 | 0.0-4.0 | 0-2 |
| | 4-15 | 18-27 | 10-25 | 7.9-8.4 | 10-20 | 0 | 0.0-4.0 | 0-2 |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Penelas--------- | 0-2 | 10-20 | 5.0-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 2-10 | 27-35 | 15-30 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| Logring--------- | 0-3 | 8-15 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 3-12 | 10-18 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| 3570: | | | | | | | | |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3571: | | | | | | | | |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3572: | | | | | | | | |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3580: | | | | | | | | |
| Kyler---------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3581: | | | | | | | | |
| Kyler---------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3590: | | | | | | | | |
| Allker---------- | 0-9 | 5-10 | 5.0-10 | 6.6-8.4 | 0 | 0 | 0 | 0 |
| | 9-24 | 20-30 | 15-20 | 7.4-8.4 | 5-10 | 0 | 0.0-2.0 | 0-5 |
| | 24-32 | 10-20 | 7.0-15 | 7.9-9.0 | 5-15 | 0 | 2.0-4.0 | 1-12 |
| | 32-60 | 5-10 | 4.0-7.0 | 7.9-9.0 | 5-15 | 0 | 2.0-4.0 | 1-12 |
| Portmount------- | 0-3 | 5-15 | 5.0-15 | 7.9-8.4 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 3-12 | 15-25 | 10-20 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-15 | 3.0-10 | 7.9-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| 3600: | | | | | | | | |
| Ardivey--------- | 0-8 | 12-18 | 10-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-17 | 18-35 | 15-25 | 6.6-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 17-60 | 6-12 | 5.0-15 | 7.9-9.6 | 10-30 | 0 | 0.0-2.0 | 1-12 |
| Hollywell------- | 0-4 | 3-10 | 10-15 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 4-12 | 8-15 | 12-18 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 12-60 | 3-10 | 12-18 | 7.9-9.0 | 1-5 | 0 | 0.0-4.0 | 6-12 |
| Belted---------- | 0-4 | 15-20 | 10-15 | 7.9-9.0 | 1-5 | 0 | 4.0-8.0 | 0-5 |
| | 4-11 | 18-30 | 15-25 | 7.9-9.6 | 1-5 | 0 | 4.0-16.0 | 1-12 |
| | 11-17 | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | 2-10 | 0.0-5.0 | 7.9-9.6 | 0-5 | 0 | 2.0-8.0 | 0-5 |
| 3601: | | | | | | | | |
| Ardivey--------- | 0-8 | 12-18 | 10-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-17 | 18-35 | 15-25 | 6.6-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 17-60 | 6-12 | 5.0-15 | 7.9-9.6 | 10-30 | 0 | 0.0-2.0 | 1-12 |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| 3610: | | | | | | | | |
| Tokoper--------- | 0-2 | 8-15 | 4.0-9.0 | 7.9-8.4 | 1-20 | 0 | 0.0-4.0 | 0-5 |
| | 2-5 | 20-30 | 10-16 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 0-5 |
| | 5-9 | 15-25 | 8.0-14 | 7.9-9.0 | 1-20 | 0 | 0.0-8.0 | 0-12 |
| | 9-15 | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Garhill--------- | 0-1 | 8-15 | 5.0-10 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 1-6 | 8-15 | 5.0-10 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 6-10 | 18-25 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-8.0 | 0-2 |
| | 10-21 | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3620: | | | | | | | | |
| Argalt---------- | 0-1 | 5-10 | 5.0-10 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 10-18 | 5.0-15 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-11 | 25-35 | 25-35 | 7.4-8.4 | 0-3 | 0 | 0.0-2.0 | 0-5 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| Gabbvally------- | 0-2 | 10-18 | 10-20 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 2-11 | 18-27 | 15-25 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| 3630: | | | | | | | | |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| 3640: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| Zadvar---------- | 0-3 | 10-18 | 5.0-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-10 | 27-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| | 14-60 | 5-10 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| 3641: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 0-5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 5-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3642: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| 3643: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| Morbench-------- | 0-4 | 10-18 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-1 |
| | 4-29 | 11-18 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-1 |
| | 29-50 | 4-10 | 3.0-7.0 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-1 |
| | 50-60 | 10-16 | 7.0-12 | 7.9-9.0 | 5-20 | 0 | 0.0-2.0 | 0-1 |
| 3644: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| Cliffdown------- | 0-3 | 10-15 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 3-60 | 5-15 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-8.0 | 1-12 |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 0-5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 5-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |
| 3645: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| Clowfin--------- | 0-6 | 8-18 | 5.0-13 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 13-30 |
| | 6-46 | 8-18 | 5.0-11 | 7.9-9.0 | 3-5 | 0 | 0.0-2.0 | 13-30 |
| | 46-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 3-5 | 0 | 2.0-4.0 | 5-12 |
| Peeko---------- | 0-8 | 10-27 | 5.0-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 8-13 | 18-27 | 10-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 13-60 | --- | --- | --- | --- | --- | --- | --- |
| 3647: | | | | | | | | |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| Spager---------- | 0-2 | 15-27 | 5.0-15 | 7.4-9.0 | 15-40 | 0 | 0.0-2.0 | 5-13 |
| | 2-12 | 15-27 | 5.0-15 | 8.5-9.0 | 40-70 | 0 | 0.0-4.0 | 13-30 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| 3651: | | | | | | | | |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 0-5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 5-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3655: | | | | | | | | |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 0-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |
| Armespan-------- | 0-1 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 1-7 | 10-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| | 7-18 | 12-18 | 5.0-15 | 7.9-9.0 | 5-10 | 0 | 8.0-16.0 | 1-5 |
| | 18-28 | 10-18 | 5.0-15 | 7.9-9.0 | 10-35 | 0 | 8.0-16.0 | 5-12 |
| | 28-60 | 5-10 | 1.0-10 | 7.9-9.0 | 10-35 | 0 | 2.0-4.0 | 5-12 |
| 3660: | | | | | | | | |
| Titiack--------- | 0-10 | 3-8 | 7.0-15 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 10-15 | 3-8 | 10-15 | 8.4-11.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 15-60 | --- | --- | --- | --- | --- | --- | --- |
| Garhill--------- | 0-1 | 5-10 | 3.0-8.0 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 1-6 | 8-15 | 5.0-10 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 6-10 | 18-25 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-8.0 | 0-2 |
| | 10-21 | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | --- | --- | --- | --- | --- | --- | --- |
| 3670: | | | | | | | | |
| Logring--------- | 0-3 | 8-15 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 3-12 | 10-18 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kyler----------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| 3671: | | | | | | | | |
| Logring--------- | 0-3 | 8-15 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 3-12 | 10-18 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| 3672: | | | | | | | | |
| Logring--------- | 0-3 | 8-15 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 3-12 | 10-18 | 5.0-20 | 7.9-9.0 | 15-40 | 0 | 0.0-4.0 | 0-5 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| Kyler----------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Eaglepass------- | 0-1 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 8-18 | 5.0-15 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 4-14 | --- | --- | --- | --- | --- | --- | --- |
| 3700: | | | | | | | | |
| Leo---------- | 0-8 | 5-15 | 0.0-3.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 8-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 1-10 | 0 | 0.0-4.0 | 0-2 |
| Delamar--------- | 0-4 | 5-10 | 5.0-10 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 18-30 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-12 |
| | 12-20 | 27-35 | 20-25 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-12 |
| | 20-25 | 2-10 | 1.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-12 |
| | 25-29 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3702: | | | | | | | | |
| Leo---------- | 0-8 | 5-15 | 0.0-3.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 8-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 1-10 | 0 | 0.0-4.0 | 0-2 |
| Hollywell------- | 0-4 | 2-6 | 1.0-5.0 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 4-12 | 8-15 | 3.0-12 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 12-60 | 0-6 | 1.0-5.0 | 7.9-9.0 | 1-5 | 0 | 0.0-4.0 | 1-12 |
| 3703: | | | | | | | | |
| Leo---------- | 0-8 | 5-15 | 0.0-3.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 8-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 1-10 | 0 | 0.0-4.0 | 0-2 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| 3710: | | | | | | | | |
| Beelem---------- | 0-2 | 10-18 | 5.0-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 2-5 | 10-18 | 10-25 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 5-9 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3730: | | | | | | | | |
| Penelas--------- | 0-2 | 10-20 | 5.0-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 2-10 | 27-35 | 15-30 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3731: | | | | | | | | |
| Penelas--------- | 0-2 | 10-20 | 5.0-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 2-10 | 27-35 | 15-30 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 10-14 | --- | --- | --- | --- | --- | --- | --- |
| Ubehebe--------- | 0-1 | 8-12 | 5.0-15 | 7.9-8.4 | 0-5 | 0 | 0.0-4.0 | 0-2 |
| | 1-4 | 15-20 | 10-20 | 7.9-8.4 | 1-10 | 0 | 0.0-4.0 | 0-2 |
| | 4-15 | 18-27 | 10-25 | 7.9-8.4 | 10-20 | 0 | 0.0-4.0 | 0-2 |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3740: | | | | | | | | |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| 3741: | | | | | | | | |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3742: | | | | | | | | |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Stargo---------- | 0-5 | 0-5 | 5.0-10 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-15 | 27-35 | 20-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 15-60 | 2-8 | 5.0-10 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| 3744: | | | | | | | | |
| Keefa---------- | 0-3 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 3-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Garhill--------- | 0-1 | 5-10 | 3.0-8.0 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 1-6 | 8-15 | 5.0-10 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 6-10 | 18-25 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-8.0 | 0-2 |
| | 10-21 | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | --- | --- | --- | --- | --- | --- | --- |
| Belted---------- | 0-4 | 14-20 | 10-15 | 7.9-9.0 | 1-5 | 0 | 4.0-8.0 | 0-5 |
| | 4-11 | 20-30 | 15-25 | 7.9-9.0 | 1-5 | 0 | 4.0-16.0 | 1-12 |
| | 11-17 | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | 2-10 | 0.0-5.0 | 7.9-9.0 | 0-5 | 0 | 2.0-8.0 | 0-5 |
| 3745: | | | | | | | | |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Hollywell------- | 0-4 | 2-6 | 1.0-5.0 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 4-12 | 8-15 | 3.0-12 | 7.9-9.0 | 0-5 | 0 | 0.0-4.0 | 1-5 |
| | 12-60 | 0-6 | 1.0-5.0 | 7.9-9.0 | 1-5 | 0 | 0.0-4.0 | 1-12 |
| 3747: | | | | | | | | |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| Linoyer--------- | 0-3 | 12-18 | 10-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-46 | 12-18 | 8.0-15 | 7.9-9.0 | 1-40 | 0 | 0.0-2.0 | 1-5 |
| | 46-60 | 5-10 | 0.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| 3748: | | | | | | | | |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-40 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| Keefa---------- | 0-7 | 8-15 | 5.0-15 | 7.9-8.4 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 7-15 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0 | 0.0-2.0 | 0-5 |
| | 15-26 | 8-15 | 5.0-15 | 7.9-9.0 | 15-25 | 0-1 | 0.0-4.0 | 1-12 |
| | 26-60 | 5-15 | 5.0-15 | 8.4-9.0 | 10-20 | 0-1 | 4.0-8.0 | 1-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3750: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| Cliffdown------- | 0-3 | 10-15 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-2.0 | 0-5 |
| | 3-60 | 5-15 | 5.0-10 | 7.9-9.0 | 15-30 | 0 | 0.0-8.0 | 1-12 |
| 3751: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.0 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| 3752: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 10-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| 3754: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| 3755: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| Watoopah-------- | 0-2 | 3-8 | 5.0-10 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 2-12 | 10-18 | 5.0-15 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 12-18 | 0-5 | 0.0-5.0 | 7.4-8.4 | 0-10 | 0 | 0.0-2.0 | 1-5 |
| | 18-60 | 0-5 | 0.0-5.0 | 7.4-8.4 | 5-15 | 0 | 0.0-4.0 | 1-12 |
| 3756: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| 3757: | | | | | | | | |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| Veet---------- | 0-8 | 14-20 | 10-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-20 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 20-60 | 5-10 | 2.0-8.0 | 7.4-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Penoyer--------- | 0-4 | 10-18 | 5.0-10 | 7.9-9.0 | 10-30 | 0 | 0.0-4.0 | 0-12 |
| | 4-60 | 10-18 | 5.0-10 | 7.9-9.0 | 10-30 | 0-5 | 0.0-4.0 | 0-12 |
| 3758: | | | | | | | | |
| Koyen---------- | 0-4 | 0-6 | 0.0-4.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| 3760: | | | | | | | | |
| Vindicator------ | 0-3 | 10-18 | 5.0-15 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 3-13 | 20-30 | 10-20 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0-2 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| 3770: | | | | | | | | |
| Yody---------- | 0-3 | 5-10 | 4.0-10 | 7.9-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-16 | 20-35 | 13-23 | 7.9-8.4 | 1-5 | 0 | 2.0-4.0 | 1-12 |
| | 16-38 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 1-12 |
| | 38-60 | --- | --- | --- | --- | --- | --- | --- |
| Cath---------- | 0-6 | 10-20 | 10-20 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 6-20 | 25-35 | 15-30 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-28 | 20-30 | 15-25 | 7.9-9.0 | 10-15 | 0 | 0.0-2.0 | 1-5 |
| | 28-60 | 5-10 | 5.0-15 | 8.5-9.0 | 10-20 | 0 | 0.0-4.0 | 1-5 |
| Abgese---------- | 0-5 | 5-15 | 3.0-10 | 7.9-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 5-20 | 18-30 | 15-25 | 7.9-8.4 | 0 | 0 | 0.0-2.0 | 1-5 |
| | 20-35 | 5-10 | 3.0-8.0 | 7.9-8.4 | 5-15 | 0 | 0.0-2.0 | 1-5 |
| | 35-60 | 0-5 | 1.0-3.0 | 8.5-9.0 | 5-10 | 0 | 2.0-4.0 | 1-5 |
| 3780: | | | | | | | | |
| Molion---------- | 0-3 | 8-15 | 7.0-13 | 7.9-8.4 | 1-3 | 0 | 0.0-2.0 | 0 |
| | 3-14 | 8-18 | 5.0-13 | 7.9-9.0 | 2-3 | 0 | 0.0-2.0 | 0 |
| | 14-26 | --- | --- | --- | --- | --- | --- | --- |
| | 26-60 | 8-12 | 5.0-7.0 | 8.5-9.0 | 2-3 | 0 | 0.0-2.0 | 1-12 |
| 3800: | | | | | | | | |
| Lyda---------- | 0-5 | 5-15 | 5.0-15 | 8.5-9.6 | 0-15 | 0 | 0.0-2.0 | 1-12 |
| | 5-14 | 30-40 | 15-35 | 8.5-9.6 | 10-20 | 0 | 0.0-2.0 | 1-12 |
| | 14-20 | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | --- | --- | --- | --- | --- | --- | --- |
| Delamar--------- | 0-4 | 5-10 | 5.0-10 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 18-30 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-12 |
| | 12-20 | 27-35 | 20-25 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-12 |
| | 20-25 | 2-10 | 1.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-12 |
| | 25-29 | --- | --- | --- | --- | --- | --- | --- |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| 3801: | | | | | | | | |
| Lyda---------- | 0-5 | 5-15 | 5.0-15 | 8.5-9.6 | 0-15 | 0 | 0.0-2.0 | 1-12 |
| | 5-14 | 30-40 | 15-35 | 8.5-9.6 | 10-20 | 0 | 0.0-2.0 | 1-12 |
| | 14-20 | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | --- | --- | --- | --- | --- | --- | --- |
| Belted---------- | 0-4 | 15-20 | 10-15 | 7.9-9.0 | 1-5 | 0 | 4.0-8.0 | 0-5 |
| | 4-11 | 18-30 | 15-25 | 7.9-9.6 | 1-5 | 0 | 4.0-16.0 | 1-12 |
| | 11-17 | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | 2-10 | 0.0-5.0 | 7.9-9.6 | 0-5 | 0 | 2.0-8.0 | 0-5 |
| Ardivey--------- | 0-8 | 12-18 | 10-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-17 | 18-35 | 15-25 | 6.6-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 17-60 | 6-12 | 5.0-15 | 7.9-9.6 | 10-30 | 0 | 0.0-2.0 | 1-12 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3803: | | | | | | | | |
| Lyda---------- | 0-5 | 5-15 | 5.0-15 | 8.5-9.6 | 0-15 | 0 | 0.0-2.0 | 1-12 |
| | 5-14 | 30-40 | 15-35 | 8.5-9.6 | 10-20 | 0 | 0.0-2.0 | 1-12 |
| | 14-20 | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | --- | --- | --- | --- | --- | --- | --- |
| Ardivey--------- | 0-8 | 12-18 | 10-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-17 | 18-35 | 15-25 | 6.6-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 17-60 | 6-12 | 5.0-15 | 7.9-9.6 | 10-30 | 0 | 0.0-2.0 | 1-12 |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| 3804: | | | | | | | | |
| Lyda---------- | 0-5 | 5-15 | 5.0-15 | 8.5-9.6 | 0-15 | 0 | 0.0-2.0 | 1-12 |
| | 5-14 | 30-40 | 15-35 | 8.5-9.6 | 10-20 | 0 | 0.0-2.0 | 1-12 |
| | 14-20 | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | --- | --- | --- | --- | --- | --- | --- |
| Ardivey--------- | 0-8 | 12-18 | 10-20 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-17 | 18-35 | 15-25 | 6.6-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 17-60 | 6-12 | 5.0-15 | 7.9-9.6 | 10-30 | 0 | 0.0-2.0 | 1-12 |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| 3805: | | | | | | | | |
| Lyda---------- | 0-5 | 5-15 | 5.0-15 | 8.5-9.6 | 0-15 | 0 | 0.0-2.0 | 1-12 |
| | 5-14 | 30-40 | 15-35 | 8.5-9.6 | 10-20 | 0 | 0.0-2.0 | 1-12 |
| | 14-20 | --- | --- | --- | --- | --- | --- | --- |
| | 20-60 | --- | --- | --- | --- | --- | --- | --- |
| Hardhat--------- | 0-8 | 8-18 | 5.0-13 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 1-5 |
| | 8-17 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 1-5 |
| | 17-23 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 1-2 | 0.0-2.0 | 5-12 |
| | 23-60 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 1-5 | 0.0-2.0 | 13-30 |
| 3810: | | | | | | | | |
| Belted---------- | 0-4 | 15-20 | 10-15 | 7.9-9.0 | 1-5 | 0 | 4.0-8.0 | 0-5 |
| | 4-11 | 18-30 | 15-25 | 7.9-9.6 | 1-5 | 0 | 4.0-16.0 | 1-12 |
| | 11-17 | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | 2-10 | 0.0-5.0 | 7.9-9.6 | 0-5 | 0 | 2.0-8.0 | 0-5 |
| Univega--------- | 0-5 | 3-8 | 2.0-6.0 | 7.9-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-10 | 8-18 | 6.0-15 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| | 10-31 | --- | --- | --- | --- | --- | --- | --- |
| | 31-60 | 2-8 | 2.0-5.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| Koyen---------- | 0-4 | 5-15 | 3.0-15 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 0-8 | 0-1 | 0.0-2.0 | 1-12 |
| 3811: | | | | | | | | |
| Belted---------- | 0-4 | 15-20 | 10-15 | 7.9-9.0 | 1-5 | 0 | 4.0-8.0 | 0-5 |
| | 4-11 | 18-30 | 15-25 | 7.9-9.6 | 1-5 | 0 | 4.0-16.0 | 1-12 |
| | 11-17 | --- | --- | --- | --- | --- | --- | --- |
| | 17-60 | 2-10 | 0.0-5.0 | 7.9-9.0 | 0-5 | 0 | 2.0-8.0 | 0-5 |
| Unsel---------- | 0-4 | 15-20 | 9.0-13 | 7.9-9.6 | 0-15 | 0 | 0.0-4.0 | 0-12 |
| | 4-11 | 27-35 | 16-22 | 7.4-9.0 | 1-15 | 0 | 0.0-2.0 | 1-12 |
| | 11-34 | 10-25 | 5.0-20 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 1-12 |
| | 34-60 | 2-8 | 0.0-5.0 | 8.5-9.0 | 10-20 | 0 | 4.0-8.0 | 13-30 |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Lyx---------- | 0-3 | 5-10 | 3.0-7.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 3-11 | 10-18 | 7.0-15 | 7.9-9.0 | 0-1 | 0 | 0.0-2.0 | 0-5 |
| | 11-60 | 5-10 | 3.0-7.0 | 7.9-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| 3830: | | | | | | | | |
| Downeyville----- | 0-5 | 12-18 | 10-20 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-13 | 18-27 | 10-25 | 7.9-9.0 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3831: | | | | | | | | |
| Downeyville----- | 0-5 | 12-18 | 10-20 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-13 | 18-27 | 10-25 | 7.9-9.0 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| Stewval--------- | 0-1 | 12-18 | 5.0-13 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 1-7 | 24-30 | 12-20 | 7.4-8.4 | 1-5 | 0 | 0 | 0-2 |
| | 7-11 | --- | --- | --- | --- | --- | --- | --- |
| 3832: | | | | | | | | |
| Downeyville----- | 0-5 | 12-18 | 10-20 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-13 | 18-27 | 10-25 | 7.9-9.0 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| | 13-17 | --- | --- | --- | --- | --- | --- | --- |
| Tokoper--------- | 0-2 | 8-15 | 4.0-9.0 | 7.9-8.4 | 1-20 | 0 | 0.0-4.0 | 0-5 |
| | 2-5 | 20-30 | 10-16 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 0-5 |
| | 5-9 | 15-25 | 8.0-14 | 7.9-9.0 | 1-20 | 0 | 0.0-8.0 | 0-12 |
| | 9-15 | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| 3841: | | | | | | | | |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| 3842: | | | | | | | | |
| Veet---------- | 0-4 | 8-15 | 5.0-15 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-18 | 5.0-15 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 12-60 | 5-10 | 2.0-8.0 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| Koyen---------- | 0-4 | 0-6 | 0.0-4.0 | 7.9-9.0 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-35 | 10-18 | 5.0-15 | 7.9-9.0 | 0-30 | 0 | 0.0-4.0 | 1-12 |
| | 35-60 | 0-10 | 0.0-8.0 | 7.9-9.0 | 10-25 | 0-1 | 0.0-4.0 | 1-12 |
| Geer---------- | 0-6 | 5-18 | 5.0-20 | 7.9-8.4 | 1-5 | 0 | 0.0-2.0 | 1-12 |
| | 6-60 | 5-18 | 5.0-25 | 7.9-9.6 | 5-10 | 0 | 0.0-2.0 | 1-12 |
| 3850: | | | | | | | | |
| Garhill--------- | 0-1 | 5-10 | 3.0-8.0 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 1-6 | 8-15 | 5.0-10 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 6-10 | 18-25 | 10-20 | 7.9-9.0 | 5-15 | 0 | 0.0-8.0 | 0-2 |
| | 10-21 | --- | --- | --- | --- | --- | --- | --- |
| | 21-25 | --- | --- | --- | --- | --- | --- | --- |
| Tokoper--------- | 0-2 | 8-15 | 4.0-9.0 | 7.9-8.4 | 1-20 | 0 | 0.0-4.0 | 0-5 |
| | 2-5 | 20-30 | 10-16 | 7.9-9.0 | 1-20 | 0 | 0.0-4.0 | 0-5 |
| | 5-9 | 15-25 | 8.0-14 | 7.9-9.0 | 1-20 | 0 | 0.0-8.0 | 0-12 |
| | 9-15 | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |
| Argalt---------- | 0-1 | 5-10 | 5.0-10 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 1-4 | 10-18 | 5.0-15 | 7.4-8.4 | 0 | 0 | 0.0-2.0 | 0-5 |
| | 4-11 | 25-35 | 25-35 | 7.4-8.4 | 0-3 | 0 | 0.0-2.0 | 0-5 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| | 15-19 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3860: | | | | | | | | |
| Hyzen---------- | 0-3 | 8-18 | 5.0-20 | 7.9-8.4 | 20-35 | 0 | 0 | 0 |
| | 3-12 | 10-18 | 5.0-15 | 7.9-8.4 | 30-60 | 0 | 0 | 0 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| Kyler---------- | 0-5 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 5-14 | 7-18 | 5.0-15 | 7.9-9.0 | 30-40 | 0 | 0.0-2.0 | 0-5 |
| | 14-18 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3861: | | | | | | | | |
| Hyzen---------- | 0-3 | 8-18 | 5.0-20 | 7.9-8.4 | 20-35 | 0 | 0 | 0 |
| | 3-12 | 10-18 | 5.0-15 | 7.9-8.4 | 30-60 | 0 | 0 | 0 |
| | 12-16 | --- | --- | --- | --- | --- | --- | --- |
| Eganroc--------- | 0-10 | 18-27 | 15-24 | 7.4-7.8 | 1-2 | 0 | 0 | 0 |
| | 10-15 | 18-27 | 12-20 | 7.4-8.4 | 5-10 | 0 | 0 | 0 |
| | 15-30 | 18-27 | 12-20 | 7.4-8.4 | 15-25 | 0 | 1.0-3.0 | 0 |
| | 30-34 | --- | --- | --- | --- | --- | --- | --- |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3870: | | | | | | | | |
| Lien---------- | 0-2 | 10-24 | 10-25 | 7.9-9.0 | 5-20 | 0 | 2.0-4.0 | 1-5 |
| | 2-8 | 8-24 | 5.0-20 | 7.9-9.0 | 5-20 | 0 | 2.0-8.0 | 1-5 |
| | 8-21 | --- | --- | --- | --- | --- | --- | --- |
| | 21-60 | --- | --- | --- | --- | --- | --- | --- |
| Rebel---------- | 0-16 | 10-15 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-4.0 | 0-5 |
| | 16-60 | 10-18 | 8.0-20 | 7.4-9.0 | 1-10 | 0 | 0.0-4.0 | 1-12 |
| 3880: | | | | | | | | |
| Hardhat--------- | 0-8 | 8-18 | 5.0-13 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 1-5 |
| | 8-17 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 1-5 |
| | 17-23 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 1-2 | 0.0-2.0 | 5-12 |
| | 23-60 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 1-5 | 0.0-2.0 | 13-30 |
| Candelaria------ | 0-7 | 10-15 | 5.0-15 | 8.5-9.6 | 0-5 | 0 | 0.0-4.0 | 5-12 |
| | 7-16 | 10-15 | 5.0-15 | 8.5-9.6 | 5-10 | 0 | 0.0-4.0 | 5-12 |
| | 16-24 | 8-15 | 3.0-10 | 8.5-9.6 | 10-25 | 0 | 8.0-16.0 | 5-12 |
| | 24-60 | 4-10 | 2.0-5.0 | 8.5-9.6 | 1-5 | 0 | 4.0-8.0 | 5-12 |
| 3881: | | | | | | | | |
| Hardhat--------- | 0-8 | 8-18 | 5.0-13 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 1-5 |
| | 8-17 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 1-5 |
| | 17-23 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 1-2 | 0.0-2.0 | 5-12 |
| | 23-60 | 8-18 | 5.0-12 | 7.9-9.0 | 10-20 | 1-5 | 0.0-2.0 | 13-30 |
| Stargo---------- | 0-5 | 20-27 | 10-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 5-15 | 27-35 | 20-25 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| | 15-60 | 2-8 | 5.0-10 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-12 |
| Yomba---------- | 0-4 | 5-15 | 0.0-5.0 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-20 | 5.0-15 | 7.9-9.0 | 5-25 | 0 | 0.0-2.0 | 0-5 |
| | 12-19 | 5-15 | 5.0-10 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 19-60 | 0-5 | 0.0-5.0 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| 3890: | | | | | | | | |
| Jarab---------- | 0-9 | 15-25 | 15-30 | 7.4-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| | 9-17 | 20-35 | 15-35 | 7.4-9.0 | 5-15 | 0 | 0.0-2.0 | 0-5 |
| | 17-60 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| Drewing--------- | 0-3 | 10-15 | 10-15 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 3-8 | 25-35 | 25-30 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 8-11 | 25-35 | 25-30 | 7.9-8.4 | 15-40 | 0 | 0.0-2.0 | 0-5 |
| | 11-18 | 5-10 | 4.0-8.0 | 7.9-8.4 | 15-40 | 0 | 0.0-2.0 | 0-5 |
| | 18-46 | --- | --- | --- | --- | --- | --- | --- |
| | 46-60 | 0-5 | 0.0-3.0 | 7.9-8.4 | 0-10 | 0 | 0.0-2.0 | 0-5 |
| Pharo---------- | 0-9 | 10-18 | 10-20 | 7.4-8.4 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| | 9-60 | 10-18 | 8.0-18 | 7.4-8.4 | 10-20 | 0 | 0.0-2.0 | 1-5 |
| 3900: | | | | | | | | |
| Playas---------- | 0-6 | 40-70 | 35-65 | 8.5-9.6 | 1-5 | 1-5 | 16.0-32.0 | 46-90 |
| | 6-60 | 35-70 | 30-60 | 8.5-9.6 | 1-10 | 1-10 | 16.0-32.0 | 46-90 |
| 3901: | | | | | | | | |
| Lava Flows------ | --- | --- | --- | --- | --- | --- | --- | --- |
| 3910: | | | | | | | | |
| Yomba---------- | 0-4 | 5-15 | 0.0-5.0 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-20 | 5.0-15 | 7.9-9.0 | 5-25 | 0 | 0.0-2.0 | 0-5 |
| | 12-19 | 5-15 | 5.0-10 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 19-60 | 0-5 | 0.0-5.0 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| Yomba---------- | 0-4 | 5-15 | 0.0-5.0 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-20 | 5.0-15 | 7.9-9.0 | 5-25 | 0 | 0.0-2.0 | 0-5 |
| | 12-19 | 5-15 | 5.0-10 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 19-60 | 0-5 | 0.0-5.0 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| 3911: | | | | | | | | |
| Yomba---------- | 0-4 | 5-15 | 0.0-5.0 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| | 4-12 | 10-20 | 5.0-15 | 7.9-9.0 | 5-25 | 0 | 0.0-2.0 | 0-5 |
| | 12-19 | 5-15 | 5.0-10 | 7.9-9.0 | 10-20 | 0 | 0.0-2.0 | 0-5 |
| | 19-60 | 0-5 | 0.0-5.0 | 7.4-9.0 | 0-5 | 0 | 0.0-2.0 | 0-5 |
| Playas---------- | 0-6 | 27-40 | 24-35 | 8.5-9.6 | 1-5 | 1-5 | 16.0-32.0 | 46-90 |
| | 6-60 | 35-70 | 30-60 | 8.5-9.6 | 1-10 | 1-10 | 16.0-32.0 | 46-90 |
| 3920: | | | | | | | | |
| Puett---------- | 0-5 | 10-20 | 10-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 0-5 |
| | 5-11 | 5-10 | 5.0-10 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 5-12 |
| | 11-15 | --- | --- | --- | --- | --- | --- | --- |
| Grassval-------- | 0-5 | 10-18 | 8.0-15 | 7.4-8.4 | 1-2 | 0 | 0 | 0 |
| | 5-13 | 25-35 | 15-22 | 7.9-9.0 | 3-5 | 0 | 0.0-2.0 | 1-12 |
| | 13-60 | --- | --- | --- | --- | --- | --- | --- |
| Rebel---------- | 0-16 | 10-15 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-4.0 | 0-5 |
| | 16-60 | 10-18 | 8.0-20 | 7.4-9.0 | 1-10 | 0 | 0.0-4.0 | 1-12 |
| 3940: | | | | | | | | |
| Peeko---------- | 0-8 | 10-27 | 5.0-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 8-13 | 18-27 | 10-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 13-60 | --- | --- | --- | --- | --- | --- | --- |
| Clowfin--------- | 0-6 | 8-18 | 5.0-13 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 13-30 |
| | 6-46 | 8-18 | 5.0-11 | 7.9-9.0 | 3-5 | 0 | 0.0-2.0 | 13-30 |
| | 46-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 3-5 | 0 | 2.0-4.0 | 5-12 |
| 3941: | | | | | | | | |
| Peeko---------- | 0-8 | 10-27 | 5.0-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 8-13 | 18-27 | 10-20 | 7.9-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 13-60 | --- | --- | --- | --- | --- | --- | --- |

TABLE 14.--CHEMICAL PROPERTIES OF THE SOILS--Continued

| Map symbol and soil name | Depth | Clay | Cation-exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|---|
| | In | Pct | meq/100g | pH | Pct | Pct | mmhos/cm | |
| 3960: | | | | | | | | |
| Hodedo---------- | 0-6 | 20-27 | 16-24 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 6-23 | 35-45 | 28-40 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 23-32 | --- | --- | --- | --- | --- | --- | --- |
| | 32-60 | 5-10 | 3.0-6.0 | 7.4-9.0 | 0 | 0 | 0.0-4.0 | 0 |
| 3970: | | | | | | | | |
| Linoyer--------- | 0-3 | 12-18 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-46 | 12-18 | 8.0-15 | 7.9-9.0 | 1-40 | 0 | 0.0-2.0 | 1-5 |
| | 46-60 | 5-10 | 1.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| Rebel---------- | 0-16 | 10-15 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-4.0 | 0-5 |
| | 16-60 | 10-18 | 8.0-20 | 7.4-9.0 | 1-10 | 0 | 0.0-4.0 | 1-12 |
| 3971: | | | | | | | | |
| Linoyer--------- | 0-3 | 12-18 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-46 | 12-18 | 8.0-15 | 7.9-9.0 | 1-40 | 0 | 0.0-2.0 | 1-5 |
| | 46-60 | 5-10 | 1.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| Easychair------- | 0-9 | 18-27 | 13-20 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 9-46 | 18-25 | 13-18 | 7.9-9.0 | 1-10 | 0 | 0.0-2.0 | 0-5 |
| | 46-60 | 8-18 | 6.0-13 | 7.9-9.0 | 1-13 | 0 | 0.0-2.0 | 0-5 |
| 3972: | | | | | | | | |
| Linoyer--------- | 0-3 | 12-18 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-46 | 12-18 | 8.0-15 | 7.9-9.0 | 1-40 | 0 | 0.0-2.0 | 1-5 |
| | 46-60 | 5-10 | 1.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| 3973: | | | | | | | | |
| Linoyer--------- | 0-3 | 12-18 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-46 | 12-18 | 8.0-15 | 7.9-9.0 | 1-40 | 0 | 0.0-2.0 | 1-5 |
| | 46-60 | 5-10 | 1.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| Clowfin--------- | 0-6 | 8-18 | 5.0-13 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 13-30 |
| | 6-46 | 8-18 | 5.0-11 | 7.9-9.0 | 3-5 | 0 | 0.0-2.0 | 13-30 |
| | 46-60 | 0-5 | 0.0-3.0 | 7.9-9.0 | 3-5 | 0 | 2.0-4.0 | 5-12 |
| 3974: | | | | | | | | |
| Linoyer--------- | 0-3 | 12-18 | 15-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-46 | 12-18 | 8.0-15 | 7.9-9.0 | 1-40 | 0 | 0.0-2.0 | 1-5 |
| | 46-60 | 5-10 | 1.0-5.0 | 7.9-9.0 | 5-10 | 0 | 0.0-2.0 | 1-5 |
| Kunzler--------- | 0-3 | 10-18 | 12-20 | 7.9-9.0 | 1-5 | 0 | 0.0-2.0 | 1-5 |
| | 3-40 | 10-18 | 10-15 | 7.9-9.0 | 5-10 | 0 | 2.0-4.0 | 5-45 |
| | 40-60 | 10-18 | 8.0-15 | 7.9-9.0 | 5-10 | 0 | 4.0-8.0 | 13-45 |
| W: | | | | | | | | |
| Water---------- | --- | --- | --- | --- | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3000: | | | | | | | | | |
| Stumble | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3001: | | | | | | | | | |
| Stumble | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3020: | | | | | | | | | |
| Easychair | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3040: | | | | | | | | | |
| Mosida | B | Occasional | Very brief | Feb-May | >6.0 | --- | --- | --- | --- |
| Rebel | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Slaw | C | Occasional | Brief | Dec-May | >6.0 | --- | --- | --- | --- |
| 3041: | | | | | | | | | |
| Mosida | B | Occasional | Very brief | Feb-May | >6.0 | --- | --- | --- | --- |
| 3050: | | | | | | | | | |
| Mijay | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Raster | A | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3060: | | | | | | | | | |
| Morbench | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3080: | | | | | | | | | |
| Breko | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Handpah | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3090: | | | | | | | | | |
| Univega | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3091: | | | | | | | | | |
| Univega | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Clowfin | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Molion | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3101: | | | | | | | | | |
| Gabbvally | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Vindicator | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3102: | | | | | | | | | |
| Gabbvally | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Stewval | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3102 | | | | | | | | | |
| Beelem | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3110: | | | | | | | | | |
| Cath | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3111: | | | | | | | | | |
| Cath | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3112: | | | | | | | | | |
| Cath | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Portmount | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Abgese | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3120: | | | | | | | | | |
| Portmount-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3130: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3131: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3132: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen----------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Keefa----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3134: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Hollywell-------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3137: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3138: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Stumble--------- | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3139: | | | | | | | | | |
| Unsel----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Izo---------- | A | Occasional | Very brief | Dec-Aug | >6.0 | --- | --- | --- | --- |
| 3140: | | | | | | | | | |
| Haunchee--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3140 | | | | | | | | | |
| Eaglepass-------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3150: | | | | | | | | | |
| Nuyobe---------- | C | Rare | --- | --- | 2.0-3.0 | Apparent | Nov-May | --- | --- |
| Blueagle--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Playas---------- | D | None | --- | --- | -1.0-1.0 | Apparent | Feb-Sep | Long | 1.0 |
| 3160: | | | | | | | | | |
| Cropper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Clanalpine------ | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3161: | | | | | | | | | |
| Cropper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Segura---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Ravenswood------ | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3162: | | | | | | | | | |
| Cropper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Segura---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Clanalpine------ | C | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3170: | | | | | | | | | |
| Hackwood-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Winu---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3180: | | | | | | | | | |
| Hymas---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Hopeka---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Solak---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3190: | | | | | | | | | |
| Penoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3191: | | | | | | | | | |
| Penoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Easychair------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3200: | | | | | | | | | |
| Ganaflan-------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3210: | | | | | | | | | |
| Kunzler--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Sycomat--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3211: | | | | | | | | | |
| Kunzler--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kunzler--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Sycomat--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3212: | | | | | | | | | |
| Kunzler--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kunzler--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3220: | | | | | | | | | |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Beelem---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3221: | | | | | | | | | |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3223: | | | | | | | | | |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3224: | | | | | | | | | |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Beelem---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3226: | | | | | | | | | |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3228: | | | | | | | | | |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Gabbvally------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Beelem---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3231: | | | | | | | | | |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3233: | | | | | | | | | |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3240: | | | | | | | | | |
| Stargo---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Occasional | Very brief | Jul-Aug | >6.0 | --- | --- | --- | --- |
| 3241: | | | | | | | | | |
| Stargo---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Stargo---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3250: | | | | | | | | | |
| Wardenot-------- | A | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3260: | | | | | | | | | |
| Springwarm------ | C | Rare | --- | --- | 1.5-4.0 | Apparent | Jan-Dec | --- | --- |
| Jotava---------- | C | Rare | --- | --- | 2.0-5.0 | Apparent | Jan-May | --- | --- |
| Delacit--------- | D | None | --- | --- | 5.0-6.0 | Apparent | Nov-May | --- | --- |
| 3270: | | | | | | | | | |
| Jotava---------- | C | Rare | --- | --- | 2.0-5.0 | Apparent | Jan-May | --- | --- |
| 3280: | | | | | | | | | |
| Duffer---------- | C | Occasional | Very brief | Jan-Jun | 1.5-3.0 | Apparent | Jan-Jun | --- | --- |
| Duffer---------- | C | Rare | --- | --- | 3.0-5.0 | Apparent | Feb-Jun | --- | --- |
| Equis---------- | D | Rare | --- | --- | 1.0-3.0 | Apparent | Feb-Apr | --- | --- |
| 3300: | | | | | | | | | |
| Palinor--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3301: | | | | | | | | | |
| Palinor--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Nuc---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3302: | | | | | | | | | |
| Palinor--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Parisa---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3310: | | | | | | | | | |
| Ursine---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3311: | | | | | | | | | |
| Ursine---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Cliffdown------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3330: | | | | | | | | | |
| Handpah--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Delamar--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3333: | | | | | | | | | |
| Handpah--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3334: | | | | | | | | | |
| Handpah--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Palinor--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Parisa---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3335: | | | | | | | | | |
| Handpah--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3340: | | | | | | | | | |
| Amelar---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Eoj------------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Hardol---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3380: | | | | | | | | | |
| Roden----------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Izar------------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Roden----------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3400: | | | | | | | | | |
| Parisa---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3410: | | | | | | | | | |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet------------ | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3412: | | | | | | | | | |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet------------ | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3414: | | | | | | | | | |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Cath------------ | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3415: | | | | | | | | | |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Leo------------- | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3420: | | | | | | | | | |
| Squawtip-------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outrock. | | | | | | | | | |
| 3430: | | | | | | | | | |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydrologic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3434: | | | | | | | | | |
| Bellehelen------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Cropper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3440: | | | | | | | | | |
| Layview--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Foxvire--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Suak---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3441: | | | | | | | | | |
| Layview--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Labshaft-------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Winu---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3442: | | | | | | | | | |
| Layview--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Suak---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Winu---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3450: | | | | | | | | | |
| Grassval-------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Allker---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3460: | | | | | | | | | |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Handpah--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3463: | | | | | | | | | |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3467: | | | | | | | | | |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3468: | | | | | | | | | |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Allker---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Peeko---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3470: | | | | | | | | | |
| Cirac---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Nyserva--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3471: | | | | | | | | | |
| Cirac---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Nyserva--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3473: | | | | | | | | | |
| Cirac---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Slaw---------- | C | Occasional | Brief | Dec-Jun | >6.0 | --- | --- | --- | --- |
| Nyserva--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3474: | | | | | | | | | |
| Cirac---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Nyserva--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Kawich---------- | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3475: | | | | | | | | | |
| Cirac---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Slaw---------- | C | Occasional | Brief | Dec-Jun | >6.0 | --- | --- | --- | --- |
| 3480: | | | | | | | | | |
| Chuckridge------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3481: | | | | | | | | | |
| Chuckridge------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Unsel---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3491: | | | | | | | | | |
| Slaw---------- | C | Occasional | Brief | Dec-May | >6.0 | --- | --- | --- | --- |
| Easychair------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3520: | | | | | | | | | |
| Rustigate------- | C | Rare | --- | --- | 3.0-5.0 | Apparent | Dec-Jul | --- | --- |
| 3521: | | | | | | | | | |
| Rustigate------- | C | Rare | --- | --- | 3.0-5.0 | Apparent | Dec-Jul | --- | --- |
| Nuyobe---------- | C | Rare | --- | --- | 2.0-3.0 | Apparent | Nov-May | --- | --- |
| 3522: | | | | | | | | | |
| Rustigate------- | C | Rare | --- | --- | 3.0-5.0 | Apparent | Dec-Jul | --- | --- |
| Nuyobe---------- | C | Rare | --- | --- | 2.0-3.0 | Apparent | Nov-May | --- | --- |
| Kawich---------- | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3530: | | | | | | | | | |
| Rebel---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3531: | | | | | | | | | |
| Rebel---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3540: | | | | | | | | | |
| Packer---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Suak---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Foxvire--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3560: | | | | | | | | | |
| Ubehebe--------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Penelas--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Logring--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3570: | | | | | | | | | |
| Eaglepass------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kyler---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3571: | | | | | | | | | |
| Eaglepass------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Eaglepass------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3572: | | | | | | | | | |
| Eaglepass------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kyler---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3580: | | | | | | | | | |
| Kyler---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3581: | | | | | | | | | |
| Kyler---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3590: | | | | | | | | | |
| Allker---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Portmount------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3600: | | | | | | | | | |
| Ardivey--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Hollywell------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Belted---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3601: | | | | | | | | | |
| Ardivey--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3610: | | | | | | | | | |
| Tokoper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Garhill--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3620: | | | | | | | | | |
| Argalt---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Gabbvally------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3630: | | | | | | | | | |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3640: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Zadvar---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3641: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3641 | | | | | | | | | |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydrologic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3642: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3643: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Morbench-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3644: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Cliffdown------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3645: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Clowfin--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Peeko----------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3647: | | | | | | | | | |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Spager---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3651: | | | | | | | | | |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3655: | | | | | | | | | |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Armespan-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3660: | | | | | | | | | |
| Titiack--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Garhill--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3670: | | | | | | | | | |
| Logring--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| Kyler----------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3671: | | | | | | | | | |
| Logring--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Eaglepass------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3672: | | | | | | | | | |
| Logring--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kyler----------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3672 | | | | | | | | | |
| Eaglepass------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3700: | | | | | | | | | |
| Leo------------- | A | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Delamar--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3702: | | | | | | | | | |
| Leo------------- | A | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Hollywell------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3703: | | | | | | | | | |
| Leo------------- | A | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen----------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydrologic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3710: | | | | | | | | | |
| Beelem---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3730: | | | | | | | | | |
| Penelas--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kyler---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3731: | | | | | | | | | |
| Penelas--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Ubehebe--------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3740: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Unsel---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3741: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3742: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Stargo---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3744: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Garhill--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Belted---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3745: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Hollywell------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3747: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Linoyer--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3748: | | | | | | | | | |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Keefa---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3750: | | | | | | | | | |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Cliffdown------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3751: | | | | | | | | | |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Unsel---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3752: | | | | | | | | | |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3754: | | | | | | | | | |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3755: | | | | | | | | | |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Watoopah-------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3756: | | | | | | | | | |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3757: | | | | | | | | | |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Occasional | Very brief | Jul-Aug | >6.0 | --- | --- | --- | --- |
| Penoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3758: | | | | | | | | | |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3760: | | | | | | | | | |
| Vindicator------ | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3770: | | | | | | | | | |
| Yody---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Cath---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Abgese---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3780: | | | | | | | | | |
| Molion---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3800: | | | | | | | | | |
| Lyda---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Delamar--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3801: | | | | | | | | | |
| Lyda---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Belted---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Ardivey--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3803: | | | | | | | | | |
| Lyda---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Ardivey--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3804: | | | | | | | | | |
| Lyda---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Ardivey--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3805: | | | | | | | | | |
| Lyda---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Hardhat--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3810: | | | | | | | | | |
| Belted---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Univega--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3811: | | | | | | | | | |
| Belted---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Unsel---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Lyx---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3830: | | | | | | | | | |
| Downeyville----- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3831: | | | | | | | | | |
| Downeyville----- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Stewval--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3832: | | | | | | | | | |
| Downeyville----- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Tokoper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3841: | | | | | | | | | |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3842: | | | | | | | | | |
| Veet---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Koyen---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Geer---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3850: | | | | | | | | | |
| Garhill--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Tokoper--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Argalt---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3860: | | | | | | | | | |
| Hyzen---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Kyler---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3861: | | | | | | | | | |
| Hyzen---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Eganroc--------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rock Outcrop. | | | | | | | | | |
| 3870: | | | | | | | | | |
| Lien---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rebel---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3880: | | | | | | | | | |
| Hardhat--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Candelaria------ | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3881: | | | | | | | | | |
| Hardhat--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Stargo---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3881 | | | | | | | | | |
| Yomba---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 15.--WATER FEATURES--Continued

| Map symbol and soil name | Hydro-logic group | Flooding | | | High water table and ponding | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Duration | Months | Water table depth | Kind of water table | Months | Ponding duration | Maximum ponding depth |
| | | | | | Ft | | | | Ft |
| 3890: | | | | | | | | | |
| Jarab---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Drewing--------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Pharo---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3900: | | | | | | | | | |
| Playas---------- | D | None | --- | --- | -1.0-1.0 | Apparent | Feb-Sep | Long | 1.0 |
| 3901: | | | | | | | | | |
| Lava Flows. | | | | | | | | | |
| 3910: | | | | | | | | | |
| Yomba---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Yomba---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3911: | | | | | | | | | |
| Yomba---------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Playas---------- | D | None | --- | --- | -1.0-1.0 | Apparent | Feb-Sep | Long | 1.0 |
| 3920: | | | | | | | | | |
| Puett---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Grassval-------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Rebel---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3940: | | | | | | | | | |
| Peeko---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| Clowfin--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3941: | | | | | | | | | |
| Peeko---------- | D | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3960: | | | | | | | | | |
| Hodedo---------- | C | None | --- | --- | >6.0 | --- | --- | --- | --- |
| 3970: | | | | | | | | | |
| Linoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Rebel---------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3971: | | | | | | | | | |
| Linoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Easychair------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3972: | | | | | | | | | |
| Linoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3973: | | | | | | | | | |
| Linoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3973 | | | | | | | | | |
| Clowfin--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| 3974: | | | | | | | | | |
| Linoyer--------- | B | Rare | --- | --- | >6.0 | --- | --- | --- | --- |
| Kunzler--------- | B | None | --- | --- | >6.0 | --- | --- | --- | --- |

TABLE 16.--SOIL FEATURES

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3000: | | | | | | | |
| Stumble--------- | --- | --- | 0 | --- | Low | High | Low |
| 3001: | | | | | | | |
| Stumble--------- | --- | --- | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| Izo---------- | --- | --- | 0 | --- | Low | High | Low |
| 3020: | | | | | | | |
| Easychair------- | --- | --- | 0 | --- | Low | High | Low |
| 3040: | | | | | | | |
| Mosida---------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| Rebel---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Slaw---------- | --- | --- | 0 | --- | Low | High | High |
| 3041: | | | | | | | |
| Mosida---------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| 3050: | | | | | | | |
| Mijay---------- | 20-40 | Duripan | 0 | --- | Moderate | High | Low |
| Raster---------- | --- | --- | 0 | --- | Low | Moderate | Low |
| 3060: | | | | | | | |
| Morbench-------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3080: | | | | | | | |
| Breko---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Handpah--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3090: | | | | | | | |
| Univega--------- | 8-20 | Duripan | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| 3091: | | | | | | | |
| Univega--------- | 8-20 | Duripan | 0 | --- | Low | High | Low |
| Clowfin--------- | --- | --- | 0 | --- | Low | High | Low |
| Molion---------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3101: | | | | | | | |
| Gabbvally------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Vindicator------ | 4-14 | Bedrock (paralithic) | 0 | --- | Low | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3102: | | | | | | | |
| Gabbvally------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Beelem---------- | 4-9 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3110: | | | | | | | |
| Cath---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Zadvar---------- | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| 3111: | | | | | | | |
| Cath---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3112: | | | | | | | |
| Cath---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Portmount------- | --- | --- | 0 | --- | Moderate | High | Low |
| Abgese---------- | --- | --- | 0 | --- | Moderate | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3120: | | | | | | | |
| Portmount------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3130: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| 3131: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Geer---------- | --- | --- | 0 | --- | Low | High | Low |
| 3132: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| Keefa---------- | --- | --- | 0 | --- | Low | High | Low |
| 3134: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Hollywell------- | --- | --- | 0 | --- | Low | High | Low |
| Lyx---------- | --- | --- | 0 | --- | Low | High | Low |
| 3137: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| 3138: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Stumble--------- | --- | --- | 0 | --- | Low | High | Low |
| 3139: | | | | | | | |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Izo---------- | --- | --- | 0 | --- | Low | High | Low |
| 3140: | | | | | | | |
| Haunchee-------- | 10-20 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3150: | | | | | | | |
| Nuyobe---------- | --- | --- | 0 | --- | High | High | High |
| Blueagle-------- | --- | --- | 0 | --- | Low | High | High |
| Playas---------- | --- | --- | 0 | --- | None | High | High |
| 3160: | | | | | | | |
| Cropper--------- | 14-20 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Clanalpine------ | 20-40 | Bedrock (paralithic) | 0 | --- | Moderate | Moderate | Low |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| 3161: | | | | | | | |
| Cropper--------- | 14-20 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Segura---------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Ravenswood------ | 30-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| 3162: | | | | | | | |
| Cropper--------- | 14-20 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Segura---------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Clanalpine------ | 20-40 | Bedrock (paralithic) | 0 | --- | Moderate | Moderate | Low |
| 3170: | | | | | | | |
| Hackwood-------- | --- | --- | 0 | --- | Moderate | Moderate | Low |
| Winu---------- | 24-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Moderate |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3180: | | | | | | | |
| Hymas---------- | 10-20 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Hopeka---------- | 4-10 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Solak---------- | 10-20 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3190: | | | | | | | |
| Penoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| Geer---------- | --- | --- | 0 | --- | Low | High | Low |
| 3191: | | | | | | | |
| Penoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Easychair------- | --- | --- | 0 | --- | Low | High | Low |
| 3200: | | | | | | | |
| Ganaflan-------- | 20-40 | Bedrock (paralithic) | 0 | --- | Low | High | Moderate |
| 3210: | | | | | | | |
| Kunzler--------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| Sycomat--------- | --- | --- | 0 | --- | Low | High | Low |
| 3211: | | | | | | | |
| Kunzler--------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| Kunzler--------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| Sycomat--------- | --- | --- | 0 | --- | Low | High | Low |
| 3212: | | | | | | | |
| Kunzler--------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| Kunzler--------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| 3220: | | | | | | | |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Beelem---------- | 4-9 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3221: | | | | | | | |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3223: | | | | | | | |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3224: | | | | | | | |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Beelem---------- | 4-9 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| 3226: | | | | | | | |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3228: | | | | | | | |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Gabbvally------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Beelem---------- | 4-9 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3231: | | | | | | | |
| Geer---------- | --- | --- | 0 | --- | Low | High | Low |
| 3233: | | | | | | | |
| Geer---------- | --- | --- | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| 3240: | | | | | | | |
| Stargo---------- | --- | --- | 0 | --- | Low | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3241: | | | | | | | |
| Stargo---------- | --- | --- | 0 | --- | Low | High | Low |
| Stargo---------- | --- | --- | 0 | --- | Low | High | Low |
| 3250: | | | | | | | |
| Wardenot-------- | --- | --- | 0 | --- | Low | High | Low |
| 3260: | | | | | | | |
| Springwarm------ | 20-40 | Bedrock (lithic) | 0 | --- | High | High | High |
| Jotava---------- | --- | --- | 0 | --- | High | High | High |
| Delacit--------- | 14-20 | Bedrock (paralithic) | 0 | --- | Low | High | High |
| 3270: | | | | | | | |
| Jotava---------- | --- | --- | 0 | --- | High | High | High |
| 3280: | | | | | | | |
| Duffer---------- | --- | --- | 0 | --- | High | High | High |
| Duffer---------- | --- | --- | 0 | --- | High | High | High |
| Equis---------- | --- | --- | 0 | --- | Moderate | High | High |
| 3300: | | | | | | | |
| Palinor--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3301: | | | | | | | |
| Palinor--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Nuc---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3302: | | | | | | | |
| Palinor--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Parisa---------- | 20-40 | Duripan | 0 | --- | Moderate | High | Low |
| 3310: | | | | | | | |
| Ursine---------- | 14-20 | Duripan | 0 | --- | Moderate | High | Moderate |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3311: | | | | | | | |
| Ursine---------- | 14-20 | Duripan | 0 | --- | Moderate | High | Moderate |
| Cliffdown------- | --- | --- | 0 | --- | Low | High | High |
| 3330: | | | | | | | |
| Handpah--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Delamar--------- | 20-40 | Duripan | 0 | --- | Low | High | Low |
| 3333: | | | | | | | |
| Handpah--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Zadvar---------- | 10-14 | Duripan | 0 | --- | Moderate | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3334: | | | | | | | |
| Handpah--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Palinor--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Parisa---------- | 20-40 | Duripan | 0 | --- | Moderate | High | Low |
| 3335: | | | | | | | |
| Handpah--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| 3340: | | | | | | | |
| Amelar---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Eoj---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Hardol---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3380: | | | | | | | |
| Roden---------- | 8-14 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Izar---------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Roden---------- | 8-14 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| 3400: | | | | | | | |
| Parisa---------- | 20-40 | Duripan | 0 | --- | Moderate | High | Low |
| 3410: | | | | | | | |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3412: | | | | | | | |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Zadvar---------- | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| 3414: | | | | | | | |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Cath---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3415: | | | | | | | |
| Watoopah-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Leo---------- | --- | --- | 0 | --- | Low | High | Low |
| 3420: | | | | | | | |
| Squawtip-------- | 20-40 | Bedrock (paralithic) | 0 | --- | Moderate | Moderate | Low |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3430: | | | | | | | |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3434: | | | | | | | |
| Bellehelen------ | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Cropper--------- | 14-20 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3440: | | | | | | | |
| Layview | 10-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Foxvire | --- | --- | 0 | --- | Moderate | Moderate | Low |
| Suak | 20-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| 3441: | | | | | | | |
| Layview | 10-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Labshaft | 10-20 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Winu | 24-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Moderate |
| 3442: | | | | | | | |
| Layview | 10-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Suak | 20-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Winu | 24-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Moderate |
| 3450: | | | | | | | |
| Grassval | 8-14 | Duripan | 0 | --- | Moderate | High | Low |
| Allker | --- | --- | 0 | --- | Moderate | High | Low |
| Zadvar | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| 3460: | | | | | | | |
| Zadvar | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| Handpah | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3463: | | | | | | | |
| Zadvar | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| Veet | --- | --- | 0 | --- | Moderate | High | Low |
| 3467: | | | | | | | |
| Zadvar | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| 3468: | | | | | | | |
| Zadvar | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| Allker | --- | --- | 0 | --- | Moderate | High | Low |
| Peeko | 10-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3470: | | | | | | | |
| Cirac | --- | --- | 0 | --- | Low | High | High |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Nyserva | --- | --- | 0 | --- | Low | High | High |
| 3471: | | | | | | | |
| Cirac | --- | --- | 0 | --- | Low | High | High |
| Nyserva | --- | --- | 0 | --- | Low | High | High |
| 3473: | | | | | | | |
| Cirac | --- | --- | 0 | --- | Low | High | High |
| Slaw | --- | --- | 0 | --- | Moderate | High | High |
| Nyserva | --- | --- | 0 | --- | Low | High | High |
| 3474: | | | | | | | |
| Cirac | --- | --- | 0 | --- | Low | High | High |
| Nyserva | --- | --- | 0 | --- | Low | High | High |
| Kawich | --- | --- | 0 | --- | Low | High | Low |
| 3475: | | | | | | | |
| Cirac | --- | --- | 0 | --- | Low | High | High |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Slaw | --- | --- | 0 | --- | Moderate | High | High |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3480: | | | | | | | |
| Chuckridge------ | 7-14 | Duripan | 0 | --- | Moderate | High | Low |
| Zadvar---------- | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| 3481: | | | | | | | |
| Chuckridge------ | 7-14 | Duripan | 0 | --- | Moderate | High | Low |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3491: | | | | | | | |
| Slaw---------- | --- | --- | 0 | --- | Low | High | High |
| Easychair------- | --- | --- | 0 | --- | Low | High | Low |
| 3520: | | | | | | | |
| Rustigate------- | --- | --- | 0 | --- | High | High | Low |
| 3521: | | | | | | | |
| Rustigate------- | --- | --- | 0 | --- | High | High | Low |
| Nuyobe---------- | --- | --- | 0 | --- | High | High | High |
| 3522: | | | | | | | |
| Rustigate------- | --- | --- | 0 | --- | High | High | Low |
| Nuyobe---------- | --- | --- | 0 | --- | High | High | High |
| Kawich---------- | --- | --- | 0 | --- | Low | High | Low |
| 3530: | | | | | | | |
| Rebel---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3531: | | | | | | | |
| Rebel---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3540: | | | | | | | |
| Packer---------- | --- | --- | 0 | --- | Moderate | Moderate | Low |
| Suak---------- | 20-40 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Foxvire--------- | --- | --- | 0 | --- | Moderate | Moderate | Low |
| 3560: | | | | | | | |
| Ubehebe--------- | 14-20 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Penelas--------- | 5-14 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Logring--------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3570: | | | | | | | |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Kyler---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3571: | | | | | | | |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3572: | | | | | | | |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Kyler---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3580: | | | | | | | |
| Kyler---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3581: | | | | | | | |
| Kyler---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3590: | | | | | | | |
| Allker---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Portmount------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3600: | | | | | | | |
| Ardivey--------- | --- | --- | 0 | --- | Low | High | Low |
| Hollywell------- | --- | --- | 0 | --- | Low | High | Low |
| Belted---------- | 6-14 | Duripan | 0 | --- | Low | High | Low |
| 3601: | | | | | | | |
| Ardivey--------- | --- | --- | 0 | --- | Low | High | Low |
| Zadvar---------- | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| 3610: | | | | | | | |
| Tokoper--------- | 8-15<br>8-14 | Bedrock (lithic)<br>Duripan | 0 | --- | Low | High | Low |
| Garhill--------- | 7-14<br>12-30 | Duripan<br>Bedrock (lithic) | 0 | --- | Low | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3620: | | | | | | | |
| Argalt---------- | 8-14<br>10-20 | Duripan<br>Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| Gabbvally------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| 3630: | | | | | | | |
| Lyx---------- | --- | --- | 0 | --- | Low | High | Low |
| Geer---------- | --- | --- | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| 3640: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Zadvar---------- | 10-14 | Duripan | 0 | --- | Moderate | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3641: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Lyx---------- | --- | --- | 0 | --- | Low | High | Low |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| 3642: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3643: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Morbench-------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3644: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Cliffdown------- | --- | --- | 0 | --- | Low | High | High |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| 3645: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Clowfin--------- | --- | --- | 0 | --- | Low | High | Low |
| Peeko---------- | 10-20 | Duripan | 0 | --- | Moderate | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3647: | | | | | | | |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| Spager---------- | 10-20 | Petrocalcic | 0 | --- | Moderate | High | Moderate |
| 3651: | | | | | | | |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| 3655: | | | | | | | |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| Armespan-------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3660: | | | | | | | |
| Titiack--------- | --- | --- | 0 | --- | Low | High | Low |
| Garhill--------- | 7-14<br>12-30 | Duripan<br>Bedrock (lithic) | 0 | --- | Low | High | Low |
| 3670: | | | | | | | |
| Logring--------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| Kyler----------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3671: | | | | | | | |
| Logring--------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3672: | | | | | | | |
| Logring--------- | 7-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Kyler----------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Eaglepass------- | 4-6 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3700: | | | | | | | |
| Leo------------- | --- | --- | 0 | --- | Low | High | Low |
| Delamar--------- | 20-40 | Duripan | 0 | --- | Low | High | Low |
| 3702: | | | | | | | |
| Leo------------- | --- | --- | 0 | --- | Low | High | Low |
| Hollywell------- | --- | --- | 0 | --- | Low | High | Low |
| 3703: | | | | | | | |
| Leo------------- | --- | --- | 0 | --- | Low | High | Low |
| Koyen----------- | --- | --- | 0 | --- | Low | High | Low |
| 3710: | | | | | | | |
| Beelem---------- | 4-9 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3730: | | | | | | | |
| Penelas--------- | 5-14 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Kyler----------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3731: | | | | | | | |
| Penelas--------- | 5-14 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Ubehebe--------- | 14-20 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3740: | | | | | | | |
| Keefa----------- | --- | --- | 0 | --- | Low | High | Low |
| Unsel----------- | --- | --- | 0 | --- | Low | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3741: | | | | | | | |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| 3742: | | | | | | | |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Stargo | --- | --- | 0 | --- | Low | High | Low |
| 3744: | | | | | | | |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Garhill | 7-14<br>12-30 | Duripan<br>Bedrock (lithic) | 0 | --- | Low | High | Low |
| Belted | 6-14 | Duripan | 0 | --- | Low | High | Low |
| 3745: | | | | | | | |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Hollywell | --- | --- | 0 | --- | Low | High | Low |
| 3747: | | | | | | | |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Lyx | --- | --- | 0 | --- | Low | High | Low |
| Linoyer | --- | --- | 0 | --- | Moderate | High | Low |
| 3748: | | | | | | | |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Keefa | --- | --- | 0 | --- | Low | High | Low |
| 3750: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Cliffdown | --- | --- | 0 | --- | Low | High | High |
| 3751: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Unsel | --- | --- | 0 | --- | Low | High | Low |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| 3752: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| 3754: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Watoopah | --- | --- | 0 | --- | Moderate | High | Low |
| Geer | --- | --- | 0 | --- | Low | High | Low |
| 3755: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Watoopah | --- | --- | 0 | --- | Moderate | High | Low |
| 3756: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Lyx | --- | --- | 0 | --- | Low | High | Low |
| 3757: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |
| Veet | --- | --- | 0 | --- | Moderate | High | Low |
| Penoyer | --- | --- | 0 | --- | Moderate | High | Low |
| 3758: | | | | | | | |
| Koyen | --- | --- | 0 | --- | Low | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3760: | | | | | | | |
| Vindicator------ | 4-14 | Bedrock (paralithic) | 0 | --- | Low | High | Low |
| 3770: | | | | | | | |
| Yody---------- | 30-40 | Duripan | 0 | --- | Moderate | High | Low |
| Cath---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Abgese---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3780: | | | | | | | |
| Molion---------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3800: | | | | | | | |
| Lyda---------- | 8-14 | Duripan | 0 | --- | Low | High | Low |
| Delamar--------- | 20-40 | Duripan | 0 | --- | Low | High | Low |
| Lyx---------- | --- | --- | 0 | --- | Low | High | Low |
| 3801: | | | | | | | |
| Lyda---------- | 8-14 | Duripan | 0 | --- | Low | High | Low |
| Belted---------- | 6-14 | Duripan | 0 | --- | Low | High | Low |
| Ardivey--------- | --- | --- | 0 | --- | Low | High | Low |
| 3803: | | | | | | | |
| Lyda---------- | 8-14 | Duripan | 0 | --- | Low | High | Low |
| Ardivey--------- | --- | --- | 0 | --- | Low | High | Low |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3804: | | | | | | | |
| Lyda---------- | 8-14 | Duripan | 0 | --- | Low | High | Low |
| Ardivey--------- | --- | --- | 0 | --- | Low | High | Low |
| Lyx---------- | --- | --- | 0 | --- | Low | High | Low |
| 3805: | | | | | | | |
| Lyda---------- | 8-14 | Duripan | 0 | --- | Low | High | Low |
| Hardhat--------- | --- | --- | 0 | --- | Low | High | Low |
| 3810: | | | | | | | |
| Belted---------- | 6-14 | Duripan | 0 | --- | Low | High | Low |
| Univega--------- | 8-20 | Duripan | 0 | --- | Low | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| 3811: | | | | | | | |
| Belted---------- | 6-14 | Duripan | 0 | --- | Low | High | Low |
| Unsel---------- | --- | --- | 0 | --- | Low | High | Low |
| Lyx---------- | --- | --- | 0 | --- | Low | High | Low |
| 3830: | | | | | | | |
| Downeyville----- | 4-14 | Bedrock (lithic) | 0 | --- | Low | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3831: | | | | | | | |
| Downeyville----- | 4-14 | Bedrock (lithic) | 0 | --- | Low | High | Low |
| Stewval--------- | 4-14 | Bedrock (lithic) | 0 | --- | Moderate | Moderate | Low |
| 3832: | | | | | | | |
| Downeyville----- | 4-14 | Bedrock (lithic) | 0 | --- | Low | High | Low |
| Tokoper--------- | 8-15<br>8-14 | Bedrock (lithic)<br>Duripan | 0 | --- | Low | High | Low |
| 3841: | | | | | | | |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3842: | | | | | | | |
| Veet---------- | --- | --- | 0 | --- | Moderate | High | Low |
| Koyen---------- | --- | --- | 0 | --- | Low | High | Low |
| Geer---------- | --- | --- | 0 | --- | Low | High | Low |
| 3850: | | | | | | | |
| Garhill--------- | 7-14<br>12-30 | Duripan<br>Bedrock (lithic) | 0 | --- | Low | High | Low |
| Tokoper--------- | 8-15<br>8-14 | Bedrock (lithic)<br>Duripan | 0 | --- | Low | High | Low |
| Argalt---------- | 8-14<br>10-20 | Duripan<br>Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| 3860: | | | | | | | |
| Hyzen---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Kyler---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3861: | | | | | | | |
| Hyzen---------- | 6-14 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Eganroc---------- | 30-40 | Bedrock (lithic) | 0 | --- | Moderate | High | Low |
| Rock Outcrop---- | --- | --- | --- | --- | --- | --- | --- |
| 3870: | | | | | | | |
| Lien---------- | 6-14 | Duripan | 0 | --- | Moderate | High | Low |
| Rebel---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3880: | | | | | | | |
| Hardhat--------- | --- | --- | 0 | --- | Low | High | Low |
| Candelaria------ | --- | --- | 0 | --- | Low | High | High |
| 3881: | | | | | | | |
| Hardhat--------- | --- | --- | 0 | --- | Low | High | Low |
| Stargo---------- | --- | --- | 0 | --- | Low | High | Low |
| Yomba---------- | --- | --- | 0 | --- | Low | High | Low |
| 3890: | | | | | | | |
| Jarab---------- | 10-20 | Duripan | 0 | --- | Moderate | High | Low |
| Drewing--------- | 14-20 | Duripan | 0 | --- | Moderate | High | Low |
| Pharo---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3900: | | | | | | | |
| Playas---------- | --- | --- | 0 | --- | None | High | High |
| 3901: | | | | | | | |
| Lava Flows------ | --- | --- | --- | --- | --- | --- | --- |
| 3910: | | | | | | | |
| Yomba---------- | --- | --- | 0 | --- | Low | High | Low |
| Yomba---------- | --- | --- | 0 | --- | Low | High | Low |
| 3911: | | | | | | | |
| Yomba---------- | --- | --- | 0 | --- | Low | High | Low |
| Playas---------- | --- | --- | 0 | --- | None | High | High |
| 3920: | | | | | | | |
| Puett---------- | 10-20 | Bedrock (paralithic) | 0 | --- | Moderate | High | Low |
| Grassval-------- | 8-14 | Duripan | 0 | --- | Moderate | High | Low |
| Rebel---------- | --- | --- | 0 | --- | Moderate | High | Low |

TABLE 16.--SOIL FEATURES--Continued

| Map symbol and soil name | Restrictions | | Subsidence | | Potential frost action | Risk of corrosion | |
|---|---|---|---|---|---|---|---|
| | Depth | Kind | Initial | Total | | Uncoated steel | Concrete |
| | In | | In | In | | | |
| 3940: | | | | | | | |
| Peeko---------- | 10-20 | Duripan | 0 | --- | Moderate | High | Low |
| Clowfin--------- | --- | --- | 0 | --- | Low | High | Low |
| 3941: | | | | | | | |
| Peeko---------- | 10-20 | Duripan | 0 | --- | Moderate | High | Low |
| 3960: | | | | | | | |
| Hodedo---------- | 20-26 | Duripan | 0 | --- | Low | High | Low |
| 3970: | | | | | | | |
| Linoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| Rebel---------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3971: | | | | | | | |
| Linoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| Easychair------- | --- | --- | 0 | --- | Low | High | Low |
| 3972: | | | | | | | |
| Linoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| 3973: | | | | | | | |
| Linoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| Clowfin--------- | --- | --- | 0 | --- | Low | High | Low |
| 3974: | | | | | | | |
| Linoyer--------- | --- | --- | 0 | --- | Moderate | High | Low |
| Kunzler--------- | --- | --- | 0 | --- | Moderate | High | Moderate |
| W: | | | | | | | |
| Water---------- | --- | --- | --- | --- | --- | --- | --- |

TABLE 17.--CLASSIFICATION OF THE SOILS

| Soil name | Family or higher taxonomic class |
|---|---|
| Abgese | Fine-loamy, mixed, mesic Xerollic Haplargids |
| Allker | Fine-loamy over sandy or sandy-skeletal, mixed, mesic Durixerollic Haplargids |
| Amelar | Loamy-skeletal, mixed, frigid Calcic Argixerolls |
| Ardivey | Loamy-skeletal, mixed, mesic Duric Haplargids |
| Argalt | Loamy, mixed, mesic, shallow Xerollic Durargids |
| Armespan | Loamy-skeletal, mixed, mesic Durixerollic Calciorthids |
| Beelem | Loamy, mixed (calcareous), mesic Lithic Xeric Torriorthents |
| Bellehelen | Loamy-skeletal, mixed, mesic Lithic Argixerolls |
| Belted | Loamy, mixed, mesic, shallow Haplic Durargids |
| Blueagle | Fine-silty, mixed (calcareous), mesic Typic Torriorthents |
| Breko | Loamy-skeletal, mixed, mesic Xerollic Haplargids |
| Candelaria | Sandy-skeletal, mixed, mesic Duric Calciorthids |
| Cath | Fine-loamy, mixed, mesic Durixerollic Haplargids |
| Chuckridge | Loamy, mixed, mesic, shallow Xerollic Durargids |
| Cirac | Coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents |
| Clanalpine | Loamy-skeletal, mixed, frigid Typic Argixerolls |
| Cliffdown | Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents |
| Clowfin | Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents |
| Cropper | Loamy-skeletal, mixed, frigid Lithic Argixerolls |
| Delacit | Loamy-skeletal, mixed, mesic, shallow Typic Natrargids |
| Delamar | Fine-loamy, mixed, mesic Typic Durargids |
| Downeyville | Loamy-skeletal, mixed, mesic Lithic Haplargids |
| Drewing | Loamy-skeletal, mixed, mesic, shallow Aridic Durixerolls |
| Duffer | Fine-silty, carbonatic, mesic Aquic Calciorthids |
| Eaglepass | Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents |
| Easychair | Fine-silty, mixed (calcareous), mesic Typic Torriorthents |
| Eganroc | Loamy-skeletal, mixed Calcic Pachic Cryoborolls |
| Eoj | Fine, montmorillonitic, frigid Typic Palexerolls |
| Equis | Fine, carbonatic, mesic Typic Halaquepts |
| Foxvire | Coarse-loamy, mixed Pachic Cryoborolls |
| Gabbvally | Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids |
| Ganaflan | Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents |
| Garhill | Loamy, mixed, mesic, shallow Typic Durorthids |
| Geer | Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents |
| Grassval | Loamy, mixed, mesic, shallow Xerollic Durargids |
| Hackwood | Fine-loamy, mixed Pachic Cryoborolls |
| Handpah | Loamy, mixed, mesic, shallow Xerollic Durargids |
| Hardhat | Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents |
| Hardol | Loamy-skeletal, carbonatic, Calcic Pachic Cryoborolls |
| Haunchee | Loamy-skeletal, carbonatic Cryic Lithic Rendolls |
| Hodedo | Fine, montmorillonitic, frigid Aridic Durixerolls |
| Hollywell | Loamy-skeletal, mixed, mesic Typic Camborthids |
| Hopeka | Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents |
| Hymas | Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls |
| Hyzen | Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls |
| Izar | Loamy-skeletal, mixed (calcareous), mesic Lithic Xeric Torriorthents |
| Izo | Sandy-skeletal, mixed, mesic Typic Torriorthents |
| Jarab | Loamy-skeletal, mixed, mesic, shallow Orthidic Durixerolls |
| Jotava | Fine-loamy, mixed, mesic Aquic Duric Calciorthids |
| Kawich | Mixed, mesic Typic Torripsamments |
| Keefa | Coarse-loamy, mixed, mesic Duric Camborthids |
| Koyen | Coarse-loamy, mixed, mesic Typic Camborthids |
| Kunzler | Coarse-loamy, mixed, mesic Durixerollic Calciorthids |
| Kyler | Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents |
| Labshaft | Loamy-skeletal, mixed, Lithic Cryoborolls |
| Layview | Loamy-skeletal, mixed Argic Lithic Cryoborolls |
| Leo | Sandy-skeletal, mixed, mesic Typic Torriorthents |
| Lien | Loamy-skeletal, mixed, mesic, shallow Xerollic Durorthids |
| Linoyer | Coarse-silty, mixed (calcareous), mesic Xeric Torriorthents |
| Logring | Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents |
| Lyda | Loamy-skeletal, mixed, mesic, shallow Typic Durargids |
| Lyx | Sandy-skeletal, mixed, mesic Typic Camborthids |
| Mijay | Loamy-skeletal, mixed, mesic Haploxerollic Durargids |
| Molion | Loamy-skeletal, mixed, mesic, shallow Haploxerollic Durorthids |
| Morbench | Loamy-skeletal, mixed, mesic Durixerollic Calciorthids |

TABLE 17.--CLASSIFICATION OF THE SOILS--Continued

| Soil name | Family or higher taxonomic class |
|---|---|
| Mosida | Coarse-loamy, mixed, mesic Torrifluventic Haploxerolls |
| Nuc | Loamy-skeletal, carbonatic, mesic Durixerollic Calciorthids |
| Nuyobe | Fine-silty, mixed (calcareous), mesic Aeric Halaquepts |
| Nyserva | Fine-loamy, mixed, mesic Duric Natrargids |
| Packer | Loamy-skeletal, mixed Argic Cryoborolls |
| Palinor | Loamy-skeletal, carbonatic, mesic, shallow Xerollic Durorthids |
| Parisa | Loamy-skeletal, carbonatic, mesic Xerollic Durorthids |
| Peeko | Loamy, mixed, mesic, shallow Xerollic Durorthids |
| Penelas | Loamy-skeletal, mixed, mesic, shallow Xerollic Haplargids |
| Penoyer | Coarse-silty, mixed (calcareous), mesic Typic Torriorthents |
| Pharo | Loamy-skeletal, carbonatic, mesic Aridic Calcixerolls |
| Portmount | Coarse-loamy, mixed, mesic Xerollic Haplargids |
| Puett | Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents |
| Raster | Loamy-skeletal, mixed, mesic Pachic Haploxerolls |
| Ravenswood | Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls |
| Rebel | Coarse-loamy, mixed, mesic Xerollic Camborthids |
| Roden | Clayey-skeletal, montmorillonitic (calcareous), mesic, shallow Xeric Torriorthents |
| Rustigate | Fine-loamy, mixed (calcareous), mesic Aquic Torriorthents |
| Segura | Loamy, mixed, frigid Lithic Argixerolls |
| Slaw | Fine-silty, mixed (calcareous), mesic Typic Torrifluvents |
| Solak | Loamy-skeletal, mixed (calcareous), frigid Lithic Xeric Torriorthents |
| Spager | Loamy-skeletal, carbonatic, mesic, shallow Xerollic Paleorthids |
| Springwarm | Loamy-skeletal, mixed (calcareous), mesic Aeric Halaquepts |
| Squawtip | Loamy-skeletal, mixed, frigid Typic Argixerolls |
| Stargo | Sandy, mixed, mesic Durorthidic Torrifluvents |
| Stewval | Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids |
| Stumble | Mixed, mesic Typic Torripsamments |
| Suak | Loamy-skeletal, mixed, frigid Typic Argixerolls |
| Sycomat | Coarse-loamy, mixed, mesic Duric Calciorthids |
| Titiack | Cindery, mesic Vitrandic Torriorthents |
| Tokoper | Loamy-skeletal, mixed, mesic, shallow Typic Durargids |
| Ubehebe | Loamy-skeletal, mixed, mesic, shallow Aridic Argixerolls |
| Univega | Loamy, mixed, mesic, shallow Typic Durorthids |
| Unsel | Fine-loamy, mixed, mesic Duric Haplargids |
| Ursine | Loamy-skeletal, carbonatic, mesic, shallow Xerollic Durorthids |
| Veet | Loamy-skeletal, mixed, mesic Xerollic Camborthids |
| Vindicator | Loamy-skeletal, mixed, mesic, shallow Typic Haplargids |
| Wardenot | Sandy-skeletal, mixed, mesic Typic Torriorthents |
| Watoopah | Coarse-loamy, mixed, mesic Durixerollic Haplargids |
| Winu | Fine-loamy, mixed Argic Pachic Cryoborolls |
| Yody | Fine-loamy, mixed, mesic Haploxerollic Durargids |
| Yomba | Sandy-skeletal, mixed, mesic Duric Camborthids |
| Zadvar | Loamy, mixed, mesic, shallow Haploxerollic Durargids |

# RANGELAND PLANTS AND WOODLAND UNDERSTORY

## 3000--STUMBLE LOAMY SAND, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | STUMBLE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 50-70 | 20-30 | 20-30 | 5-10 |
| galleta | HIJA | 2-5 | 2-8 | 2-8 | --- |
| needleandthread | STCO4 | 2-5 | --- | --- | --- |
| sand dropseed | SPCR | 5-15 | 2-8 | 2-8 | --- |
| globemallow | SPHAE | --- | 1-3 | 1-3 | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | 2-10 |
| Cooper wolfberry | LYCO2 | --- | --- | --- | 2-5 |
| Nevada ephedra | EPNE | --- | --- | --- | 2-5 |
| bud sagebrush | ARSP5 | --- | 2-8 | 2-8 | --- |
| burrobrush | HYMEN3 | --- | --- | --- | 5-10 |
| fourwing saltbush | ATCA2 | 15-25 | 20-30 | 20-30 | 5-15 |
| littleleaf horsebrush | TEGL | --- | --- | --- | 5-10 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 10-25 |
| spiny hopsage | GRSP | --- | 2-5 | 2-5 | --- |
| winterfat | EULA5 | 2-8 | 10-20 | 10-20 | --- |
| Range site number | | 029XY012NV | 029XY046NV | 029XY046NV | 029XY041NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 700 | 500 | 500 | 500 |
| Normal years | | 500 | 400 | 400 | 300 |
| Unfavorable years | | 300 | 300 | 300 | 100 |

## 3001--STUMBLE-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | STUMBLE | KOYEN | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 50-70 | 20-30 | 25-35 | 5-10 |
| galleta | HIJA | 2-5 | 2-8 | 10-15 | --- |
| needleandthread | STCO4 | 2-5 | --- | --- | --- |
| sand dropseed | SPCR | 5-15 | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-3 | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | 2-10 |
| Cooper wolfberry | LYCO2 | --- | --- | --- | 2-5 |
| Nevada ephedra | EPNE | --- | --- | 10-15 | 2-5 |
| bud sagebrush | ARSP5 | --- | 2-8 | 2-5 | --- |
| burrobrush | HYMEN3 | --- | --- | --- | 5-10 |
| fourwing saltbush | ATCA2 | 15-25 | 20-30 | 2-8 | 5-15 |
| littleleaf horsebrush | TEGL | --- | --- | --- | 5-10 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 10-25 |
| spiny hopsage | GRSP | --- | 2-5 | 15-30 | --- |
| winterfat | EULA5 | 2-8 | 10-20 | 2-5 | --- |
| Range site number | | 029XY012NV | 029XY046NV | 029XY016NV | 029XY041NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 700 | 500 | 1000 | 500 |
| Normal years | | 500 | 400 | 700 | 300 |
| Unfavorable years | | 300 | 300 | 500 | 100 |

## 3020--EASYCHAIR SILT LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | EASYCHAIR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 1-5 | 15-25 | 20-30 | 2-10 |
| basin wildrye | ELCI2 | 10-20 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 2-5 |
| galleta | HIJA | --- | 2-10 | 2-8 | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | --- | 1-3 | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | --- | 1-5 | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | 20-35 |
| bud sagebrush | ARSP5 | 2-5 | 5-15 | 2-8 | 5-15 |
| fourwing saltbush | ATCA2 | 50-60 | --- | 20-30 | 2-5 |
| green molly kochia | KOAM | 1-3 | --- | --- | --- |
| shadscale | ATCO | --- | 25-35 | --- | 30-50 |
| spiny hopsage | GRSP | --- | --- | 2-5 | --- |
| winterfat | EULA5 | 2-5 | 5-10 | 10-20 | --- |
| Range site number | | 029XY048NV | 029XY017NV | 029XY046NV | 029XY024NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 1000 | 500 | 500 | 700 |
| Normal years | | 800 | 350 | 400 | 500 |
| Unfavorable years | | 400 | 150 | 300 | 300 |

## 3040--MOSIDA-REBEL-SLAW ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | MOSIDA | REBEL | SLAW | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | --- | 2-10 | --- | --- | 15-25 | 15-25 |
| Nevada bluegrass | PONE3 | 5-10 | --- | --- | --- | --- | --- |
| alkali sacaton | SPAI | --- | --- | 2-10 | 15-40 | --- | --- |
| basin wildrye | ELCI2 | 70-80 | 10-20 | 20-40 | 40-60 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | 2-5 | 5-10 |
| inland saltgrass | DISPS2 | --- | --- | --- | 2-5 | --- | --- |
| needleandthread | STCO4 | --- | --- | --- | --- | 5-10 | --- |
| other perennial grasses | PPGG | --- | --- | --- | --- | --- | 2-5 |
| western wheatgrass | AGSM | --- | --- | --- | 2-5 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | --- | --- | 2-5 |
| scarlet globemallow | SPCO | --- | --- | --- | --- | 2-5 | --- |
| Torrey quailbush | ATTO | --- | --- | 30-50 | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 20-35 | --- |
| basin big sagebrush | ARTRT | 5-10 | --- | 2-10 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | 20-30 | --- | --- | --- | --- |
| black greasewood | SAVE4 | --- | 30-40 | 5-15 | 5-15 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | --- | 2-8 |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | --- | 2-5 |
| rubber rabbitbrush | CHNA2 | --- | 2-5 | --- | 2-5 | --- | --- |
| shadscale | ATCO | --- | --- | --- | --- | 2-5 | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | 5-20 | --- |
| winterfat | EULA5 | --- | --- | --- | --- | --- | 40-50 |
| Range site number | | 028BY003NV | 028BY028NV | 029XY093NV | 028BY004NV | 028BY052NV | 028BY013NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 5000 | 800 | 1500 | 2200 | 800 | 700 |
| Normal years | | 2500 | 600 | 1200 | 1500 | 600 | 500 |
| Unfavorable years | | 1500 | 400 | 800 | 800 | 450 | 350 |

## 3041--MOSIDA LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | MOSIDA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | --- | 5-10 | 20-30 | --- |
| Nevada bluegrass | PONE3 | 5-10 | --- | --- | --- |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- |
| basin wildrye | ELCI2 | 70-80 | 10-20 | --- | 2-5 |
| bluegrass | POA++ | --- | --- | --- | 25-40 |
| bottlebrush squirreltail | SIHY | --- | --- | 2-8 | --- |
| mat muhly | MURI | --- | --- | --- | 2-5 |
| needleandthread | STCO4 | --- | --- | 10-20 | --- |
| rush | JUNCU | --- | --- | --- | 5-15 |
| sedge | CAREX | --- | --- | --- | 20-30 |
| thickspike wheatgrass | AGDA | --- | 5-10 | --- | --- |
| cinquefoil | POTEN | --- | --- | --- | 2-5 |
| groundsel | SENEC | --- | --- | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | 25-35 | --- |
| basin big sagebrush | ARTRT | 5-10 | --- | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- |
| Range site number | | 028BY003NV | 028BY045NV | 028BY010NV | 028BY001NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 5000 | 1000 | 800 | 4000 |
| Normal years | | 2500 | 800 | 600 | 2000 |
| Unfavorable years | | 1500 | 600 | 400 | 1200 |

## 3050--MIJAY-RASTER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | MIJAY | RASTER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | --- | 20-35 | 10-25 | 10-25 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | --- |
| basin wildrye | ELCI2 | --- | 15-30 | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | 2-8 | 10-20 | 10-20 |
| dropseed | SPORO | --- | 2-5 | --- | --- | --- |
| galleta | HIJA | 2-8 | 2-5 | --- | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | --- | 5-15 | 2-8 | 2-8 |
| sand dropseed | SPCR | --- | 2-5 | --- | --- | --- |
| globemallow | SPHAE | --- | --- | --- | 1-4 | 1-4 |
| Nevada ephedra | EPNE | 2-5 | --- | 2-5 | 2-5 | 2-5 |
| Utah serviceberry | AMUT | --- | 5-15 | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | 25-30 | 25-30 |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 2-5 | 2-5 |
| desert bitterbrush | PUGL2 | --- | 10-20 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | --- | 2-5 | 2-5 | 2-5 |
| green ephedra | EPVI | --- | 2-5 | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | 15-25 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | 5-10 |
| winterfat | EULA5 | 1-5 | --- | --- | 2-8 | 2-8 |
| Range site number | | 029XY008NV | 029XY061NV | 029XY006NV | 029XY049NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 1500 | 800 | 1100 | 1100 |
| Normal years | | 500 | 1200 | 600 | 800 | 800 |
| Unfavorable years | | 250 | 800 | 300 | 500 | 500 |

## 3060--MORBENCH GRAVELLY SANDY LOAM, 15 TO 30 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | MORBENCH | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | --- | --- | 20-35 | 20-35 |
| Sandberg bluegrass | POSE | X | --- | --- | 2-5 |
| basin wildrye | ELCI2 | --- | 10-15 | --- | --- |
| desert needlegrass | STSP3 | --- | --- | 2-8 | --- |
| galleta | HIJA | --- | --- | --- | 2-8 |
| muttongrass | POFE | X | --- | --- | --- |
| needleandthread | STCO4 | --- | 2-5 | 5-15 | 5-15 |
| wheatgrass | AGROP2 | --- | 5-10 | --- | --- |
| Nevada ephedra | EPNE | --- | 2-5 | 2-5 | 2-5 |
| Stansbury cliffrose | COMES | X | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- |
| basin big sagebrush | ARTRT | --- | 20-25 | --- | --- |
| black sagebrush | ARARN | --- | --- | --- | 25-35 |
| fourwing saltbush | ATCA2 | --- | --- | 2-5 | 1-5 |
| goldenweed | HAPLO2 | X | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | 5-10 | --- | --- |
| winterfat | EULA5 | --- | --- | --- | 1-5 |
| singleleaf pinyon | PIMO | X | --- | --- | --- |
| Range site number | | 029XY058NV | 029XY025NV | 029XY006NV | 029XY008NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 200 | 900 | 800 | 700 |
| Normal years | | 125 | 700 | 600 | 500 |
| Unfavorable years | | 50 | 400 | 300 | 250 |

## 3080--BREKO-VEET-HANDPAH ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | BREKO | VEET | HANDPAH | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 10-25 | 20-35 | 15-25 | 20-35 | 20-30 | 10-25 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- | --- | --- |
| desert needlegrass | STSP3 | 2-8 | 10-20 | 2-8 | --- | --- | --- | 10-20 |
| galleta | HIJA | --- | 2-8 | --- | 2-10 | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 2-8 | 5-15 | --- | 5-15 | --- | 2-8 |
| sand dropseed | SPCR | --- | --- | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | 1-4 | --- | --- | --- | 1-3 | 1-4 |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 1-5 | 2-5 | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-30 | 25-35 | --- | --- | --- | 25-30 |
| black sagebrush | ARARN | --- | --- | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | 2-5 | --- | 5-15 | --- | 2-8 | 2-5 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 2-5 | --- | 1-5 | 20-30 | 2-5 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | 5-10 | --- | --- | --- | 2-5 | 5-10 |
| winterfat | EULA5 | --- | 2-8 | --- | 5-10 | 1-5 | 10-20 | 2-8 |
| Range site number | | 029XY006NV | 029XY049NV | 029XY006NV | 029XY017NV | 029XY008NV | 029XY046NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 800 | 1100 | 800 | 500 | 700 | 500 | 1100 |
| Normal years | | 600 | 800 | 600 | 350 | 500 | 400 | 800 |
| Unfavorable years | | 300 | 500 | 300 | 150 | 250 | 300 | 500 |

## 3090--UNIVEGA-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | UNIVEGA | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 25-35 | 25-35 | 10-25 | 10-25 | 20-35 | 25-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | 10-20 | --- | --- |
| galleta | HIJA | 10-15 | 10-15 | 2-8 | 2-8 | 2-8 | 10-15 |
| needleandthread | STCO4 | --- | --- | 2-8 | 2-8 | 5-15 | --- |
| globemallow | SPHAE | --- | --- | 1-4 | 1-4 | --- | --- |
| Anderson wolfberry | LYAN | 2-5 | 2-5 | --- | --- | --- | 2-5 |
| Nevada ephedra | EPNE | 10-15 | 10-15 | 2-5 | 2-5 | 2-5 | 10-15 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | 25-30 | --- | --- |
| black sagebrush | ARARN | --- | --- | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-5 | 2-5 | --- | 2-5 |
| fourwing saltbush | ATCA2 | 2-8 | 2-8 | 2-5 | 2-5 | 1-5 | 2-8 |
| spiny hopsage | GRSP | 15-30 | 15-30 | 5-10 | 5-10 | --- | 15-30 |
| winterfat | EULA5 | 2-5 | 2-5 | 2-8 | 2-8 | 1-5 | 2-5 |
| Range site number | | 029XY016NV | 029XY016NV | 029XY049NV | 029XY049NV | 029XY008NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 1000 | 1000 | 1100 | 1100 | 700 | 1000 |
| Normal years | | 700 | 700 | 800 | 800 | 500 | 700 |
| Unfavorable years | | 500 | 500 | 500 | 500 | 250 | 500 |

## 3091--UNIVEGA-CLOWFIN-MOLION ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | UNIVEGA | CLOWFIN | MOLION | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-30 | 15-25 | 20-35 | 20-30 | 20-30 | X |
| Sandberg bluegrass | POSE | --- | --- | 2-8 | --- | 2-5 | X |
| bottlebrush squirreltail | SIHY | --- | 5-10 | 2-5 | --- | 2-8 | X |
| galleta | HIJA | 2-8 | --- | --- | 2-8 | --- | X |
| needleandthread | STCO4 | --- | --- | 5-15 | --- | 10-20 | X |
| other perennial grasses | PPGG | --- | 2-5 | --- | --- | --- | --- |
| sand dropseed | SPCR | 2-8 | --- | --- | 2-8 | --- | --- |
| threeawn | ARIST | --- | --- | --- | --- | --- | X |
| eriogonum | ERIOG | --- | --- | --- | --- | --- | X |
| globemallow | SPHAE | 1-3 | 2-5 | --- | 1-3 | --- | --- |
| goldenweed | HAPLO2 | --- | --- | --- | --- | --- | X |
| lupine | LUPIN | --- | --- | --- | --- | --- | X |
| milkvetch | ASTRA | --- | --- | --- | --- | --- | X |
| Douglas rabbitbrush | CHVI8 | --- | --- | --- | --- | --- | X |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | --- | --- | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | 2-8 | 2-8 | --- | 2-8 | --- | --- |
| downy rabbitbrush | CHVIP4 | --- | --- | 2-5 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 20-30 | 2-5 | --- | 20-30 | --- | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | --- | --- | X |
| rabbitbrush | CHRYS9 | --- | --- | --- | --- | 2-5 | --- |
| shadscale | ATCO | --- | --- | 2-5 | --- | --- | --- |
| spiny hopsage | GRSP | 2-5 | --- | --- | 2-5 | --- | --- |
| winterfat | EULA5 | 10-20 | 40-50 | --- | 10-20 | --- | --- |
| Utah juniper | JUOS | --- | --- | --- | --- | --- | X |
| singleleaf pinyon | PIMO | --- | --- | --- | --- | --- | X |
| Range site number | | 029XY046NV | 028BY013NV | 028BY011NV | 029XY046NV | 028BY010NV | 028AY021NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 700 | 600 | 500 | 800 | 200 |
| Normal years | | 400 | 500 | 450 | 400 | 600 | 100 |
| Unfavorable years | | 300 | 350 | 250 | 300 | 400 | 75 |

## 3101--GABBVALLY-VINDICATOR-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | GABBVALLY | VINDICATOR | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 10-15 | 5-15 | --- | 20-30 | 10-25 | 2-5 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | 1-3 | --- | --- | --- | --- | --- |
| desert needlegrass | STSP3 | 2-8 | 2-5 | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | 2-8 | 5-10 | --- | 2-8 | 2-8 | --- | 1-5 |
| needleandthread | STCO4 | 15-25 | --- | --- | --- | 2-8 | 5-15 | --- |
| needlegrass | STIPA | --- | --- | --- | --- | --- | 2-8 | --- |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | --- | --- | 1-3 | 1-4 | --- | --- |
| Anderson wolfberry | LYAN | --- | 5-15 | --- | --- | --- | --- | --- |
| Cooper wolfberry | LYCO2 | --- | 2-5 | --- | --- | --- | --- | --- |
| Nevada dalea | PSPO | --- | 5-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | --- | 2-5 | --- | --- |
| Nevada greasebush | FONE2 | --- | --- | --- | --- | --- | 1-3 | --- |
| Wyoming big sagebrush | ARTRW | 30-35 | --- | --- | --- | 25-30 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | --- | --- | --- | --- | --- | 5-15 | --- |
| bud sagebrush | ARSP5 | --- | 2-5 | --- | 2-8 | 2-5 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | 2-8 | --- | --- | --- | --- | 2-5 | --- |
| fourwing saltbush | ATCA2 | 2-5 | --- | --- | 20-30 | 2-5 | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | --- | --- | --- | --- | 60-70 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| spiny hopsage | GRSP | --- | 5-15 | --- | 2-5 | 5-10 | --- | --- |
| winterfat | EULA5 | --- | --- | --- | 10-20 | 2-8 | --- | --- |
| Range site number | | 029XY010NV | 029XY021NV | none | 029XY046NV | 029XY049NV | 029XY040NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 300 | | 500 | 1100 | 600 | 1000 |
| Normal years | | 350 | 200 | | 400 | 800 | 450 | 700 |
| Unfavorable years | | 250 | 100 | | 300 | 500 | 300 | 500 |

## 3102--GABBVALLY-STEWVAL-BEELEM ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | GABBVALLY | STEWVAL | BEELEM | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 2-8 | 2-5 | 10-20 | --- | 2-10 | 5-15 | 10-25 |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | --- | --- | --- |
| Thurber needlegrass | STTH2 | 5-10 | --- | --- | --- | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | 10-20 | 2-5 | --- |
| beardless wheatgrass | AGSPI | 20-35 | 40-55 | --- | --- | --- | --- | --- |
| bluebunch wheatgrass | AGSP | --- | --- | --- | --- | --- | 30-50 | --- |
| bluegrass | POA++ | --- | --- | --- | --- | --- | 2-8 | --- |
| desert needlegrass | STSP3 | --- | --- | 2-10 | --- | --- | --- | 10-20 |
| galleta | HIJA | 2-5 | 1-3 | --- | --- | --- | --- | 2-8 |
| muttongrass | POFE | 2-5 | --- | --- | --- | --- | --- | --- |
| needleandthread | STCO4 | 2-8 | --- | 2-10 | --- | --- | 2-5 | 2-8 |
| globemallow | SPHAE | --- | --- | --- | --- | --- | --- | 1-4 |
| Douglas rabbitbrush | CHVI8 | 2-5 | --- | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 2-8 | --- | --- | --- | 2-5 |
| Stansbury cliffrose | COMES | 2-8 | --- | 5-10 | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | 20-30 | --- | --- | --- | --- | --- | 25-30 |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 20-30 | 20-30 | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | 30-40 | --- | --- |
| black sagebrush | ARARN | --- | 25-30 | 20-30 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | --- | --- | 2-5 |
| ephedra | EPHED | --- | 2-5 | --- | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | --- | --- | 2-5 |
| green ephedra | EPVI | 2-8 | --- | --- | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 2-5 | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | --- | --- | 5-10 |
| winterfat | EULA5 | --- | --- | --- | --- | --- | --- | 2-8 |
| Range site number | | 029XY057NV | 029XY028NV | 029XY081NV | none | 028BY028NV | 028BY094NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 700 | 500 | | 800 | 800 | 1100 |
| Normal years | | 500 | 400 | 350 | | 600 | 600 | 800 |
| Unfavorable years | | 350 | 250 | 200 | | 400 | 400 | 500 |

## 3110--CATH-ZADVAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | CATH | ZADVAR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 20-35 | 10-25 | 10-25 |
| Sandberg bluegrass | POSE | --- | 2-5 | 2-5 | --- | --- |
| desert needlegrass | STSP3 | 2-8 | --- | --- | 10-20 | 10-20 |
| galleta | HIJA | --- | 2-8 | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 5-15 | 5-15 | 2-8 | 2-8 |
| globemallow | SPHAE | --- | --- | --- | 1-4 | 1-4 |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | 25-35 | --- | --- | 25-30 | 25-30 |
| black sagebrush | ARARN | --- | 25-35 | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 2-5 | 2-5 |
| fourwing saltbush | ATCA2 | 2-5 | 1-5 | 1-5 | 2-5 | 2-5 |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | 5-10 |
| winterfat | EULA5 | --- | 1-5 | 1-5 | 2-8 | 2-8 |
| Range site number | | 029XY006NV | 029XY008NV | 029XY008NV | 029XY049NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 800 | 700 | 700 | 1100 | 1100 |
| Normal years | | 600 | 500 | 500 | 800 | 800 |
| Unfavorable years | | 300 | 250 | 250 | 500 | 500 |

## 3111--CATH GRAVELLY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | |
|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | |
| | | CATH | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-35 | 10-25 | 10-25 |
| desert needlegrass | STSP3 | 2-8 | 10-20 | 10-20 |
| galleta | HIJA | --- | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 2-8 | 2-8 |
| globemallow | SPHAE | --- | 1-4 | 1-4 |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-30 | 25-30 |
| bud sagebrush | ARSP5 | --- | 2-5 | 2-5 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 2-5 |
| spiny hopsage | GRSP | --- | 5-10 | 5-10 |
| winterfat | EULA5 | --- | 2-8 | 2-8 |
| Range site number | | 029XY006NV | 029XY049NV | 029XY049NV |
| Potential production (lb/acre): | | | | |
| Favorable years | | 800 | 1100 | 1100 |
| Normal years | | 600 | 800 | 800 |
| Unfavorable years | | 300 | 500 | 500 |

## 3112--CATH-PORTMOUNT-ABGESE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | CATH | PORTMOUNT | ABGESE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-30 | 20-30 | 10-25 | 10-25 | 20-30 |
| Sandberg bluegrass | POSE | --- | 2-5 | 2-5 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | 2-8 | 2-8 | --- | --- | --- |
| desert needlegrass | STSP3 | 2-8 | --- | --- | 10-20 | 10-20 | --- |
| galleta | HIJA | --- | --- | --- | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 10-20 | 10-20 | 2-8 | 2-8 | --- |
| sand dropseed | SPCR | --- | --- | --- | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | 1-4 | 1-4 | 1-3 |
| Nevada ephedra | EPNE | 2-5 | --- | --- | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-35 | 25-35 | 25-30 | 25-30 | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 2-5 | 2-5 | 2-8 |
| fourwing saltbush | ATCA2 | 2-5 | --- | --- | 2-5 | 2-5 | 20-30 |
| rabbitbrush | CHRYS9 | --- | 2-5 | 2-5 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | 5-10 | 2-5 |
| winterfat | EULA5 | --- | --- | --- | 2-8 | 2-8 | 10-20 |
| Range site number | | 029XY006NV | 028BY010NV | 028BY010NV | 029XY049NV | 029XY049NV | 029XY046NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 800 | 800 | 1100 | 1100 | 500 |
| Normal years | | 600 | 600 | 600 | 800 | 800 | 400 |
| Unfavorable years | | 300 | 400 | 400 | 500 | 500 | 300 |

## 3120--PORTMOUNT GRAVELLY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | |
|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | |
| | | PORTMOUNT | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-30 | 20-35 | 10-25 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | 2-8 | --- | --- |
| desert needlegrass | STSP3 | --- | 2-8 | 10-20 |
| galleta | HIJA | --- | --- | 2-8 |
| needleandthread | STCO4 | 10-20 | 5-15 | 2-8 |
| globemallow | SPHAE | --- | --- | 1-4 |
| Nevada ephedra | EPNE | --- | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-35 | 25-30 |
| bud sagebrush | ARSP5 | --- | --- | 2-5 |
| fourwing saltbush | ATCA2 | --- | 2-5 | 2-5 |
| rabbitbrush | CHRYS9 | 2-5 | --- | --- |
| spiny hopsage | GRSP | --- | --- | 5-10 |
| winterfat | EULA5 | --- | --- | 2-8 |
| Range site number | | 028BY010NV | 029XY006NV | 029XY049NV |
| Potential production (lb/acre): | | | | |
| Favorable years | | 800 | 800 | 1100 |
| Normal years | | 600 | 600 | 800 |
| Unfavorable years | | 400 | 300 | 500 |

## 3130--UNSEL GRAVELLY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | UNSEL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 20-30 | 5-10 | 5-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-8 |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | --- | 5-15 |
| sand dropseed | SPCR | --- | 2-8 | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-3 | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | 2-10 | 5-15 |
| Cooper wolfberry | LYCO2 | --- | --- | --- | 2-5 | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- | 2-5 | 2-5 |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | 2-8 | --- | 5-10 |
| burrobrush | HYMEN3 | --- | --- | --- | 5-10 | --- |
| fourwing saltbush | ATCA2 | --- | 20-30 | 20-30 | 5-15 | --- |
| littleleaf horsebrush | TEGL | --- | --- | --- | 5-10 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 10-25 | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | --- | 2-5 | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 10-20 | 10-20 | --- | 5-10 |
| Range site number | | 029XY017NV | 029XY046NV | 029XY046NV | 029XY041NV | 029XY022NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 500 | 500 | 500 | 400 |
| Normal years | | 350 | 400 | 400 | 300 | 250 |
| Unfavorable years | | 150 | 300 | 300 | 100 | 100 |

## 3131--UNSEL-GEER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | UNSEL | GEER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 40-50 | 20-30 | 50-70 | 15-25 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | 2-5 |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | 2-5 | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | 2-5 | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | 5-15 | --- |
| globemallow | SPHAE | --- | 1-3 | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | 0-10 |
| Nevada ephedra | EPNE | 1-5 | --- | --- | --- | 1-5 |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 2-8 | --- | 5-15 |
| fourwing saltbush | ATCA2 | --- | 1-5 | 20-30 | 15-25 | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | --- | --- | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 25-30 | 10-20 | 2-8 | 5-10 |
| Range site number | | 029XY017NV | 029XY042NV | 029XY046NV | 029XY012NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 700 | 500 | 700 | 500 |
| Normal years | | 350 | 500 | 400 | 500 | 350 |
| Unfavorable years | | 150 | 350 | 300 | 300 | 150 |

## 3132--UNSEL-KOYEN-KEEFA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | UNSEL | KOYEN | KEEFA | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 25-35 | 15-25 | 10-25 | 10-25 | 50-70 | 15-25 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | --- | --- | 10-20 | 10-20 | --- | --- |
| galleta | HIJA | 2-10 | 10-15 | 2-10 | 2-8 | 2-8 | 2-5 | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | 2-8 | 2-8 | 2-5 | --- |
| sand dropseed | SPCR | --- | --- | --- | --- | --- | 5-15 | --- |
| globemallow | SPHAE | --- | --- | --- | 1-4 | 1-4 | --- | --- |
| Anderson wolfberry | LYAN | --- | 2-5 | --- | --- | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | 0-10 | --- | --- | --- | 0-10 |
| Nevada ephedra | EPNE | 1-5 | 10-15 | 1-5 | 2-5 | 2-5 | --- | 1-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | 25-30 | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 2-5 | 5-15 | 2-5 | 2-5 | --- | 5-15 |
| fourwing saltbush | ATCA2 | --- | 2-8 | --- | 2-5 | 2-5 | 15-25 | --- |
| shadscale | ATCO | 25-35 | --- | 25-35 | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | --- | 15-30 | --- | 5-10 | 5-10 | --- | --- |
| winterfat | EULA5 | 5-10 | 2-5 | 5-10 | 2-8 | 2-8 | 2-8 | 5-10 |
| Range site number | | 029XY017NV | 029XY016NV | 029XY017NV | 029XY049NV | 029XY049NV | 029XY012NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 1000 | 500 | 1100 | 1100 | 700 | 500 |
| Normal years | | 350 | 700 | 350 | 800 | 800 | 500 | 350 |
| Unfavorable years | | 150 | 500 | 150 | 500 | 500 | 300 | 150 |

## 3134--UNSEL-HOLLYWELL-LYX ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | UNSEL | HOLLYWELL | LYX | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 20-30 | 10-25 | 5-10 | 40-50 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-8 | 2-8 | --- | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | 2-8 | --- | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | --- | 1-3 | 1-4 | --- | 1-3 |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | --- | --- | 2-10 | --- |
| Cooper wolfberry | LYCO2 | --- | --- | --- | --- | 2-5 | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | --- | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 2-8 | 2-5 | --- | 5-15 |
| burrobrush | HYMEN3 | --- | --- | --- | --- | 5-10 | --- |
| fourwing saltbush | ATCA2 | --- | --- | 20-30 | 2-5 | 5-15 | 1-5 |
| littleleaf horsebrush | TEGL | --- | --- | --- | --- | 5-10 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 10-25 | --- |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 2-5 | 5-10 | --- | --- |
| winterfat | EULA5 | 5-10 | 5-10 | 10-20 | 2-8 | --- | 25-30 |
| Range site number | | 029XY017NV | 029XY017NV | 029XY046NV | 029XY049NV | 029XY041NV | 029XY042NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 1100 | 500 | 700 |
| Normal years | | 350 | 350 | 400 | 800 | 300 | 500 |
| Unfavorable years | | 150 | 150 | 300 | 500 | 100 | 350 |

## 3137--UNSEL-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | UNSEL | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 10-25 | 20-30 | 40-50 | 25-35 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | 2-5 | 2-5 |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | --- | --- |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | --- | 2-8 | --- | --- | --- |
| sand dropseed | SPCR | --- | 2-8 | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-3 | 1-4 | 1-3 | 1-3 | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | --- | 2-5 | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | 2-5 | 2-8 | 5-15 | --- |
| fourwing saltbush | ATCA2 | --- | 20-30 | 2-5 | 20-30 | 1-5 | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | 2-5 | 5-10 | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 10-20 | 2-8 | 10-20 | 25-30 | --- |
| Range site number | | 029XY017NV | 029XY046NV | 029XY049NV | 029XY046NV | 029XY042NV | 029XY087NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 1100 | 500 | 700 | 500 |
| Normal years | | 350 | 400 | 800 | 400 | 500 | 350 |
| Unfavorable years | | 150 | 300 | 500 | 300 | 350 | 200 |

## 3138--UNSEL-STUMBLE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | UNSEL | STUMBLE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 50-70 | 20-30 | 20-30 | 40-50 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | 2-5 |
| galleta | HIJA | 2-10 | 2-5 | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | 2-5 | --- | --- | --- |
| sand dropseed | SPCR | --- | 5-15 | 2-8 | 2-8 | --- |
| globemallow | SPHAE | --- | --- | 1-3 | 1-3 | 1-3 |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | --- | 2-8 | 2-8 | 5-15 |
| fourwing saltbush | ATCA2 | --- | 15-25 | 20-30 | 20-30 | 1-5 |
| shadscale | ATCO | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 2-5 | 2-5 | --- |
| winterfat | EULA5 | 5-10 | 2-8 | 10-20 | 10-20 | 25-30 |
| Range site number | | 029XY017NV | 029XY012NV | 029XY046NV | 029XY046NV | 029XY042NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 700 | 500 | 500 | 700 |
| Normal years | | 350 | 500 | 400 | 400 | 500 |
| Unfavorable years | | 150 | 300 | 300 | 300 | 350 |

## 3139--UNSEL-IZO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | UNSEL | IZO | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 5-10 | 25-35 | 20-30 | 15-25 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | 2-5 |
| galleta | HIJA | 2-10 | --- | 10-15 | 2-8 | 2-10 |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | --- | --- | 1-3 | --- |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | 2-10 | --- | --- | 0-10 |
| Cooper wolfberry | LYCO2 | --- | 2-5 | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | 2-5 | 10-15 | --- | 1-5 |
| bud sagebrush | ARSP5 | 5-15 | --- | 2-5 | 2-8 | 5-15 |
| burrobrush | HYMEN3 | --- | 5-10 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | 5-15 | 2-8 | 20-30 | --- |
| littleleaf horsebrush | TEGL | --- | 5-10 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | 10-25 | --- | --- | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | --- | --- | 15-30 | 2-5 | --- |
| winterfat | EULA5 | 5-10 | --- | 2-5 | 10-20 | 5-10 |
| Range site number | | 029XY017NV | 029XY041NV | 029XY016NV | 029XY046NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 500 | 1000 | 500 | 500 |
| Normal years | | 350 | 300 | 700 | 400 | 350 |
| Unfavorable years | | 150 | 100 | 500 | 300 | 150 |

## 3140--HAUNCHEE-EAGLEPASS-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | HAUNCHEE | EAGLEPASS | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | --- | 2-5 | --- | --- | --- | --- | --- |
| Letterman needlegrass | STLE4 | --- | --- | --- | 10-20 | X | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | --- | --- | 10-20 |
| alpine timothy | PHAL2 | --- | --- | --- | --- | --- | --- | 5-10 |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 5-15 | --- |
| bluebunch wheatgrass | AGSP | 20-30 | --- | --- | --- | X | --- | --- |
| bulrush | SCIRP | --- | --- | --- | --- | --- | --- | 2-5 |
| mountain brome | BRCA5 | --- | --- | --- | 5-10 | --- | --- | --- |
| muttongrass | POFE | 2-8 | --- | --- | 10-15 | X | --- | --- |
| needleandthread | STCO4 | --- | 5-15 | --- | --- | --- | --- | --- |
| needlegrass | STIPA | 5-15 | 2-8 | --- | --- | --- | 5-10 | --- |
| rush | JUNCU | --- | --- | --- | --- | --- | --- | 2-8 |
| sedge | CAREX | --- | --- | --- | --- | X | --- | 15-25 |
| spike-fescue | LEKI2 | --- | --- | --- | 2-8 | X | --- | --- |
| spikerush | ELEOC | --- | --- | --- | --- | --- | --- | 2-8 |
| tufted hairgrass | DECE | --- | --- | --- | --- | --- | --- | 10-20 |
| wheatgrass | AGROP2 | --- | --- | --- | --- | --- | 5-15 | --- |
| creeping barberry | BERE | --- | --- | --- | --- | X | --- | --- |
| goldenweed | HAPLO2 | --- | --- | --- | --- | X | --- | --- |
| Nevada greasebush | FONE2 | --- | 1-3 | --- | --- | --- | --- | --- |
| antelope bitterbrush | PUTR2 | --- | --- | --- | --- | --- | 1-5 | --- |
| black sagebrush | ARARN | --- | 5-15 | --- | --- | --- | --- | --- |
| common juniper | JUCO6 | --- | --- | --- | --- | X | --- | --- |
| currant | RIBES | --- | --- | --- | --- | --- | 1-5 | --- |
| ephedra | EPHED | --- | 2-5 | --- | --- | --- | --- | --- |
| green ephedra | EPVI | --- | --- | --- | 1-3 | --- | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | 60-70 | --- | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | 15-25 | --- | --- | 15-25 | X | 10-20 | --- |
| serviceberry | AMELA | --- | --- | --- | 2-5 | X | 1-5 | --- |
| snowberry | SYMPH | 2-8 | --- | --- | 2-8 | --- | 1-5 | --- |
| willow | SALIX | --- | --- | --- | --- | --- | --- | 1-3 |
| bristlecone pine | PIAR | --- | --- | --- | --- | X | --- | --- |
| curlleaf mountainmahogany | CELE3 | 15-25 | --- | --- | --- | --- | --- | --- |
| limber pine | PIFL2 | --- | --- | --- | --- | X | --- | --- |
| white fir | ABCO | --- | --- | --- | --- | X | --- | --- |
| Range site number | | 028BY043NV | 029XY040NV | none | 029XY051NV | 028BY063NV | 029XY026NV | 029XY060NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 1700 | 600 | | 1300 | 800 | 1500 | 3000 |
| Normal years | | 1300 | 450 | | 1100 | 500 | 1000 | 2000 |
| Unfavorable years | | 900 | 300 | | 700 | 300 | 800 | 1200 |

## 3150--NUYOBE-BLUEAGLE-PLAYAS COMPLEX, 0 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | NUYOBE | BLUEAGLE | PLAYAS | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | 5-15 | --- | --- | --- | --- | 1-5 |
| Indian ricegrass | ORHY | --- | --- | --- | 15-25 | 2-10 | --- |
| alkali cordgrass | SPGR | 2-5 | --- | --- | --- | --- | --- |
| alkali sacaton | SPAI | 25-40 | 2-8 | --- | --- | --- | 20-40 |
| basin wildrye | ELCI2 | 2-5 | --- | --- | --- | --- | 25-35 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | 2-5 | --- |
| giantreed | ARDO4 | 2-5 | --- | --- | --- | --- | --- |
| inland saltgrass | DISPS2 | 10-15 | 5-15 | --- | 2-5 | --- | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | 5-10 | --- | --- |
| sand dropseed | SPCR | --- | --- | --- | 2-10 | --- | --- |
| Parry saltbush | ATPA3 | --- | 2-10 | --- | --- | --- | --- |
| black greasewood | SAVE4 | --- | 50-65 | --- | 30-50 | 20-35 | 5-15 |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | 5-15 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | 5-15 | 2-5 | --- |
| rabbitbrush | CHRYS9 | --- | --- | --- | --- | --- | 1-5 |
| seepweed | SUAED | --- | 2-5 | --- | --- | --- | --- |
| shadscale | ATCO | --- | 2-10 | --- | 2-8 | 30-50 | --- |
| Range site number | | 029XY002NV | 029XY076NV | none | 029XY018NV | 029XY024NV | 029XY004NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 3300 | 450 | | 450 | 700 | 1600 |
| Normal years | | 2200 | 250 | | 300 | 500 | 1100 |
| Unfavorable years | | 1000 | 100 | | 100 | 300 | 800 |

## 3160--CROPPER-CLANALPINE-BELLEHELEN ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | CROPPER | CLANALPINE | BELLEHELEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Canby bluegrass | POCA | X | --- | --- | --- | --- | --- | --- |
| Indian ricegrass | ORHY | --- | X | --- | --- | 10-15 | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | --- | 5-10 | --- |
| Sandberg bluegrass | POSE | X | --- | --- | --- | 2-5 | --- | --- |
| Thurber needlegrass | STTH2 | --- | X | --- | --- | --- | --- | --- |
| basin wildrye | ELCI2 | X | --- | --- | --- | --- | 70-80 | 2-8 |
| bluebunch wheatgrass | AGSP | X | X | --- | --- | --- | --- | --- |
| bluegrass | POA++ | --- | --- | X | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | X | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | --- | --- | --- | --- | 2-8 | --- | --- |
| muttongrass | POFE | X | --- | X | --- | --- | --- | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | --- | 15-25 | --- | --- |
| needlegrass | STIPA | --- | --- | --- | --- | --- | --- | 2-10 |
| arrowleaf balsamroot | BASA3 | X | --- | --- | --- | --- | --- | --- |
| tapertip hawksbeard | CRAC2 | X | --- | --- | --- | --- | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | X | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 30-35 | --- | --- |
| antelope bitterbrush | PUTR2 | X | --- | --- | --- | --- | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | 5-10 | --- |
| black sagebrush | ARARN | --- | --- | X | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | X | --- | --- | --- | --- | 40-50 |
| ephedra | EPHED | --- | --- | --- | --- | 2-8 | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 2-5 | --- | --- |
| green ephedra | EPVI | --- | --- | X | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | X | X | --- | --- | --- | --- | 15-25 |
| serviceberry | AMELA | X | --- | --- | --- | --- | --- | --- |
| snowberry | SYMPH | X | --- | --- | --- | --- | --- | 2-8 |
| Utah juniper | JUOS | X | --- | --- | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | X | --- | --- | --- | --- | 40-50 |
| singleleaf pinyon | PIMO | X | X | X | --- | --- | --- | --- |
| Range site number | | 028BY058NV | 024XY054NV | 029XY069NV | none | 029XY010NV | 028BY003NV | 029XY043NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 600 | 400 | | 500 | 5000 | 2500 |
| Normal years | | 300 | 400 | 300 | | 350 | 2500 | 1800 |
| Unfavorable years | | 200 | 250 | 150 | | 250 | 1500 | 1200 |

## 3161--CROPPER-SEGURA-RAVENSWOOD ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | CROPPER | SEGURA | RAVENSWOOD | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Canby bluegrass | POCA | X | --- | X | --- | --- | --- | --- |
| Indian ricegrass | ORHY | --- | --- | --- | 20-30 | --- | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | --- | --- | 5-10 |
| Sandberg bluegrass | POSE | X | --- | X | 2-5 | --- | --- | --- |
| basin wildrye | ELCI2 | X | 2-8 | X | --- | --- | 2-8 | 70-80 |
| bluebunch wheatgrass | AGSP | X | 30-40 | X | --- | --- | --- | --- |
| bluegrass | POA++ | --- | 2-8 | --- | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | X | 2-8 | --- | --- | --- |
| muttongrass | POFE | X | --- | X | --- | --- | 2-10 | --- |
| needleandthread | STCO4 | --- | --- | --- | 10-20 | --- | --- | --- |
| needlegrass | STIPA | --- | 5-15 | --- | --- | --- | 2-10 | --- |
| arrowleaf balsamroot | BASA3 | X | 2-5 | X | --- | --- | --- | --- |
| tapertip hawksbeard | CRAC2 | X | 2-5 | X | --- | --- | --- | --- |
| Utah serviceberry | AMUT | --- | 2-8 | --- | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-35 | --- | --- | --- |
| antelope bitterbrush | PUTR2 | X | 2-8 | X | --- | --- | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | --- | 5-10 |
| curlleaf mountainmahogany | CELE3 | X | --- | X | --- | --- | 40-50 | --- |
| mountain big sagebrush | ARVA2 | X | 10-20 | X | --- | --- | 15-25 | --- |
| rabbitbrush | CHRYS9 | --- | --- | --- | 2-5 | --- | --- | --- |
| serviceberry | AMELA | X | --- | X | --- | --- | --- | --- |
| snowberry | SYMPH | X | 2-8 | X | --- | --- | 2-8 | --- |
| Utah juniper | JUOS | X | --- | X | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | X | --- | --- | 40-50 | --- |
| singleleaf pinyon | PIMO | X | --- | X | --- | --- | --- | --- |
| Range site number | | 028BY058NV | 028BY015NV | 028BY058NV | 028BY010NV | none | 029XY043NV | 028BY003NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 1500 | 500 | 800 | | 2500 | 5000 |
| Normal years | | 300 | 1100 | 300 | 600 | | 1800 | 2500 |
| Unfavorable years | | 200 | 700 | 200 | 400 | | 1200 | 1500 |

## 3162--CROPPER-SEGURA-CLANALPINE ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | CROPPER | SEGURA | CLANALPINE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Canby bluegrass | POCA | X | --- | --- | --- | --- | --- |
| Indian ricegrass | ORHY | --- | --- | X | --- | --- | --- |
| Letterman needlegrass | STLE4 | --- | --- | --- | --- | 20-30 | --- |
| Sandberg bluegrass | POSE | X | --- | --- | --- | 1-3 | --- |
| Thurber needlegrass | STTH2 | --- | --- | X | --- | --- | --- |
| basin wildrye | ELCI2 | X | 2-8 | --- | --- | --- | 2-10 |
| bluebunch wheatgrass | AGSP | X | 30-40 | X | --- | --- | --- |
| bluegrass | POA++ | --- | 2-8 | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | --- | --- | --- | --- |
| muttongrass | POFE | X | --- | --- | --- | 10-20 | --- |
| needlegrass | STIPA | --- | 5-15 | --- | --- | --- | 10-15 |
| pine needlegrass | STPI2 | --- | --- | --- | --- | 2-8 | --- |
| prairie junegrass | KOPY | --- | --- | --- | --- | 2-5 | --- |
| arrowleaf balsamroot | BASA3 | X | 2-5 | --- | --- | --- | --- |
| tapertip hawksbeard | CRAC2 | X | 2-5 | --- | --- | --- | --- |
| Utah serviceberry | AMUT | --- | 2-8 | --- | --- | --- | --- |
| antelope bitterbrush | PUTR2 | X | 2-8 | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | X | --- | --- | 60-70 |
| low sagebrush | ARAR8 | --- | --- | --- | --- | 25-35 | --- |
| mountain big sagebrush | ARVA2 | X | 10-20 | X | --- | --- | 1-5 |
| serviceberry | AMELA | X | --- | --- | --- | --- | --- |
| snowberry | SYMPH | X | 2-8 | --- | --- | --- | 1-5 |
| Utah juniper | JUOS | X | --- | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | X | --- | --- | 60-70 |
| singleleaf pinyon | PIMO | X | --- | X | --- | --- | --- |
| Range site number | | 028BY058NV | 028BY015NV | 024XY054NV | none | 029XY052NV | 029XY027NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 1500 | 600 | | 700 | 3000 |
| Normal years | | 300 | 1100 | 400 | | 450 | 2400 |
| Unfavorable years | | 200 | 700 | 250 | | 300 | 1700 |

## 3170--HACKWOOD-WINU ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | HACKWOOD | WINU | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Columbia needlegrass | STNE3 | --- | 2-8 | --- | --- | --- | --- |
| Idaho fescue | FEID | X | --- | --- | --- | --- | --- |
| Letterman needlegrass | STLE4 | --- | 15-20 | 20-30 | --- | X | --- |
| Nevada bluegrass | PONE3 | X | --- | --- | --- | --- | --- |
| Sandberg bluegrass | POSE | --- | --- | 1-3 | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | 2-5 | --- | --- |
| big squirreltail | SIJU | X | --- | --- | --- | --- | --- |
| bluebunch wheatgrass | AGSP | X | --- | --- | --- | X | --- |
| bluegrass | POA++ | --- | --- | --- | 25-40 | --- | --- |
| mat muhly | MURI | --- | --- | --- | 2-5 | --- | --- |
| mountain brome | BRCA5 | X | 15-20 | --- | --- | --- | --- |
| muttongrass | POFE | --- | --- | 10-20 | --- | X | --- |
| pine needlegrass | STPI2 | --- | --- | 2-8 | --- | --- | --- |
| prairie junegrass | KOPY | --- | --- | 2-5 | --- | --- | --- |
| rush | JUNCU | --- | --- | --- | 5-15 | --- | --- |
| sedge | CAREX | --- | 2-5 | --- | 20-30 | X | --- |
| slender wheatgrass | AGTR | X | 2-8 | --- | --- | --- | --- |
| spike-fescue | LEKI2 | --- | 5-10 | --- | --- | X | --- |
| cinquefoil | POTEN | --- | --- | --- | 2-5 | --- | --- |
| creeping barberry | BERE | --- | --- | --- | --- | X | --- |
| goldenweed | HAPLO2 | --- | --- | --- | --- | X | --- |
| groundsel | SENEC | X | --- | --- | 2-5 | --- | --- |
| meadowrue | THALI2 | X | --- | --- | --- | --- | --- |
| melic | MELIC | X | --- | --- | --- | --- | --- |
| common juniper | JUCO6 | --- | --- | --- | --- | X | --- |
| low sagebrush | ARAR8 | --- | --- | 25-35 | --- | --- | --- |
| mountain big sagebrush | ARVA2 | X | 15-25 | --- | --- | X | --- |
| serviceberry | AMELA | --- | --- | --- | --- | X | --- |
| snowberry | SYMPH | X | 2-5 | --- | --- | --- | --- |
| bristlecone pine | PIAR | --- | --- | --- | --- | X | --- |
| limber pine | PIFL2 | --- | --- | --- | --- | X | --- |
| quaking aspen | POTRT | X | --- | --- | --- | --- | --- |
| white fir | ABCO | --- | --- | --- | --- | X | --- |
| Range site number | | 028BY067NV | 028BY029NV | 029XY052NV | 028BY001NV | 028BY063NV | none |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 1700 | 700 | 4000 | 800 | |
| Normal years | | 600 | 1200 | 450 | 2000 | 500 | |
| Unfavorable years | | 400 | 900 | 300 | 1200 | 300 | |

## 3180--HYMAS-HOPEKA-SOLAK ASSOCIATION

(An X indicatas that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | HYMAS | HOPEKA | SOLAK | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Canby bluegrass | POCA | --- | X | --- | --- | --- | X | --- |
| Indian ricegrass | ORHY | X | X | 10-20 | X | --- | --- | --- |
| Sandberg bluegrass | POSE | --- | X | 2-5 | --- | --- | X | --- |
| Thurber needlegrass | STTH2 | X | X | --- | X | --- | --- | --- |
| basin wildrye | ELCI2 | X | X | --- | X | --- | X | --- |
| bluebunch wheatgrass | AGSP | X | X | --- | X | 20-30 | X | --- |
| bluegrass | POA++ | X | --- | --- | X | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | X | 2-5 | X | --- | X | --- |
| muttongrass | POFE | --- | --- | --- | --- | 2-8 | X | --- |
| needleandthread | STCO4 | --- | --- | 10-20 | --- | --- | --- | --- |
| needlegrass | STIPA | --- | --- | --- | --- | 5-15 | --- | --- |
| arrowleaf balsamroot | BASA3 | X | X | --- | X | --- | X | --- |
| tapertip hawksbeard | CRAC2 | X | X | --- | X | --- | X | --- |
| Stansbury cliffrose | COMES | X | --- | --- | X | --- | --- | --- |
| antelope bitterbrush | PUTR2 | X | X | --- | X | --- | X | --- |
| black sagebrush | ARARN | X | --- | 35-45 | X | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | --- | X | 15-25 | X | --- |
| ephedra | EPHED | --- | X | --- | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | X | --- | --- | 15-25 | X | --- |
| serviceberry | AMELA | X | X | --- | X | --- | X | --- |
| shadscale | ATCO | --- | --- | 2-5 | --- | --- | --- | --- |
| snowberry | SYMPH | --- | --- | --- | --- | 2-8 | X | --- |
| Utah juniper | JUOS | X | X | --- | X | --- | X | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | --- | X | 15-25 | X | --- |
| singleleaf pinyon | PIMO | X | X | --- | X | --- | X | --- |
| Range site number | | 028BY060NV | 028BY062NV | 028BY016NV | 028BY060NV | 028BY043NV | 028BY058NV | none |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 700 | 350 | 500 | 1700 | 500 | |
| Normal years | | 300 | 500 | 225 | 300 | 1300 | 300 | |
| Unfavorable years | | 250 | 300 | 100 | 250 | 900 | 200 | |

## 3190--PENOYER-GEER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | PENOYER | GEER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 5-15 | 40-50 | 2-10 | 1-5 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| basin wildrye | ELCI2 | --- | --- | --- | 10-20 | --- |
| bottlebrush squirreltail | SIHY | 5-10 | 2-5 | 2-5 | 2-5 | --- |
| galleta | HIJA | --- | 2-8 | --- | --- | 1-5 |
| globemallow | SPHAE | --- | 1-3 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black greasewood | SAVE4 | --- | --- | 20-35 | --- | --- |
| bud sagebrush | ARSP5 | 2-8 | 5-15 | 5-15 | 2-5 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | 1-5 | 2-5 | 50-60 | --- |
| green molly kochia | KOAM | --- | --- | --- | 1-3 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | 30-50 | --- | --- |
| winterfat | EULA5 | 60-70 | 25-30 | --- | 2-5 | --- |
| Range site number | | 029XY020NV | 029XY042NV | 029XY024NV | 029XY048NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 700 | 700 | 1000 | 1000 |
| Normal years | | 350 | 500 | 500 | 800 | 700 |
| Unfavorable years | | 200 | 350 | 300 | 400 | 500 |

## 3191--PENOYER-WATOOPAH-EASYCHAIR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | PENOYER | WATOOPAH | EASYCHAIR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 5-15 | 10-25 | 1-5 | 10-25 | 40-50 | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | --- | 2-8 |
| basin wildrye | ELCI2 | --- | --- | 10-20 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 5-10 | --- | 2-5 | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 10-20 | --- | 10-20 | --- | --- |
| galleta | HIJA | --- | 2-8 | --- | 2-8 | 2-8 | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | --- | 5-15 |
| needleandthread | STCO4 | --- | 2-8 | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-4 | --- | 1-4 | 1-3 | --- |
| Nevada ephedra | EPNE | --- | 2-5 | --- | 2-5 | --- | --- |
| Parry saltbush | ATPA3 | --- | --- | --- | --- | --- | 2-10 |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | --- | 25-30 | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | --- | 50-65 |
| bud sagebrush | ARSP5 | 2-8 | 2-5 | 2-5 | 2-5 | 5-15 | --- |
| fourwing saltbush | ATCA2 | --- | 2-5 | 50-60 | 2-5 | 1-5 | --- |
| green molly kochia | KOAM | --- | --- | 1-3 | --- | --- | --- |
| seepweed | SUAED | --- | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | --- | --- | --- | 2-10 |
| spiny hopsage | GRSP | --- | 5-10 | --- | 5-10 | --- | --- |
| winterfat | EULA5 | 60-70 | 2-8 | 2-5 | 2-8 | 25-30 | --- |
| Range site number | | 029XY020NV | 029XY049NV | 029XY048NV | 029XY049NV | 029XY042NV | 029XY076NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 1100 | 1000 | 1100 | 700 | 450 |
| Normal years | | 350 | 800 | 800 | 800 | 500 | 250 |
| Unfavorable years | | 200 | 500 | 400 | 500 | 350 | 100 |

## 3200--GANAFLAN GRAVELLY LOAM, 2 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | GANAFLAN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 5-10 | 15-25 | --- | 5-10 | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | 10-20 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 2-5 | --- |
| desert needlegrass | STSP3 | 2-8 | --- | --- | 2-8 | --- |
| galleta | HIJA | 5-15 | 2-10 | --- | 5-15 | --- |
| meadow barley | HOBR2 | --- | --- | --- | --- | 5-10 |
| rush | JUNCU | --- | --- | --- | --- | 10-20 |
| sedge | CAREX | --- | --- | --- | --- | 20-35 |
| Bailey greasewood | SAVEB | 5-15 | 0-10 | --- | 5-15 | --- |
| Nevada ephedra | EPNE | 2-5 | 1-5 | --- | 2-5 | --- |
| bud sagebrush | ARSP5 | 5-10 | 5-15 | --- | 5-10 | --- |
| shadscale | ATCO | 25-35 | 25-35 | --- | 25-35 | --- |
| winterfat | EULA5 | 5-10 | 5-10 | --- | 5-10 | --- |
| Range site number | | 029XY022NV | 029XY017NV | none | 029XY022NV | 029XY001NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 400 | 500 | | 400 | 4000 |
| Normal years | | 250 | 350 | | 250 | 3000 |
| Unfavorable years | | 100 | 150 | | 100 | 1200 |

## 3210--KUNZLER-SYCOMAT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KUNZLER | SYCOMAT | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 2-10 | 2-5 | 20-30 | 15-25 | 2-5 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | --- | 2-5 |
| basin wildrye | ELCI2 | 10-20 | --- | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | 2-5 | 2-8 | 2-5 | 2-5 | 2-5 |
| galleta | HIJA | --- | --- | --- | 2-10 | --- | 2-5 |
| needleandthread | STCO4 | --- | --- | 10-20 | --- | --- | 2-10 |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | 1-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- | --- | --- |
| big sagebrush | ARTR2 | 20-30 | --- | --- | --- | --- | --- |
| black greasewood | SAVE4 | 30-40 | 20-30 | --- | --- | 20-30 | --- |
| bud sagebrush | ARSP5 | --- | 2-10 | --- | 5-15 | 2-10 | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | --- | --- | 50-70 |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | 2-5 | --- | --- | --- | --- | --- |
| shadscale | ATCO | --- | 20-50 | --- | 25-35 | 20-50 | --- |
| winterfat | EULA5 | --- | --- | --- | 5-10 | --- | --- |
| Range site number | | 028BY028NV | 028BY074NV | 028BY010NV | 029XY017NV | 028BY074NV | 029XY092NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 600 | 800 | 500 | 600 | 250 |
| Normal years | | 600 | 400 | 600 | 350 | 400 | 175 |
| Unfavorable years | | 400 | 200 | 400 | 150 | 200 | 100 |

## 3211--KUNZLER, DRY-SYCOMAT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KUNZLER | KUNZLER | SYCOMAT | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | --- | --- | --- | --- | --- | 2-8 |
| Indian ricegrass | ORHY | 2-10 | 20-30 | 2-5 | 10-20 | 2-10 | --- |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | 2-5 | --- |
| alkali cordgrass | SPGR | --- | --- | --- | --- | --- | 10-15 |
| alkali sacaton | SPAI | --- | --- | --- | --- | --- | 40-50 |
| alkaligrass | PUCCI | --- | --- | --- | --- | --- | 2-5 |
| basin wildrye | ELCI2 | 10-20 | --- | --- | --- | --- | --- |
| bluegrass | POA++ | --- | --- | --- | --- | --- | 2-8 |
| bottlebrush squirreltail | SIHY | --- | 2-8 | 2-5 | 5-15 | 2-5 | --- |
| galleta | HIJA | --- | --- | --- | --- | 2-5 | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | --- | 2-5 |
| needleandthread | STCO4 | --- | 10-20 | --- | --- | 2-10 | --- |
| sedge | CAREX | --- | --- | --- | --- | --- | 5-10 |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | --- | --- | --- |
| big sagebrush | ARTR2 | 20-30 | --- | --- | --- | --- | --- |
| black greasewood | SAVE4 | 30-40 | --- | 20-30 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 2-10 | 10-25 | --- | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | --- | 50-70 | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | 2-5 | --- | --- | --- | --- | --- |
| shadscale | ATCO | --- | --- | 20-50 | 40-50 | --- | --- |
| Range site number | | 028BY028NV | 028BY010NV | 028BY074NV | 028BY017NV | 029XY092NV | 028BY002NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 800 | 600 | 400 | 250 | 1500 |
| Normal years | | 600 | 600 | 400 | 300 | 175 | 1000 |
| Unfavorable years | | 400 | 400 | 200 | 200 | 100 | 700 |

## 3212--KUNZLER-CANDELARIA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KUNZLER | KUNZLER | CANDELARIA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-30 | 2-10 | 15-25 | 20-35 | 2-10 | --- |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-5 | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | --- | 2-10 |
| basin wildrye | ELCI2 | --- | 10-20 | --- | --- | --- | 20-40 |
| bottlebrush squirreltail | SIHY | 2-8 | --- | 2-5 | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | --- | --- | 2-10 | --- | 2-5 | --- |
| needleandthread | STCO4 | 10-20 | --- | --- | 5-15 | 2-10 | --- |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 1-5 | 2-5 | --- | --- |
| Torrey quailbush | ATTO | --- | --- | --- | --- | --- | 30-50 |
| Wyoming big sagebrush | ARTRW | 25-35 | --- | --- | 25-35 | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | 2-10 |
| big sagebrush | ARTR2 | --- | 20-30 | --- | --- | --- | --- |
| black greasewood | SAVE4 | --- | 30-40 | --- | --- | --- | 5-15 |
| bud sagebrush | ARSP5 | --- | --- | 5-15 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | 2-5 | --- | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | --- | 50-70 | --- |
| rabbitbrush | CHRYS9 | 2-5 | --- | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | 2-5 | --- | --- | --- | --- |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- | --- |
| winterfat | EULA5 | --- | --- | 5-10 | --- | --- | --- |
| Range site number | | 028BY010NV | 028BY028NV | 029XY017NV | 029XY006NV | 029XY092NV | 029XY093NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 800 | 500 | 800 | 250 | 1500 |
| Normal years | | 600 | 600 | 350 | 600 | 175 | 1200 |
| Unfavorable years | | 400 | 400 | 150 | 300 | 100 | 800 |

## 3220--STEWVAL-BEELEM ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | STEWVAL | BEELEM | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 10-20 | 20-35 | 10-25 | --- | 10-15 |
| Sandberg bluegrass | POSE | 2-5 | --- | 2-5 | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | 2-10 | --- | 10-20 | --- | 2-8 |
| galleta | HIJA | 2-8 | --- | 2-8 | 2-8 | --- | 2-8 |
| needleandthread | STCO4 | 5-15 | 2-10 | 5-15 | 2-8 | --- | 15-25 |
| globemallow | SPHAE | --- | --- | --- | 1-4 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-8 | 2-5 | 2-5 | --- | --- |
| Stansbury cliffrose | COMES | --- | 5-10 | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | --- | 30-35 |
| black sagebrush | ARARN | 25-35 | 20-30 | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 2-5 | --- | --- |
| ephedra | EPHED | --- | --- | --- | --- | --- | 2-8 |
| fourwing saltbush | ATCA2 | 1-5 | --- | 1-5 | 2-5 | --- | 2-5 |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | --- | --- |
| winterfat | EULA5 | 1-5 | --- | 1-5 | 2-8 | --- | --- |
| Range site number | | 029XY008NV | 029XY081NV | 029XY008NV | 029XY049NV | none | 029XY010NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 500 | 700 | 1100 | | 500 |
| Normal years | | 500 | 350 | 500 | 800 | | 350 |
| Unfavorable years | | 250 | 200 | 250 | 500 | | 250 |

## 3221--STEWVAL, MOIST-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | STEWVAL | STEWVAL | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 2-5 | 20-35 | --- | 2-8 | 5-10 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | --- | --- | 2-10 |
| Thurber needlegrass | STTH2 | --- | --- | --- | 5-10 | --- | --- |
| beardless wheatgrass | AGSPI | 40-55 | --- | --- | 20-35 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-8 | --- |
| galleta | HIJA | 1-3 | 2-8 | --- | 2-5 | 5-15 | 1-5 |
| muttongrass | POFE | --- | --- | --- | 2-5 | --- | --- |
| needleandthread | STCO4 | --- | 5-15 | --- | 2-8 | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | --- | 5-15 | --- |
| Douglas rabbitbrush | CHVI8 | --- | --- | --- | 2-5 | --- | --- |
| Nevada ephedra | EPNE | --- | 2-5 | --- | --- | 2-5 | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | 2-8 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 20-30 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-30 | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | 5-10 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | 2-5 | --- | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | 1-5 | --- | --- | --- | --- |
| green ephedra | EPVI | --- | --- | --- | 2-8 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | --- | --- | 25-35 | --- |
| winterfat | EULA5 | --- | 1-5 | --- | --- | 5-10 | --- |
| Range site number | | 029XY028NV | 029XY008NV | none | 029XY057NV | 029XY022NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 700 | | 700 | 400 | 1000 |
| Normal years | | 400 | 500 | | 500 | 250 | 700 |
| Unfavorable years | | 250 | 250 | | 350 | 100 | 500 |

## 3223--STEWVAL-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | STEWVAL | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | --- | 5-10 | 10-15 | --- | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | 2-5 | --- | 2-10 |
| bluegrass | POA++ | --- | --- | --- | --- | X | --- |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | X | --- |
| desert needlegrass | STSP3 | --- | --- | 2-8 | 2-8 | --- | --- |
| galleta | HIJA | 2-8 | --- | 5-15 | 2-8 | --- | 1-5 |
| muttongrass | POFE | --- | --- | --- | --- | X | --- |
| needleandthread | STCO4 | 5-15 | --- | --- | 15-25 | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | 5-15 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | 2-5 | --- | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | --- | X | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 30-35 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | X | --- |
| bud sagebrush | ARSP5 | --- | --- | 5-10 | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | --- | --- | --- | 2-8 | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | --- | --- | 2-5 | --- | --- |
| green ephedra | EPVI | --- | --- | --- | --- | X | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- | --- |
| winterfat | EULA5 | 1-5 | --- | 5-10 | --- | --- | --- |
| singleleaf pinyon | PIMO | --- | --- | --- | --- | X | --- |
| Range site number | | 029XY008NV | none | 029XY022NV | 029XY010NV | 029XY069NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | | 400 | 500 | 400 | 1000 |
| Normal years | | 500 | | 250 | 350 | 300 | 700 |
| Unfavorable years | | 250 | | 100 | 250 | 150 | 500 |

## 3224--STEWVAL-BEELEM-BELLEHELEN ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | STEWVAL | BEELEM | BELLEHELEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 2-5 | 10-20 | --- | --- | 10-15 | 20-35 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-5 | 2-5 | 2-10 |
| beardless wheatgrass | AGSPI | 40-55 | --- | --- | --- | --- | --- | --- |
| bluegrass | POA++ | --- | --- | X | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | X | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | 2-10 | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | 1-3 | --- | --- | --- | 2-8 | 2-8 | 1-5 |
| muttongrass | POFE | --- | --- | X | --- | --- | --- | --- |
| needleandthread | STCO4 | --- | 2-10 | --- | --- | 15-25 | 5-15 | --- |
| Nevada ephedra | EPNE | --- | 2-8 | --- | --- | --- | 2-5 | --- |
| Stansbury cliffrose | COMES | --- | 5-10 | X | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 30-35 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-30 | 20-30 | X | --- | --- | 25-35 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | 2-5 | --- | --- | --- | 2-8 | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 2-5 | 1-5 | --- |
| green ephedra | EPVI | --- | --- | X | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| winterfat | EULA5 | --- | --- | --- | --- | --- | 1-5 | --- |
| singleleaf pinyon | PIMO | --- | --- | X | --- | --- | --- | --- |
| Range site number | | 029XY028NV | 029XY081NV | 029XY069NV | none | 029XY010NV | 029XY008NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 500 | 400 | | 500 | 700 | 1000 |
| Normal years | | 400 | 350 | 300 | | 350 | 500 | 700 |
| Unfavorable years | | 250 | 200 | 150 | | 250 | 250 | 500 |

## 3226--STEWVAL-BELLEHELEN-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | STEWVAL | BELLEHELEN | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORBY | 20-35 | --- | --- | 10-15 | --- | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | 2-5 | --- | 2-10 |
| bluegrass | POA++ | --- | X | --- | --- | X | --- |
| bottlebrush squirreltail | SIBY | --- | X | --- | --- | X | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | 2-8 | --- | --- | 2-8 | --- | 1-5 |
| muttongrass | POFE | --- | X | --- | --- | X | --- |
| needleandthread | STCO4 | 5-15 | --- | --- | 15-25 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | --- | --- | --- |
| Stansbury cliffrose | COMES | --- | X | --- | --- | X | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 30-35 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | X | --- | --- | X | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | --- | --- | --- | 2-8 | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | --- | --- | 2-5 | --- | --- |
| green ephedra | EPVI | --- | X | --- | --- | X | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| winterfat | EULA5 | 1-5 | --- | --- | --- | --- | --- |
| singleleaf pinyon | PIMO | --- | X | --- | --- | X | --- |
| Range site number | | 029XY008NV | 029XY069NV | none | 029XY010NV | 029XY069NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 400 | | 500 | 400 | 1000 |
| Normal years | | 500 | 300 | | 350 | 300 | 700 |
| Unfavorable years | | 250 | 150 | | 250 | 150 | 500 |

## 3228--STEWVAL-GABBVALLY-BEELEM ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | STEWVAL | GABBVALLY | BEELEM | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 10-15 | 10-20 | 2-5 | --- | 10-25 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | 2-5 | --- | --- |
| beardless wheatgrass | AGSPI | --- | --- | --- | 40-55 | --- | --- |
| desert needlegrass | STSP3 | --- | 2-8 | 2-10 | --- | --- | 10-20 |
| galleta | HIJA | 2-8 | 2-8 | --- | 1-3 | --- | 2-8 |
| needleandthread | STCO4 | 5-15 | 15-25 | 2-10 | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | --- | --- | 1-4 |
| Nevada ephedra | EPNE | 2-5 | --- | 2-8 | --- | --- | 2-5 |
| Stansbury cliffrose | COMES | --- | --- | 5-10 | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 30-35 | --- | --- | --- | 25-30 |
| black sagebrush | ARARN | 25-35 | --- | 20-30 | 25-30 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | --- | 2-5 |
| ephedra | EPHED | --- | 2-8 | --- | 2-5 | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | 2-5 | --- | --- | --- | 2-5 |
| spiny hopsage | GRSP | --- | --- | --- | --- | --- | 5-10 |
| winterfat | EULA5 | 1-5 | --- | --- | --- | --- | 2-8 |
| Range site number | | 029XY008NV | 029XY010NV | 029XY081NV | 029XY028NV | none | 029XY049NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 500 | 500 | 700 | | 1100 |
| Normal years | | 500 | 350 | 350 | 400 | | 800 |
| Unfavorable years | | 250 | 250 | 200 | 250 | | 500 |

## 3231--GEER FINE SANDY LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | GEER | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 40-50 | 15-25 | 25-35 | 50-70 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- |
| galleta | HIJA | 2-8 | 2-10 | 10-15 | 2-5 | 1-5 |
| needleandthread | STCO4 | --- | --- | --- | 2-5 | --- |
| sand dropseed | SPCR | --- | --- | --- | 5-15 | --- |
| globemallow | SPHAE | 1-3 | --- | --- | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | --- | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 1-5 | 10-15 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 2-5 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 1-5 | --- | 2-8 | 15-25 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 15-30 | --- | --- |
| winterfat | EULA5 | 25-30 | 5-10 | 2-5 | 2-8 | --- |
| Range site number | | 029XY042NV | 029XY017NV | 029XY016NV | 029XY012NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 500 | 1000 | 700 | 1000 |
| Normal years | | 500 | 350 | 700 | 500 | 700 |
| Unfavorable years | | 350 | 150 | 500 | 300 | 500 |

## 3233--GEER-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | GEER | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 40-50 | 20-30 | 20-30 | 50-70 | 25-35 | 15-25 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | --- | 2-5 |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-5 | 10-15 | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | 2-5 | --- | --- |
| sand dropseed | SPCR | --- | 2-8 | 2-8 | 5-15 | --- | --- |
| globemallow | SPHAE | 1-3 | 1-3 | 1-3 | --- | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | 2-5 | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | --- | --- | 0-10 |
| Nevada ephedra | EPNE | --- | --- | --- | --- | 10-15 | 1-5 |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | 2-8 | --- | 2-5 | 5-15 |
| fourwing saltbush | ATCA2 | 1-5 | 20-30 | 20-30 | 15-25 | 2-8 | --- |
| shadscale | ATCO | --- | --- | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | --- | 2-5 | 2-5 | --- | 15-30 | --- |
| winterfat | EULA5 | 25-30 | 10-20 | 10-20 | 2-8 | 2-5 | 5-10 |
| Range site number | | 029XY042NV | 029XY046NV | 029XY046NV | 029XY012NV | 029XY016NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 500 | 500 | 700 | 1000 | 500 |
| Normal years | | 500 | 400 | 400 | 500 | 700 | 350 |
| Unfavorable years | | 350 | 300 | 300 | 300 | 500 | 150 |

## 3240--STARGO-VEET ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | STARGO | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 10-25 | 15-25 | 2-10 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 10-20 | --- | --- | --- |
| galleta | HIJA | 2-10 | 2-8 | 2-10 | --- | 1-5 |
| needleandthread | STCO4 | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | 1-4 | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | 1-5 | 2-5 | 1-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black greasewood | SAVE4 | --- | --- | --- | 20-35 | --- |
| bud sagebrush | ARSP5 | 5-15 | 2-5 | 5-15 | 5-15 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | 2-5 | --- | 2-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | 25-35 | --- | 25-35 | 30-50 | --- |
| spiny hopsage | GRSP | --- | 5-10 | --- | --- | --- |
| winterfat | EULA5 | 5-10 | 2-8 | 5-10 | --- | --- |
| Range site number | | 029XY017NV | 029XY049NV | 029XY017NV | 029XY024NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 1100 | 500 | 700 | 1000 |
| Normal years | | 350 | 800 | 350 | 500 | 700 |
| Unfavorable years | | 150 | 500 | 150 | 300 | 500 |

## 3241--STARGO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | STARGO | STARGO | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 25-35 | --- | 2-10 | 20-30 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 2-5 | --- |
| galleta | HIJA | 2-10 | 2-8 | --- | --- | 2-8 |
| sand dropseed | SPCR | --- | --- | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | --- | 1-3 |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | 20-35 | --- |
| bud sagebrush | ARSP5 | 5-15 | --- | --- | 5-15 | 2-8 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 2-5 | 20-30 |
| shadscale | ATCO | 25-35 | --- | --- | 30-50 | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | 2-5 |
| winterfat | EULA5 | 5-10 | --- | --- | --- | 10-20 |
| Range site number | | 029XY017NV | 029XY087NV | none | 029XY024NV | 029XY046NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 500 | | 700 | 500 |
| Normal years | | 350 | 350 | | 500 | 400 |
| Unfavorable years | | 150 | 200 | | 300 | 300 |

## 3250--WARDENOT GRAVELLY SANDY LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | |
|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | |
| | | WARDENOT | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 25-35 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 |
| galleta | HIJA | 2-10 | 2-8 | 2-8 |
| sand dropseed | SPCR | --- | 2-8 | --- |
| globemallow | SPHAE | --- | 1-3 | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | --- |
| fourwing saltbush | ATCA2 | --- | 20-30 | --- |
| shadscale | ATCO | 25-35 | --- | --- |
| spiny hopsage | GRSP | --- | 2-5 | --- |
| winterfat | EULA5 | 5-10 | 10-20 | --- |
| Range site number | | 029XY017NV | 029XY046NV | 029XY087NV |
| Potential production (lb/acre): | | | | |
| Favorable years | | 500 | 500 | 500 |
| Normal years | | 350 | 400 | 350 |
| Unfavorable years | | 150 | 300 | 200 |

## 3260--SPRINGWARM-JOTAVA-DELACIT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | SPRINGWARM | JOTAVA | DELACIT | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Baltic rush | JUBA | 1-5 | 1-5 | --- | --- | 5-15 | 1-5 | --- |
| Indian ricegrass | ORHY | --- | --- | 2-10 | 15-25 | --- | --- | --- |
| alkali cordgrass | SPGR | --- | --- | --- | --- | 2-5 | --- | --- |
| alkali sacaton | SPAI | 20-40 | 20-40 | --- | --- | 25-40 | 20-40 | --- |
| basin wildrye | ELCI2 | 25-35 | 25-35 | --- | --- | 2-5 | 25-35 | --- |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | --- | --- | --- |
| giantreed | ARDO4 | --- | --- | --- | --- | 2-5 | --- | --- |
| inland saltgrass | DISPS2 | 2-10 | 2-10 | --- | 2-5 | 10-15 | 2-10 | --- |
| needleandthread | STCO4 | --- | --- | --- | 5-10 | --- | --- | --- |
| sand dropseed | SPCR | --- | --- | --- | 2-10 | --- | --- | --- |
| black greasewood | SAVE4 | 5-15 | 5-15 | 20-35 | 30-50 | --- | 5-15 | --- |
| bud sagebrush | ARSP5 | --- | --- | 5-15 | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 2-5 | 5-15 | --- | --- | --- |
| rabbitbrush | CHRYS9 | 1-5 | 1-5 | --- | --- | --- | 1-5 | --- |
| shadscale | ATCO | --- | --- | 30-50 | 2-8 | --- | --- | --- |
| Range site number | | 029XY004NV | 029XY004NV | 029XY024NV | 029XY018NV | 029XY002NV | 029XY004NV | none |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 1600 | 1600 | 700 | 450 | 3300 | 1600 | |
| Normal years | | 1100 | 1100 | 500 | 300 | 2200 | 1100 | |
| Unfavorable years | | 800 | 800 | 300 | 100 | 1000 | 800 | |

## 3270--JOTAVA SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | JOTAVA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | 1-5 | --- | 5-15 | --- |
| Indian ricegrass | ORHY | --- | 2-10 | --- | --- |
| alkali cordgrass | SPGR | --- | --- | 2-5 | --- |
| alkali sacaton | SPAI | 20-40 | --- | 25-40 | 15-40 |
| basin wildrye | ELCI2 | 25-35 | --- | 2-5 | 40-60 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | --- |
| giantreed | ARDO4 | --- | --- | 2-5 | --- |
| inland saltgrass | DISPS2 | 2-10 | --- | 10-15 | 2-5 |
| western wheatgrass | AGSM | --- | --- | --- | 2-5 |
| black greasewood | SAVE4 | 5-15 | 20-35 | --- | 5-15 |
| bud sagebrush | ARSP5 | --- | 5-15 | --- | --- |
| fourwing saltbush | ATCA2 | --- | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | 1-5 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | 30-50 | --- | --- |
| Range site number | | 029XY004NV | 029XY024NV | 029XY002NV | 028BY004NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 1600 | 700 | 3300 | 2200 |
| Normal years | | 1100 | 500 | 2200 | 1500 |
| Unfavorable years | | 800 | 300 | 1000 | 800 |

## 3280--DUFFER-EQUIS ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | DUFFER | DUFFER | EQUIS | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Baltic rush | JUBA | 2-8 | --- | 2-8 | --- | --- | 1-5 | --- |
| Indian ricegrass | ORHY | --- | --- | --- | --- | 2-10 | --- | --- |
| alkali cordgrass | SPGR | 10-15 | --- | 10-15 | --- | --- | --- | --- |
| alkali sacaton | SPAI | 40-50 | 15-40 | 40-50 | --- | --- | 20-40 | --- |
| alkaligrass | PUCCI | 2-5 | --- | 2-5 | --- | --- | --- | --- |
| basin wildrye | ELCI2 | --- | 40-60 | --- | 2-5 | 10-20 | 25-35 | 10-20 |
| bluegrass | POA++ | 2-8 | --- | 2-8 | 25-40 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | --- | --- | 2-5 |
| inland saltgrass | DISPS2 | 2-5 | 2-5 | 2-5 | --- | --- | 2-10 | 2-10 |
| mat muhly | MURI | --- | --- | --- | 2-5 | --- | --- | --- |
| rush | JUNCU | --- | --- | --- | 5-15 | --- | --- | --- |
| sedge | CAREX | 5-10 | --- | 5-10 | 20-30 | --- | --- | --- |
| western wheatgrass | AGSM | --- | 2-5 | --- | --- | --- | --- | --- |
| cinquefoil | POTEN | --- | --- | --- | 2-5 | --- | --- | --- |
| groundsel | SENEC | --- | --- | --- | 2-5 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 20-30 | --- | --- |
| black greasewood | SAVE4 | --- | 5-15 | --- | --- | 30-40 | 5-15 | 50-60 |
| rabbitbrush | CHRYS9 | --- | --- | --- | --- | --- | 1-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | 2-5 | --- | --- | 2-5 | --- | --- |
| Range site number | | 028BY002NV | 028BY004NV | 028BY002NV | 028BY001NV | 028BY028NV | 029XY004NV | 028BY069NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 1500 | 2200 | 1500 | 4000 | 800 | 1600 | 800 |
| Normal years | | 1000 | 1500 | 1000 | 2000 | 600 | 1100 | 600 |
| Unfavorable years | | 700 | 800 | 700 | 1200 | 400 | 800 | 400 |

## 3300--PALINOR VERY GRAVELLY LOAM, 2 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | PALINOR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-30 | 10-20 | 2-5 |
| Sandberg bluegrass | POSE | 2-8 | 2-5 | --- | 2-5 |
| beardless wheatgrass | AGSPI | --- | --- | --- | 40-55 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-8 | 5-15 | --- |
| galleta | HIJA | --- | --- | --- | 1-3 |
| needleandthread | STCO4 | 5-15 | 10-20 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | 25-30 |
| bud sagebrush | ARSP5 | --- | --- | 10-25 | --- |
| downy rabbitbrush | CHVIP4 | 2-5 | --- | --- | --- |
| ephedra | EPHED | --- | --- | --- | 2-5 |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- |
| shadscale | ATCO | 2-5 | --- | 40-50 | --- |
| Range site number | | 028BY011NV | 028BY010NV | 028BY017NV | 029XY028NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 600 | 800 | 400 | 700 |
| Normal years | | 450 | 600 | 300 | 400 |
| Unfavorable years | | 250 | 400 | 200 | 250 |

## 3301--PALINOR-NUC ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | PALINOR | NUC | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 5-10 | 15-25 | 10-20 | X |
| Sandberg bluegrass | POSE | 2-8 | 2-8 | --- | --- | --- | X |
| basin wildrye | ELCI2 | --- | --- | 10-20 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 5-10 | --- | X |
| galleta | HIJA | --- | --- | --- | --- | 2-8 | X |
| needleandthread | STCO4 | 5-15 | 5-15 | --- | --- | 5-15 | X |
| other perennial grasses | PPGG | --- | --- | --- | 2-5 | --- | --- |
| thickspike wheatgrass | AGDA | --- | --- | 5-10 | --- | --- | --- |
| threeawn | ARIST | --- | --- | --- | --- | --- | X |
| eriogonum | ERIOG | --- | --- | --- | --- | --- | X |
| globemallow | SPHAE | --- | --- | --- | 2-5 | --- | --- |
| goldenweed | HAPLO2 | --- | --- | --- | --- | --- | X |
| lupine | LUPIN | --- | --- | --- | --- | --- | X |
| milkvetch | ASTRA | --- | --- | --- | --- | --- | X |
| Douglas rabbitbrush | CHVI8 | --- | --- | --- | --- | --- | X |
| Nevada ephedra | EPNE | --- | --- | --- | --- | 2-8 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- | --- | --- |
| black sagebrush | ARARN | 25-35 | 25-35 | --- | --- | 35-45 | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 2-8 | --- | --- |
| downy rabbitbrush | CHVIP4 | 2-5 | 2-5 | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | 2-5 | --- | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | --- | --- | X |
| shadscale | ATCO | 2-5 | 2-5 | --- | --- | 1-5 | --- |
| winterfat | EULA5 | --- | --- | --- | 40-50 | --- | --- |
| Utah juniper | JUOS | --- | --- | --- | --- | --- | X |
| singleleaf pinyon | PIMO | --- | --- | --- | --- | --- | X |
| Range site number | | 028BY011NV | 028BY011NV | 028BY045NV | 028BY013NV | 029XY014NV | 028AY021NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 600 | 600 | 1000 | 700 | 350 | 200 |
| Normal years | | 450 | 450 | 800 | 500 | 200 | 100 |
| Unfavorable years | | 250 | 250 | 600 | 350 | 75 | 75 |

## 3302--PALINOR-PARISA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | PALINOR | PARISA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-30 | 10-25 | 15-25 | 2-10 |
| Sandberg bluegrass | POSE | 2-8 | 2-5 | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-8 | --- | 5-10 | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | --- | --- | 2-8 | --- | 1-5 |
| needleandthread | STCO4 | 5-15 | 10-20 | 2-8 | --- | --- |
| other perennial grasses | PPGG | --- | --- | --- | 2-5 | --- |
| globemallow | SPHAE | --- | --- | 1-4 | 2-5 | --- |
| Nevada ephedra | EPNE | --- | --- | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | 25-30 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 2-5 | 2-8 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| downy rabbitbrush | CHVIP4 | 2-5 | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 2-5 | 2-5 | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | 2-5 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 5-10 | --- | --- |
| winterfat | EULA5 | --- | --- | 2-8 | 40-50 | --- |
| Range site number | | 028BY011NV | 028BY010NV | 029XY049NV | 028BY013NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 600 | 800 | 1100 | 700 | 1000 |
| Normal years | | 450 | 600 | 800 | 500 | 700 |
| Unfavorable years | | 250 | 400 | 500 | 350 | 500 |

## 3310--URSINE-VEET-ARMESPAN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | URSINE | VEET | ARMESPAN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 10-25 | 20-35 | 40-50 | 20-35 | 2-10 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | 2-5 | --- | 2-5 | 2-5 | 2-10 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 10-20 | --- | --- | --- | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-8 | 2-8 | --- | 1-5 |
| needleandthread | STCO4 | 5-15 | 2-8 | 5-15 | --- | 5-15 | 2-10 | --- |
| globemallow | SPHAE | --- | 1-4 | --- | 1-3 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | --- | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | --- | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | 25-35 | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | 2-5 | --- | 5-15 | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 1-5 | 2-5 | 1-5 | 1-5 | 1-5 | --- | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | --- | --- | 50-70 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| spiny hopsage | GRSP | --- | 5-10 | --- | --- | --- | --- | --- |
| winterfat | EULA5 | 1-5 | 2-8 | 1-5 | 25-30 | 1-5 | --- | --- |
| Range site number | | 029XY008NV | 029XY049NV | 029XY008NV | 029XY042NV | 029XY008NV | 028BY040NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 1100 | 700 | 700 | 700 | 250 | 1000 |
| Normal years | | 500 | 800 | 500 | 500 | 500 | 175 | 700 |
| Unfavorable years | | 250 | 500 | 250 | 350 | 250 | 100 | 500 |

## 3311--URSINE-CLIFFDOWN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | URSINE | CLIFFDOWN | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 40-50 | 15-25 | 20-35 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | 2-5 | 2-10 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | 2-5 | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-10 | 2-8 | 1-5 |
| needleandthread | STCO4 | 5-15 | --- | --- | 5-15 | --- |
| globemallow | SPHAE | --- | 1-3 | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | 1-5 | 2-5 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | --- | 5-15 | 5-15 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 1-5 | 1-5 | --- | 1-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- |
| winterfat | EULA5 | 1-5 | 25-30 | 5-10 | 1-5 | --- |
| Range site number | | 029XY008NV | 029XY042NV | 029XY017NV | 029XY008NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 700 | 500 | 700 | 1000 |
| Normal years | | 500 | 500 | 350 | 500 | 700 |
| Unfavorable years | | 250 | 350 | 150 | 250 | 500 |

## 3330--HANDPAH-DELAMAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | HANDPAH | DELAMAR | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 25-35 | 10-25 | 20-35 | 15-25 | 25-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | 2-8 | --- | 10-20 | --- | --- | --- |
| galleta | HIJA | --- | 10-15 | 2-8 | 2-8 | 2-10 | 10-15 |
| needleandthread | STCO4 | 5-15 | --- | 2-8 | 5-15 | --- | --- |
| globemallow | SPHAE | --- | --- | 1-4 | --- | --- | --- |
| Anderson wolfberry | LYAN | --- | 2-5 | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | --- | --- | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | 2-5 | 10-15 | 2-5 | 2-5 | 1-5 | 10-15 |
| wyoming big sagebrush | ARTRW | 25-35 | --- | 25-30 | --- | --- | --- |
| black sagebrush | ARARN | --- | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | 2-5 | 2-5 | --- | 5-15 | 2-5 |
| fourwing saltbush | ATCA2 | 2-5 | 2-8 | 2-5 | 1-5 | --- | 2-8 |
| shadscale | ATCO | --- | --- | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | --- | 15-30 | 5-10 | --- | --- | 15-30 |
| winterfat | EULA5 | --- | 2-5 | 2-8 | 1-5 | 5-10 | 2-5 |
| Range site number | | 029XY006NV | 029XY016NV | 029XY049NV | 029XY008NV | 029XY017NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 1000 | 1100 | 700 | 500 | 1000 |
| Normal years | | 600 | 700 | 800 | 500 | 350 | 700 |
| Unfavorable years | | 300 | 500 | 500 | 250 | 150 | 500 |

## 3333--HANDPAH-WATOOPAH-ZADVAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | HANDPAH | WATOOPAH | ZADVAR | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-35 | 10-25 | 20-35 | 10-25 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | 2-10 |
| desert needlegrass | STSP3 | 2-8 | 10-20 | --- | 10-20 | --- |
| galleta | HIJA | --- | 2-8 | 2-8 | 2-8 | 1-5 |
| needleandthread | STCO4 | 5-15 | 2-8 | 5-15 | 2-8 | --- |
| globemallow | SPHAE | --- | 1-4 | --- | 1-4 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-30 | --- | 25-30 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | 2-5 | --- | 2-5 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 1-5 | 2-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| spiny hopsage | GRSP | --- | 5-10 | --- | 5-10 | --- |
| winterfat | EULA5 | --- | 2-8 | 1-5 | 2-8 | --- |
| Range site number | | 029XY006NV | 029XY049NV | 029XY008NV | 029XY049NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 800 | 1100 | 700 | 1100 | 1000 |
| Normal years | | 600 | 800 | 500 | 800 | 700 |
| Unfavorable years | | 300 | 500 | 250 | 500 | 500 |

## 3334--HANDPAH-PALINOR-PARISA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | HANDPAH | PALINOR | PARISA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 20-30 | 5-10 | 15-25 | 2-10 |
| Sandberg bluegrass | POSE | --- | 2-8 | 2-5 | --- | --- | 2-10 |
| basin wildrye | ELCI2 | --- | --- | --- | 10-20 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | 2-5 | 2-8 | --- | 5-10 | --- |
| desert needlegrass | STSP3 | 2-8 | --- | --- | --- | --- | --- |
| galleta | HIJA | --- | --- | --- | --- | --- | 1-5 |
| needleandthread | STCO4 | 5-15 | 5-15 | 10-20 | --- | --- | --- |
| other perennial grasses | PPGG | --- | --- | --- | --- | 2-5 | --- |
| thickspike wheatgrass | AGDA | --- | --- | --- | 5-10 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 2-5 | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | --- | 25-35 | 25-35 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | --- | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | 2-8 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| downy rabbitbrush | CHVIP4 | --- | 2-5 | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | 2-5 | --- | --- | --- | 2-5 | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 2-5 | --- | --- | --- | --- |
| winterfat | EULA5 | --- | --- | --- | --- | 40-50 | --- |
| Range site number | | 029XY006NV | 028BY011NV | 028BY010NV | 028BY045NV | 028BY013NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 600 | 800 | 1000 | 700 | 1000 |
| Normal years | | 600 | 450 | 600 | 800 | 500 | 700 |
| Unfavorable years | | 300 | 250 | 400 | 600 | 350 | 500 |

## 3335--HANDPAH-WATOOPAH-CANDELARIA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | HANDPAH | WATOOPAH | CANDELARIA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 10-25 | 15-25 | 20-30 | 20-35 | 40-50 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | --- |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | --- | 2-5 |
| desert needlegrass | STSP3 | 2-8 | 10-20 | --- | --- | --- | --- |
| galleta | HIJA | --- | 2-8 | 2-10 | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 2-8 | --- | --- | 5-15 | --- |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-4 | --- | 1-3 | --- | 1-3 |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 1-5 | --- | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-30 | --- | --- | --- | --- |
| black sagebrush | ARARN | --- | --- | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | --- | 2-5 | 5-15 | 2-8 | --- | 5-15 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | --- | 20-30 | 1-5 | 1-5 |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | 5-10 | --- | 2-5 | --- | --- |
| winterfat | EULA5 | --- | 2-8 | 5-10 | 10-20 | 1-5 | 25-30 |
| Range site number | | 029XY006NV | 029XY049NV | 029XY017NV | 029XY046NV | 029XY008NV | 029XY042NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 1100 | 500 | 500 | 700 | 700 |
| Normal years | | 600 | 800 | 350 | 400 | 500 | 500 |
| Unfavorable years | | 300 | 500 | 150 | 300 | 250 | 350 |

## 3340--AMELAR-EOJ-HARDOL ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | AMELAR | EOJ | HARDOL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Canby bluegrass | POCA | --- | 2-5 | --- | --- | --- | --- | --- |
| Indian ricegrass | ORHY | 2-5 | --- | --- | --- | --- | --- | --- |
| Letterman needlegrass | STLE4 | --- | --- | --- | --- | X | 20-30 | --- |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 1-3 | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | --- | 2-5 |
| bluebunch wheatgrass | AGSP | 20-30 | 20-40 | 15-30 | --- | X | --- | --- |
| bluegrass | POA++ | --- | --- | --- | --- | --- | --- | 25-40 |
| mat muhly | MURI | --- | --- | --- | --- | --- | --- | 2-5 |
| mountain brome | BRCA5 | --- | --- | 5-10 | --- | --- | --- | --- |
| muttongrass | POFE | 5-10 | 10-20 | --- | --- | X | 10-20 | --- |
| needlegrass | STIPA | --- | --- | 15-30 | --- | --- | --- | --- |
| pine needlegrass | STPI2 | --- | --- | --- | --- | --- | 2-8 | --- |
| prairie junegrass | KOPY | --- | --- | --- | --- | --- | 2-5 | --- |
| rush | JUNCU | --- | --- | --- | --- | --- | --- | 5-15 |
| sedge | CAREX | --- | --- | --- | --- | --- | --- | 20-30 |
| slender wheatgrass | AGTR | --- | --- | 5-10 | --- | --- | --- | --- |
| spike-fescue | LEKI2 | --- | --- | 5-10 | --- | X | --- | --- |
| barestem biscuitroot | LONU2 | --- | 2-5 | --- | --- | --- | --- | --- |
| cinquefoil | POTEN | --- | --- | --- | --- | --- | --- | 2-5 |
| creeping barberry | BERE | --- | --- | --- | --- | X | --- | --- |
| goldenweed | HAPLO2 | --- | --- | --- | --- | X | --- | --- |
| groundsel | SENEC | --- | --- | --- | --- | --- | --- | 2-5 |
| Utah serviceberry | AMUT | 30-40 | 1-5 | 1-5 | --- | --- | --- | --- |
| antelope bitterbrush | PUTR2 | 5-15 | 2-5 | --- | --- | --- | --- | --- |
| low sagebrush | ARAR8 | --- | 25-35 | --- | --- | --- | 25-35 | --- |
| mountain big sagebrush | ARVA2 | 5-15 | --- | 15-25 | --- | X | --- | --- |
| serviceberry | AMELA | --- | --- | --- | --- | X | --- | --- |
| snowberry | SYMPH | --- | --- | 2-8 | --- | --- | --- | --- |
| bristlecone pine | PIAR | --- | --- | --- | --- | X | --- | --- |
| limber pine | PIFL2 | --- | --- | --- | --- | X | --- | --- |
| white fir | ABCO | --- | --- | --- | --- | X | --- | --- |
| Range site number | | 028BY091NV | 028BY092NV | 028BY085NV | none | 028BY049NV | 029XY052NV | 028BY001NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 1200 | 800 | 1500 | | 400 | 700 | 4000 |
| Normal years | | 900 | 600 | 1100 | | 300 | 450 | 2000 |
| Unfavorable years | | 700 | 400 | 700 | | 200 | 300 | 1200 |

## 3380--RODEN-IZAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | RODEN | IZAR | RODEN | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-20 | 10-20 | --- | 20-30 | 20-30 | 10-20 |
| Nevada bluegrass | PONE3 | --- | --- | 10-20 | --- | --- | --- |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | 2-5 | 2-5 | --- |
| alpine timothy | PHAL2 | --- | --- | 5-10 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 2-8 | 2-8 | --- |
| bulrush | SCIRP | --- | --- | 2-5 | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | --- | 2-10 |
| needleandthread | STCO4 | 10-20 | 10-20 | --- | 10-20 | 10-20 | 2-10 |
| rush | JUNCU | --- | --- | 2-8 | --- | --- | --- |
| sedge | CAREX | --- | --- | 15-25 | --- | --- | --- |
| spikerush | ELEOC | --- | --- | 2-8 | --- | --- | --- |
| tufted hairgrass | DECE | --- | --- | 10-20 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | --- | --- | 2-8 |
| Stansbury cliffrose | COMES | --- | --- | --- | --- | --- | 5-10 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-35 | 25-35 | --- |
| black sagebrush | ARARN | 35-45 | 35-45 | --- | --- | --- | 20-30 |
| rabbitbrush | CHRYS9 | --- | --- | --- | 2-5 | 2-5 | --- |
| shadscale | ATCO | 2-5 | 2-5 | --- | --- | --- | --- |
| willow | SALIX | --- | --- | 1-3 | --- | --- | --- |
| Range site number | | 028BY016NV | 028BY016NV | 029XY060NV | 028BY010NV | 028BY010NV | 029XY081NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 350 | 350 | 3000 | 800 | 800 | 500 |
| Normal years | | 225 | 225 | 2000 | 600 | 600 | 350 |
| Unfavorable years | | 100 | 100 | 1200 | 400 | 400 | 200 |

## 3400--PARISA GRAVELLY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | PARISA | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-30 | 20-35 | 15-25 | 20-30 | 15-25 |
| Sandberg bluegrass | POSE | 2-5 | 2-8 | --- | 2-5 | --- |
| bottlebrush squirreltail | SIHY | 2-8 | 2-5 | 2-5 | 2-8 | 5-10 |
| galleta | HIJA | --- | --- | 2-10 | --- | --- |
| needleandthread | STCO4 | 10-20 | 5-15 | --- | 10-20 | --- |
| other perennial grasses | PPGG | --- | --- | --- | --- | 2-5 |
| globemallow | SPHAE | --- | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 1-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | --- | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 5-15 | --- | 2-8 |
| downy rabbitbrush | CHVIP4 | --- | 2-5 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 2-5 |
| rabbitbrush | CHRYS9 | 2-5 | --- | --- | 2-5 | --- |
| shadscale | ATCO | --- | 2-5 | 25-35 | --- | --- |
| winterfat | EULA5 | --- | --- | 5-10 | --- | 40-50 |
| Range site number | | 028BY010NV | 028BY011NV | 029XY017NV | 028BY010NV | 028BY013NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 800 | 600 | 500 | 800 | 700 |
| Normal years | | 600 | 450 | 350 | 600 | 500 |
| Unfavorable years | | 400 | 250 | 150 | 400 | 350 |

## 3410--WATOOPAH-VEET ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | WATOOPAH | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 10-25 | 10-25 | 10-25 | 2-10 | 20-35 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-10 | 2-5 | 2-10 |
| desert needlegrass | STSP3 | 10-20 | 10-20 | 10-20 | --- | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 1-5 | 2-8 | 1-5 |
| needleandthread | STCO4 | 2-8 | 2-8 | 2-8 | --- | 5-15 | --- |
| globemallow | SPHAE | 1-4 | 1-4 | 1-4 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | --- | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-30 | 25-30 | 25-30 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | 25-35 | --- | 25-35 |
| black sagebrush | ARARN | --- | --- | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-5 | --- | --- | --- |
| desert peachbrush | PRPA | --- | --- | --- | 10-20 | --- | 10-20 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 2-5 | --- | 1-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 5-15 | --- | 5-15 |
| spiny hopsage | GRSP | 5-10 | 5-10 | 5-10 | --- | --- | --- |
| winterfat | EULA5 | 2-8 | 2-8 | 2-8 | --- | 1-5 | --- |
| Range site number | | 029XY049NV | 029XY049NV | 029XY049NV | 029XY009NV | 029XY008NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 1100 | 1100 | 1100 | 1000 | 700 | 1000 |
| Normal years | | 800 | 800 | 800 | 700 | 500 | 700 |
| Unfavorable years | | 500 | 500 | 500 | 500 | 250 | 500 |

## 3412--WATOOPAH-VEET-ZADVAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | WATOOPAH | VEET | ZADVAR | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 10-25 | 10-25 | 20-35 | 20-35 | 20-35 |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | 2-5 |
| desert needlegrass | STSP3 | 10-20 | 10-20 | --- | 2-8 | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | --- | 2-8 |
| needleandthread | STCO4 | 2-8 | 2-8 | 5-15 | 5-15 | 5-15 |
| globemallow | SPHAE | 1-4 | 1-4 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | 25-30 | 25-30 | --- | 25-35 | --- |
| black sagebrush | ARARN | --- | --- | 25-35 | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 1-5 | 2-5 | 1-5 |
| spiny hopsage | GRSP | 5-10 | 5-10 | --- | --- | --- |
| winterfat | EULA5 | 2-8 | 2-8 | 1-5 | --- | 1-5 |
| Range site number | | 029XY049NV | 029XY049NV | 029XY008NV | 029XY006NV | 029XY008NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1100 | 1100 | 700 | 800 | 700 |
| Normal years | | 800 | 800 | 500 | 600 | 500 |
| Unfavorable years | | 500 | 500 | 250 | 300 | 250 |

## 3414--WATOOPAH-CATH ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | WATOOPAH | CATH | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-25 | 20-35 | 10-25 | 40-50 | 20-30 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | 10-20 | 2-8 | 10-20 | --- | --- |
| galleta | HIJA | 2-8 | --- | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 2-8 | 5-15 | 2-8 | --- | --- |
| sand dropseed | SPCR | --- | --- | --- | --- | 2-8 |
| globemallow | SPHAE | 1-4 | --- | 1-4 | 1-3 | 1-3 |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | 25-30 | 25-35 | 25-30 | --- | --- |
| bud sagebrush | ARSP5 | 2-5 | --- | 2-5 | 5-15 | 2-8 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 2-5 | 1-5 | 20-30 |
| spiny hopsage | GRSP | 5-10 | --- | 5-10 | --- | 2-5 |
| winterfat | EULA5 | 2-8 | --- | 2-8 | 25-30 | 10-20 |
| Range site number | | 029XY049NV | 029XY006NV | 029XY049NV | 029XY042NV | 029XY046NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1100 | 800 | 1100 | 700 | 500 |
| Normal years | | 800 | 600 | 800 | 500 | 400 |
| Unfavorable years | | 500 | 300 | 500 | 350 | 300 |

## 3415--WATOOPAH-LEO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | WATOOPAH | LEO | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-25 | 25-35 | 20-35 | 10-25 | 25-35 |
| desert needlegrass | STSP3 | 10-20 | --- | 2-8 | 10-20 | --- |
| galleta | HIJA | 2-8 | 10-15 | --- | 2-8 | 10-15 |
| needleandthread | STCO4 | 2-8 | --- | 5-15 | 2-8 | --- |
| globemallow | SPHAE | 1-4 | --- | --- | 1-4 | --- |
| Anderson wolfberry | LYAN | --- | 2-5 | --- | --- | 2-5 |
| Nevada ephedra | EPNE | 2-5 | 10-15 | 2-5 | 2-5 | 10-15 |
| Wyoming big sagebrush | ARTRW | 25-30 | --- | 25-35 | 25-30 | --- |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | --- | 2-5 | 2-5 |
| fourwing saltbush | ATCA2 | 2-5 | 2-8 | 2-5 | 2-5 | 2-8 |
| spiny hopsage | GRSP | 5-10 | 15-30 | --- | 5-10 | 15-30 |
| winterfat | EULA5 | 2-8 | 2-5 | --- | 2-8 | 2-5 |
| Range site number | | 029XY049NV | 029XY016NV | 029XY006NV | 029XY049NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1100 | 1000 | 800 | 1100 | 1000 |
| Normal years | | 800 | 700 | 600 | 800 | 700 |
| Unfavorable years | | 500 | 500 | 300 | 500 | 500 |

## 3420--SQUAWTIP-BELLEHELEN-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | SQUAWTIP | BELLEHELEN | ROCK OUTROCK | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Columbia needlegrass | STNE3 | X | --- | --- | --- | --- | --- | --- |
| Indian ricegrass | ORHY | X | --- | --- | --- | --- | --- | --- |
| Letterman needlegrass | STLE4 | X | --- | --- | --- | 20-30 | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | --- | --- | 10-20 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 1-3 | --- | --- |
| alpine timothy | PHAL2 | --- | --- | --- | --- | --- | --- | 5-10 |
| basin wildrye | ELCI2 | --- | --- | --- | 2-10 | --- | 5-15 | --- |
| bluegrass | POA++ | --- | X | --- | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | X | --- | --- | --- | --- | --- |
| bulrush | SCIRP | --- | --- | --- | --- | --- | --- | 2-5 |
| muttongrass | POFE | X | X | --- | --- | 10-20 | --- | --- |
| needleandthread | STCO4 | X | --- | --- | --- | --- | --- | --- |
| needlegrass | STIPA | --- | --- | --- | 10-15 | --- | 5-10 | --- |
| pine needlegrass | STPI2 | --- | --- | --- | --- | 2-8 | --- | --- |
| prairie junegrass | KOPY | --- | --- | --- | --- | 2-5 | --- | --- |
| rush | JUNCU | --- | --- | --- | --- | --- | --- | 2-8 |
| sedge | CAREX | --- | --- | --- | --- | --- | --- | 15-25 |
| spikerush | ELEOC | --- | --- | --- | --- | --- | --- | 2-8 |
| tufted hairgrass | DECE | --- | --- | --- | --- | --- | --- | 10-20 |
| wheatgrass | AGROP2 | --- | --- | --- | --- | --- | 5-15 | --- |
| Stansbury cliffrose | COMES | --- | X | --- | --- | --- | --- | --- |
| antelope bitterbrush | PUTR2 | X | --- | --- | --- | --- | 1-5 | --- |
| black sagebrush | ARARN | --- | X | --- | --- | --- | --- | --- |
| currant | RIBES | --- | --- | --- | --- | --- | 1-5 | --- |
| green ephedra | EPVI | --- | X | --- | --- | --- | --- | --- |
| low sagebrush | ARAR8 | --- | --- | --- | --- | 25-35 | --- | --- |
| mountain big sagebrush | ARVA2 | X | --- | --- | 1-5 | --- | 10-20 | --- |
| serviceberry | AMELA | --- | --- | --- | --- | --- | 1-5 | --- |
| snowberry | SYMPH | X | --- | --- | 1-5 | --- | 1-5 | --- |
| willow | SALIX | --- | --- | --- | --- | --- | --- | 1-3 |
| curlleaf mountainmahogany | CELE3 | --- | --- | --- | 60-70 | --- | --- | --- |
| singleleaf pinyon | PIMO | --- | X | --- | --- | --- | --- | --- |
| Range site number | | 029XY066NV | 029XY069NV | none | 029XY027NV | 029XY052NV | 029XY026NV | 029XY060NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 600 | 400 | | 3000 | 700 | 1500 | 3000 |
| Normal years | | 400 | 300 | | 2400 | 450 | 1000 | 2000 |
| Unfavorable years | | 250 | 150 | | 1700 | 300 | 800 | 1200 |

## 3430--BELLEHELEN-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | BELLEHELEN | BELLEHELEN | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | --- | --- | --- | --- | 20-35 | --- | --- |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 5-15 | 2-8 |
| bluegrass | POA++ | X | X | --- | X | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | X | --- | X | --- | --- | --- |
| galleta | HIJA | --- | --- | --- | --- | 2-8 | --- | --- |
| muttongrass | POFE | X | X | --- | X | --- | --- | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | --- | 5-15 | --- | --- |
| needlegrass | STIPA | --- | --- | --- | --- | --- | 5-10 | 2-10 |
| wheatgrass | AGROP2 | --- | --- | --- | --- | --- | 5-15 | --- |
| Nevada ephedra | EPNE | --- | --- | --- | --- | 2-5 | --- | --- |
| Stansbury cliffrose | COMES | X | X | --- | X | --- | --- | --- |
| antelope bitterbrush | PUTR2 | --- | --- | --- | --- | --- | 1-5 | --- |
| black sagebrush | ARARN | X | X | --- | X | 25-35 | --- | --- |
| currant | RIBES | --- | --- | --- | --- | --- | 1-5 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 1-5 | --- | --- |
| green ephedra | EPVI | X | X | --- | X | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | --- | --- | --- | --- | 10-20 | 15-25 |
| serviceberry | AMELA | --- | --- | --- | --- | --- | 1-5 | --- |
| snowberry | SYMPH | --- | --- | --- | --- | --- | 1-5 | 2-8 |
| winterfat | EULA5 | --- | --- | --- | --- | 1-5 | --- | --- |
| curlleaf mountainmahogany | CELE3 | --- | --- | --- | --- | --- | --- | 40-50 |
| singleleaf pinyon | PIMO | X | X | --- | X | --- | --- | --- |
| Range site number | | 029XY069NV | 029XY069NV | none | 029XY069NV | 029XY008NV | 029XY026NV | 029XY043NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 400 | 400 | | 400 | 700 | 1500 | 2500 |
| Normal years | | 300 | 300 | | 300 | 500 | 1000 | 1800 |
| Unfavorable years | | 150 | 150 | | 150 | 250 | 800 | 1200 |

## 3434--BELLEHELEN-CROPPER-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | BELLEHELEN | CROPPER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Canby bluegrass | POCA | --- | X | --- | --- | --- | --- | --- |
| Indian ricegrass | ORHY | --- | --- | --- | X | --- | 10-15 | 2-10 |
| Sandberg bluegrass | POSE | --- | X | --- | --- | --- | 2-5 | 2-10 |
| Thurber needlegrass | STTH2 | --- | --- | --- | X | 10-20 | --- | --- |
| basin wildrye | ELCI2 | --- | X | --- | X | 2-10 | --- | --- |
| bluebunch wheatgrass | AGSP | --- | X | --- | X | 30-40 | --- | --- |
| bluegrass | POA++ | X | --- | --- | X | 2-8 | --- | --- |
| bottlebrush squirreltail | SIHY | X | X | --- | X | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | --- | 2-8 | --- |
| galleta | HIJA | --- | --- | --- | --- | --- | 2-8 | 1-5 |
| muttongrass | POFE | X | X | --- | --- | --- | --- | --- |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 15-25 | --- |
| arrowleaf balsamroot | BASA3 | --- | X | --- | X | --- | --- | --- |
| tapertip hawksbeard | CRAC2 | --- | X | --- | X | --- | --- | --- |
| Stansbury cliffrose | COMES | X | --- | --- | X | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | --- | 30-35 | --- |
| antelope bitterbrush | PUTR2 | --- | X | --- | X | 2-10 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | X | --- | --- | X | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | --- | X | --- | X | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | --- | --- | --- | --- | --- | 2-8 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | --- | 2-5 | --- |
| green ephedra | EPVI | X | --- | --- | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | X | --- | --- | 15-25 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| serviceberry | AMELA | --- | X | --- | X | --- | --- | --- |
| snowberry | SYMPH | --- | X | --- | --- | --- | --- | --- |
| Utah juniper | JUOS | --- | X | --- | X | --- | --- | --- |
| singleleaf pinyon | PIMO | X | X | --- | X | --- | --- | --- |
| Range site number | | 029XY069NV | 028BY058NV | none | 028BY060NV | 028BY030NV | 029XY010NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 400 | 500 | | 500 | 1500 | 500 | 1000 |
| Normal years | | 300 | 300 | | 300 | 1200 | 350 | 700 |
| Unfavorable years | | 150 | 200 | | 250 | 900 | 250 | 500 |

## 3440--LAYVIEW-FOXVIRE-SUAK ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | LAYVIEW | FOXVIRE | SUAK | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Columbia needlegrass | STNE3 | --- | --- | --- | --- | X | --- | --- |
| Letterman needlegrass | STLE4 | 20-30 | 10-20 | --- | --- | --- | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | X | --- | --- |
| Sandberg bluegrass | POSE | 1-3 | --- | --- | --- | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | 2-10 | 2-8 | X | --- | 2-8 |
| bentgrass | AGROS2 | --- | --- | --- | --- | X | --- | --- |
| bluabunch wheatgrass | AGSP | --- | --- | --- | --- | --- | --- | 30-40 |
| bluegrass | POA++ | --- | --- | --- | --- | --- | --- | 2-8 |
| creeping wildrye | ELTR3 | --- | --- | --- | --- | X | --- | --- |
| mountain brome | BRCA5 | --- | 5-10 | --- | --- | X | --- | --- |
| muttongrass | POFE | 10-20 | 10-15 | --- | 2-10 | --- | --- | --- |
| needlegrass | STIPA | --- | --- | 10-15 | 2-10 | --- | --- | 5-15 |
| pine needlegrass | STPI2 | 2-8 | --- | --- | --- | --- | --- | --- |
| prairie junegrass | KOPY | 2-5 | --- | --- | --- | --- | --- | --- |
| rush | JUNCU | --- | --- | --- | --- | X | --- | --- |
| sedge | CAREX | --- | --- | --- | --- | X | --- | --- |
| slender wheatgrass | AGTR | --- | --- | --- | --- | X | --- | --- |
| spike-fescue | LEKI2 | --- | 2-8 | --- | --- | --- | --- | --- |
| arrowleaf balsamroot | BASA3 | --- | --- | --- | --- | --- | --- | 2-5 |
| groundsel | SENEC | --- | --- | --- | --- | X | --- | --- |
| meadowrue | THALI2 | --- | --- | --- | --- | X | --- | --- |
| tapertip hawksbeard | CRAC2 | --- | --- | --- | --- | --- | --- | 2-5 |
| yarrow | ACHIL | --- | --- | --- | --- | X | --- | --- |
| Utah serviceberry | AMUT | --- | --- | --- | --- | --- | --- | 2-8 |
| Woods rose | ROWO | --- | --- | --- | --- | X | --- | --- |
| antelope bitterbrush | PUTR2 | --- | --- | --- | --- | --- | --- | 2-8 |
| currant | RIBES | --- | --- | --- | --- | X | --- | --- |
| green ephedra | EFVI | --- | 1-3 | --- | --- | --- | --- | --- |
| low sagebrush | ARAR8 | 25-35 | --- | --- | --- | --- | --- | --- |
| mountain big sagabrush | ARVA2 | --- | 15-25 | 1-5 | 15-25 | --- | --- | 10-20 |
| serviceberry | AMELA | --- | 2-5 | --- | --- | --- | --- | --- |
| snowberry | SYMPH | --- | 2-8 | 1-5 | 2-8 | --- | --- | 2-8 |
| curlleaf mountainmahogany | CELE3 | --- | --- | 60-70 | 40-50 | --- | --- | --- |
| quaking aspen | POTRT | --- | --- | --- | --- | X | --- | --- |
| Range site number | | 029XY052NV | 029XY051NV | 029XY027NV | 029XY043NV | 028BY025NV | none | 028BY015NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 1300 | 3000 | 2500 | 1600 | | 1500 |
| Normal years | | 450 | 1100 | 2400 | 1800 | 1300 | | 1100 |
| Unfavorable years | | 300 | 700 | 1700 | 1200 | 1000 | | 700 |

## 3441--LAYVIEW-LABSHAFT-WINU ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | LAYVIEW | LABSHAFT | WINU | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Columbia needlegrass | STNE3 | --- | --- | 2-8 | --- | --- | --- | --- |
| Letterman needlegrass | STLE4 | 20-30 | --- | 15-20 | --- | --- | 20-30 | --- |
| Sandberg bluegrass | POSE | 1-3 | --- | --- | --- | --- | 1-3 | --- |
| basin wildrye | ELCI2 | --- | 2-8 | --- | 2-10 | --- | --- | 2-5 |
| bluegrass | POA++ | --- | --- | --- | --- | --- | --- | 25-40 |
| mat muhly | MURI | --- | --- | --- | --- | --- | --- | 2-5 |
| mountain brome | BRCA5 | --- | --- | 15-20 | --- | --- | --- | --- |
| muttongrass | POFE | 10-20 | 2-10 | --- | --- | --- | 10-20 | --- |
| needlegrass | STIPA | --- | 2-10 | --- | 10-15 | --- | --- | --- |
| pine needlegrass | STPI2 | 2-8 | --- | --- | --- | --- | 2-8 | --- |
| prairie junegrass | KOPY | 2-5 | --- | --- | --- | --- | 2-5 | --- |
| rush | JUNCU | --- | --- | --- | --- | --- | --- | 5-15 |
| sedge | CAREX | --- | --- | 2-5 | --- | --- | --- | 20-30 |
| slender wheatgrass | AGTR | --- | --- | 2-8 | --- | --- | --- | --- |
| spike-fescue | LEKI2 | --- | --- | 5-10 | --- | --- | --- | --- |
| cinquefoil | POTEN | --- | --- | --- | --- | --- | --- | 2-5 |
| groundsel | SENEC | --- | --- | --- | --- | --- | --- | 2-5 |
| low sagebrush | ARAR8 | 25-35 | --- | --- | --- | --- | 25-35 | --- |
| mountain big sagebrush | ARVA2 | --- | 15-25 | 15-25 | 1-5 | --- | --- | --- |
| snowberry | SYMPH | --- | 2-8 | 2-5 | 1-5 | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | --- | 40-50 | --- | 60-70 | --- | --- | --- |
| Range site number | | 029XY052NV | 029XY043NV | 028BY029NV | 029XY027NV | none | 029XY052NV | 028BY001NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 2500 | 1700 | 3000 | | 700 | 4000 |
| Normal years | | 450 | 1800 | 1200 | 2400 | | 450 | 2000 |
| Unfavorable years | | 300 | 1200 | 900 | 1700 | | 300 | 1200 |

## 3442--LAYVIEW-SUAK-WINU ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | LAYVIEW | SUAK | WINU | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Columbia needlegrass | STNE3 | --- | --- | 2-8 | --- | --- | --- | --- |
| Letterman needlegrass | STLE4 | 20-30 | --- | 15-20 | --- | --- | 20-30 | --- |
| Sandberg bluegrass | POSE | 1-3 | --- | --- | --- | --- | 1-3 | --- |
| basin wildrye | ELCI2 | --- | 2-10 | --- | --- | --- | --- | 2-5 |
| bluebunch wheatgrass | AGSP | --- | --- | --- | 20-30 | --- | --- | --- |
| bluegrass | POA++ | --- | --- | --- | --- | --- | --- | 25-40 |
| mat muhly | MURI | --- | --- | --- | --- | --- | --- | 2-5 |
| mountain brome | BRCA5 | --- | --- | 15-20 | --- | --- | --- | --- |
| muttongrass | POFE | 10-20 | --- | --- | 2-8 | --- | 10-20 | --- |
| needlegrass | STIPA | --- | 10-15 | --- | 5-15 | --- | --- | --- |
| pine needlegrass | STPI2 | 2-8 | --- | --- | --- | --- | 2-8 | --- |
| prairie junegrass | KOPY | 2-5 | --- | --- | --- | --- | 2-5 | --- |
| rush | JUNCU | --- | --- | --- | --- | --- | --- | 5-15 |
| sedge | CAREX | --- | --- | 2-5 | --- | --- | --- | 20-30 |
| slender wheatgrass | AGTR | --- | --- | 2-8 | --- | --- | --- | --- |
| spike-fescue | LEKI2 | --- | --- | 5-10 | --- | --- | --- | --- |
| cinquefoil | POTEN | --- | --- | --- | --- | --- | --- | 2-5 |
| groundsel | SENEC | --- | --- | --- | --- | --- | --- | 2-5 |
| low sagebrush | ARAR8 | 25-35 | --- | --- | --- | --- | 25-35 | --- |
| mountain big sagebrush | ARVA2 | --- | 1-5 | 15-25 | 15-25 | --- | --- | --- |
| snowberry | SYMPH | --- | 1-5 | 2-5 | 2-8 | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | --- | 60-70 | --- | 15-25 | --- | --- | --- |
| Range site number | | 029XY052NV | 029XY027NV | 028BY029NV | 028BY043NV | none | 029XY052NV | 028BY001NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 3000 | 1700 | 1700 | | 700 | 4000 |
| Normal years | | 450 | 2400 | 1200 | 1300 | | 450 | 2000 |
| Unfavorable years | | 300 | 1700 | 900 | 900 | | 300 | 1200 |

## 3450--GRASSVAL-ALLKER-ZADVAR ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | GRASSVAL | ALLKER | ZADVAR | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 20-30 | 20-35 | --- | 10-20 | 20-30 | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | --- | --- | 5-10 |
| Sandberg bluegrass | POSE | 2-8 | 2-5 | 2-5 | --- | --- | 2-5 | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | --- | 70-80 |
| bluegrass | POA++ | --- | --- | --- | X | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-8 | --- | X | --- | 2-8 | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-10 | --- | --- |
| galleta | HIJA | --- | --- | 2-8 | --- | --- | --- | --- |
| muttongrass | POFE | --- | --- | --- | X | --- | --- | --- |
| needleandthread | STCO4 | 5-15 | 10-20 | 5-15 | --- | 2-10 | 10-20 | --- |
| Nevada ephedra | EPNE | --- | --- | 2-5 | --- | 2-8 | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | X | 5-10 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | --- | --- | 25-35 | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | --- | 5-10 |
| black sagebrush | ARARN | 25-35 | --- | 25-35 | X | 20-30 | --- | --- |
| downy rabbitbrush | CHVIP4 | 2-5 | --- | --- | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 1-5 | --- | --- | --- | --- |
| green ephedra | EPVI | --- | --- | --- | X | --- | --- | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | --- | 2-5 | --- |
| shadscale | ATCO | 2-5 | --- | --- | --- | --- | --- | --- |
| winterfat | EULA5 | --- | --- | 1-5 | --- | --- | --- | --- |
| singleleaf pinyon | PIMO | --- | --- | --- | X | --- | --- | --- |
| Range site number | | 028BY011NV | 028BY010NV | 029XY008NV | 029XY069NV | 029XY081NV | 028BY010NV | 028BY003NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 600 | 800 | 700 | 400 | 500 | 800 | 5000 |
| Normal years | | 450 | 600 | 500 | 300 | 350 | 600 | 2500 |
| Unfavorable years | | 250 | 400 | 250 | 150 | 200 | 400 | 1500 |

## 3460--ZADVAR-HANDPAH ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ZADVAR | HANDPAH | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 10-25 | 10-25 | 20-35 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | 2-8 | 10-20 | 10-20 | --- |
| galleta | HIJA | 2-8 | --- | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 5-15 | 2-8 | 2-8 | 5-15 |
| globemallow | SPHAE | --- | --- | 1-4 | 1-4 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | 25-30 | 25-30 | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | --- | --- | 2-5 | 2-5 | --- |
| fourwing saltbush | ATCA2 | 1-5 | 2-5 | 2-5 | 2-5 | 1-5 |
| spiny hopsage | GRSP | --- | --- | 5-10 | 5-10 | --- |
| winterfat | EULA5 | 1-5 | --- | 2-8 | 2-8 | 1-5 |
| Range site number | | 029XY008NV | 029XY006NV | 029XY049NV | 029XY049NV | 029XY008NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 800 | 1100 | 1100 | 700 |
| Normal years | | 500 | 600 | 800 | 800 | 500 |
| Unfavorable years | | 250 | 300 | 500 | 500 | 250 |

## 3463--ZADVAR-VEET ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ZADVAR | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 10-25 | 10-25 | 15-25 | 20-35 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 10-20 | 10-20 | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-10 | 2-8 |
| needleandthread | STCO4 | 5-15 | 2-8 | 2-8 | --- | 5-15 |
| globemallow | SPHAE | --- | 1-4 | 1-4 | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 1-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | 25-30 | --- | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | --- | 2-5 | 2-5 | 5-15 | --- |
| fourwing saltbush | ATCA2 | 1-5 | 2-5 | 2-5 | --- | 1-5 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | --- | 5-10 | 5-10 | --- | --- |
| winterfat | EULA5 | 1-5 | 2-8 | 2-8 | 5-10 | 1-5 |
| Range site number | | 029XY008NV | 029XY049NV | 029XY049NV | 029XY017NV | 029XY008NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 1100 | 1100 | 500 | 700 |
| Normal years | | 500 | 800 | 800 | 350 | 500 |
| Unfavorable years | | 250 | 500 | 500 | 150 | 250 |

## 3467--ZADVAR VERY GRAVELLY SANDY LOAM, 4 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ZADVAR | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 20-35 | 10-25 | 10-25 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | 2-8 | 10-20 | 10-20 |
| galleta | HIJA | 2-8 | 2-8 | --- | 2-8 | 2-8 |
| needleandthread | STCO4 | 5-15 | 5-15 | 5-15 | 2-8 | 2-8 |
| globemallow | SPHAE | --- | --- | --- | 1-4 | 1-4 |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | 25-30 | 25-30 |
| black sagebrush | ARARN | 25-35 | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 2-5 | 2-5 |
| fourwing saltbush | ATCA2 | 1-5 | 1-5 | 2-5 | 2-5 | 2-5 |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | 5-10 |
| winterfat | EULA5 | 1-5 | 1-5 | --- | 2-8 | 2-8 |
| Range site number | | 029XY008NV | 029XY008NV | 029XY006NV | 029XY049NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 700 | 800 | 1100 | 1100 |
| Normal years | | 500 | 500 | 600 | 800 | 800 |
| Unfavorable years | | 250 | 250 | 300 | 500 | 500 |

## 3468--ZADVAR-ALLKER-PEEKO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | ZADVAR | ALLKER | PEEKO | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 20-30 | 20-35 | 15-25 | 20-30 | 20-35 | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | --- | --- | --- | 5-10 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | 2-8 | 2-5 | 2-5 | --- | --- |
| Scribner needlegrass | STSC2 | --- | --- | --- | 2-5 | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | --- | 70-80 |
| bluebunch wheatgrass | AGSP | --- | --- | --- | 2-5 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | 2-8 | 2-5 | 2-5 | 2-8 | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | --- | 2-8 | --- |
| galleta | HIJA | 2-8 | --- | --- | --- | --- | --- | --- |
| needleandthread | STCO4 | 5-15 | 10-20 | 5-15 | --- | 10-20 | 5-15 | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | --- | --- | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | --- | 25-35 | 25-35 | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | --- | 5-10 |
| black sagebrush | ARARN | 25-35 | --- | 25-35 | 30-35 | --- | --- | --- |
| downy rabbitbrush | CHVIP4 | --- | --- | 2-5 | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | --- | --- | --- | --- | 2-5 | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | 2-5 | --- | --- |
| shadscale | ATCO | --- | --- | 2-5 | --- | --- | --- | --- |
| winterfat | EULA5 | 1-5 | --- | --- | --- | --- | --- | --- |
| Range site number | | 029XY008NV | 028BY010NV | 028BY011NV | 028BY059NV | 028BY010NV | 029XY006NV | 028BY003NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 800 | 600 | 400 | 800 | 800 | 5000 |
| Normal years | | 500 | 600 | 450 | 350 | 600 | 600 | 2500 |
| Unfavorable years | | 250 | 400 | 250 | 125 | 400 | 300 | 1500 |

## 3470--CIRAC-KEEFA-NYSERVA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | CIRAC | KEEFA | NYSERVA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | --- | --- | --- | --- | --- | 5-15 |
| Indian ricegrass | ORHY | 2-10 | 15-25 | 2-10 | --- | 20-30 | --- |
| alkali cordgrass | SPGR | --- | --- | --- | --- | --- | 2-5 |
| alkali sacaton | SPAI | --- | --- | --- | --- | --- | 25-40 |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | --- | --- |
| galleta | HIJA | --- | 2-10 | --- | --- | 2-8 | --- |
| giantreed | ARDO4 | --- | --- | --- | --- | --- | 2-5 |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | --- | 10-15 |
| sand dropseed | SPCR | --- | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 1-3 | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 1-5 | --- | --- | --- | --- |
| black greasewood | SAVE4 | 20-35 | --- | 20-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 | --- | 2-8 | --- |
| fourwing saltbush | ATCA2 | 2-5 | --- | 2-5 | --- | 20-30 | --- |
| shadscale | ATCO | 30-50 | 25-35 | 30-50 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | 2-5 | --- |
| winterfat | EULA5 | --- | 5-10 | --- | --- | 10-20 | --- |
| Range site number | | 029XY024NV | 029XY017NV | 029XY024NV | none | 029XY046NV | 029XY002NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 500 | 700 | | 500 | 3300 |
| Normal years | | 500 | 350 | 500 | | 400 | 2200 |
| Unfavorable years | | 300 | 150 | 300 | | 300 | 1000 |

## 3471--CIRAC-NYSERVA COMPLEX, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | CIRAC | NYSERVA | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Baltic rush | JUBA | --- | --- | --- | --- | --- | 1-5 |
| Indian ricegrass | ORHY | 2-10 | 2-10 | 15-25 | 2-10 | 40-50 | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | --- | 20-40 |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 25-35 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 | --- |
| galleta | HIJA | --- | --- | 2-10 | --- | 2-8 | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | --- | 2-10 |
| globemallow | SPHAE | --- | --- | --- | --- | 1-3 | --- |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 1-5 | --- | --- | --- |
| black greasewood | SAVE4 | 20-35 | 20-35 | --- | 20-35 | --- | 5-15 |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 | 5-15 | 5-15 | --- |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | --- | 2-5 | 1-5 | --- |
| rabbitbrush | CHRYS9 | --- | --- | --- | --- | --- | 1-5 |
| shadscale | ATCO | 30-50 | 30-50 | 25-35 | 30-50 | --- | --- |
| winterfat | EULA5 | --- | --- | 5-10 | --- | 25-30 | --- |
| Range site number | | 029XY024NV | 029XY024NV | 029XY017NV | 029XY024NV | 029XY042NV | 029XY004NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 700 | 500 | 700 | 700 | 1600 |
| Normal years | | 500 | 500 | 350 | 500 | 500 | 1100 |
| Unfavorable years | | 300 | 300 | 150 | 300 | 350 | 800 |

## 3473--CIRAC-SLAW-NYSERVA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | CIRAC | SLAW | NYSERVA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | --- | --- | --- | --- | 1-5 | --- |
| Indian ricegrass | ORHY | 2-10 | --- | 2-10 | --- | --- | --- |
| alkali sacaton | SPAI | --- | 2-8 | --- | --- | 20-40 | 2-10 |
| basin wildrye | ELCI2 | --- | --- | --- | --- | 25-35 | 20-40 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | --- | --- | --- |
| inland saltgrass | DISPS2 | --- | 5-15 | --- | --- | 2-10 | --- |
| Parry saltbush | ATPA3 | --- | 2-10 | --- | --- | --- | --- |
| Torrey quailbush | ATTO | --- | --- | --- | --- | --- | 30-50 |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | 2-10 |
| black greasewood | SAVE4 | 20-35 | 50-65 | 20-35 | --- | 5-15 | 5-15 |
| bud sagebrush | ARSP5 | 5-15 | --- | 5-15 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 2-5 | --- | 2-5 | --- | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | --- | --- | 1-5 | --- |
| seepweed | SUAED | --- | 2-5 | --- | --- | --- | --- |
| shadscale | ATCO | 30-50 | 2-10 | 30-50 | --- | --- | --- |
| Range site number | | 029XY024NV | 029XY076NV | 029XY024NV | none | 029XY004NV | 029XY093NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 450 | 700 | | 1600 | 1500 |
| Normal years | | 500 | 250 | 500 | | 1100 | 1200 |
| Unfavorable years | | 300 | 100 | 300 | | 800 | 800 |

## 3474--CIRAC-NYSERVA-KAWICH COMPLEX, 0 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | CIRAC | NYSERVA | KAWICH | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Baltic rush | JUBA | --- | --- | --- | 1-5 | --- | --- | --- |
| Indian ricegrass | ORHY | 2-10 | 2-10 | 15-25 | --- | --- | 25-35 | 20-30 |
| alkali sacaton | SPAI | --- | --- | --- | 20-40 | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | 25-35 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | 2-5 | --- |
| galleta | HIJA | --- | --- | --- | --- | --- | 2-8 | 2-8 |
| inland saltgrass | DISPS2 | --- | --- | 2-5 | 2-10 | --- | --- | --- |
| needleandthread | STCO4 | --- | --- | 5-10 | --- | --- | --- | --- |
| sand dropseed | SPCR | --- | --- | 2-10 | --- | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | --- | --- | --- | 1-3 |
| black greasewood | SAVE4 | 20-35 | 20-35 | 30-50 | 5-15 | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | --- | --- | --- | --- | 2-8 |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 5-15 | --- | --- | --- | 20-30 |
| rabbitbrush | CHRYS9 | --- | --- | --- | 1-5 | --- | --- | --- |
| shadscale | ATCO | 30-50 | 30-50 | 2-8 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | --- | --- | 2-5 |
| winterfat | EULA5 | --- | --- | --- | --- | --- | --- | 10-20 |
| Range site number | | 029XY024NV | 029XY024NV | 029XY018NV | 029XY004NV | none | 029XY087NV | 029XY046NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 700 | 450 | 1600 | | 500 | 500 |
| Normal years | | 500 | 500 | 300 | 1100 | | 350 | 400 |
| Unfavorable years | | 300 | 300 | 100 | 800 | | 200 | 300 |

## 3475--CIRAC-KEEFA-SLAW ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | CIRAC | KEEFA | SLAW | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Baltic rush | JUBA | --- | --- | --- | --- | 5-15 | --- | --- |
| Indian ricegrass | ORHY | 2-10 | 15-25 | --- | --- | --- | 20-30 | 50-70 |
| alkali cordgrass | SPGR | --- | --- | --- | --- | 2-5 | --- | --- |
| alkali sacaton | SPAI | --- | --- | 2-8 | --- | 25-40 | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | --- | --- |
| galleta | HIJA | --- | 2-10 | --- | --- | --- | 2-8 | 2-5 |
| giantreed | ARDO4 | --- | --- | --- | --- | 2-5 | --- | --- |
| inland saltgrass | DISPS2 | --- | --- | 5-15 | --- | 10-15 | --- | --- |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | --- | 2-5 |
| sand dropseed | SPCR | --- | --- | --- | --- | --- | 2-8 | 5-15 |
| globemallow | SPHAE | --- | --- | --- | --- | --- | 1-3 | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 1-5 | --- | --- | --- | --- | --- |
| Parry saltbush | ATPA3 | --- | --- | 2-10 | --- | --- | --- | --- |
| black greasewood | SAVE4 | 20-35 | --- | 50-65 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | --- | --- | --- | 2-8 | --- |
| fourwing saltbush | ATCA2 | 2-5 | --- | --- | --- | --- | 20-30 | 15-25 |
| seepweed | SUAED | --- | --- | 2-5 | --- | --- | --- | --- |
| shadscale | ATCO | 30-50 | 25-35 | 2-10 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | --- | 2-5 | --- |
| winterfat | EULA5 | --- | 5-10 | --- | --- | --- | 10-20 | 2-8 |
| Range site number | | 029XY024NV | 029XY017NV | 029XY076NV | none | 029XY002NV | 029XY046NV | 029XY012NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 500 | 450 | | 3300 | 500 | 700 |
| Normal years | | 500 | 350 | 250 | | 2200 | 400 | 500 |
| Unfavorable years | | 300 | 150 | 100 | | 1000 | 300 | 300 |

## 3480--CHUCKRIDGE-ZADVAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | CHUCKRIDGE | ZADVAR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 10-25 | --- | 20-35 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | 10-15 | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | 2-8 |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | --- | --- |
| needleandthread | STCO4 | 5-15 | 5-15 | 2-8 | 2-5 | 5-15 |
| wheatgrass | AGROP2 | --- | --- | --- | 5-10 | --- |
| globemallow | SPHAE | --- | --- | 1-4 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | 25-35 |
| basin big sagebrush | ARTRT | --- | --- | --- | 20-25 | --- |
| black sagebrush | ARARN | 25-35 | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 2-5 | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | 1-5 | 2-5 | --- | 2-5 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 5-10 | --- |
| spiny hopsage | GRSP | --- | --- | 5-10 | --- | --- |
| winterfat | EULA5 | 1-5 | 1-5 | 2-8 | --- | --- |
| Range site number | | 029XY008NV | 029XY008NV | 029XY049NV | 029XY025NV | 029XY006NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 700 | 1100 | 900 | 800 |
| Normal years | | 500 | 500 | 800 | 700 | 600 |
| Unfavorable years | | 250 | 250 | 500 | 400 | 300 |

## 3481--CHUCKRIDGE-UNSEL-VEET ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | CHUCKRIDGE | UNSEL | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 15-25 | 10-25 | 20-30 | 20-35 | 20-35 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-5 | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | --- | 2-8 | --- |
| galleta | HIJA | 2-8 | 2-10 | 2-8 | 2-8 | 2-8 | --- | 1-5 |
| needleandthread | STCO4 | 5-15 | --- | 2-8 | --- | 5-15 | 5-15 | --- |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | --- | 1-4 | 1-3 | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 1-5 | 2-5 | --- | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | --- | 25-35 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | 5-15 | 2-5 | 2-8 | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 1-5 | --- | 2-5 | 20-30 | 1-5 | 2-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 25-35 | --- | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 5-10 | 2-5 | --- | --- | --- |
| winterfat | EULA5 | 1-5 | 5-10 | 2-8 | 10-20 | 1-5 | --- | --- |
| Range site number | | 029XY008NV | 029XY017NV | 029XY049NV | 029XY046NV | 029XY008NV | 029XY006NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 500 | 1100 | 500 | 700 | 800 | 1000 |
| Normal years | | 500 | 350 | 800 | 400 | 500 | 600 | 700 |
| Unfavorable years | | 250 | 150 | 500 | 300 | 250 | 300 | 500 |

## 3491--SLAW-EASYCHAIR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | SLAW | EASYCHAIR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 2-8 | 1-5 | 2-10 | 5-15 | --- |
| Sandberg bluegrass | POSE | --- | --- | 2-10 | --- | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | 2-8 |
| basin wildrye | ELCI2 | --- | 10-20 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 5-10 | --- |
| galleta | HIJA | --- | --- | 1-5 | --- | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | 5-15 |
| Parry saltbush | ATPA3 | --- | --- | --- | --- | 2-10 |
| big sagebrush | ARTR2 | --- | --- | 25-35 | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | 50-65 |
| bud sagebrush | ARSP5 | --- | 2-5 | --- | 2-8 | --- |
| desert peachbrush | PRFA | --- | --- | 10-20 | --- | --- |
| fourwing saltbush | ATCA2 | --- | 50-60 | --- | --- | --- |
| green molly kochia | KOAM | --- | 1-3 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | 5-15 | --- | --- |
| seepweed | SUAED | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | 70-85 | --- | --- | --- | 2-10 |
| winterfat | EULA5 | --- | 2-5 | --- | 60-70 | --- |
| Range site number | | 029XY059NV | 029XY048NV | 029XY009NV | 029XY020NV | 029XY076NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 1000 | 1000 | 500 | 450 |
| Normal years | | 375 | 800 | 700 | 350 | 250 |
| Unfavorable years | | 200 | 400 | 500 | 200 | 100 |

## 3520--RUSTIGATE LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | RUSTIGATE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | --- | 2-8 | --- | 2-8 |
| Indian ricegrass | ORHY | --- | --- | 15-25 | --- |
| alkali cordgrass | SPGR | --- | 10-15 | --- | 10-15 |
| alkali sacaton | SPAI | 15-40 | 40-50 | --- | 40-50 |
| alkaligrass | PUCCI | --- | 2-5 | --- | 2-5 |
| basin wildrye | ELCI2 | 40-60 | --- | --- | --- |
| bluegrass | POA++ | --- | 2-8 | --- | 2-8 |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- |
| inland saltgrass | DISPS2 | 2-5 | 2-5 | --- | 2-5 |
| needleandthread | STCO4 | --- | --- | 5-10 | --- |
| sedge | CAREX | --- | 5-10 | --- | 5-10 |
| western wheatgrass | AGSM | 2-5 | --- | --- | --- |
| scarlet globemallow | SPCO | --- | --- | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 20-35 | --- |
| black greasewood | SAVE4 | 5-15 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | 2-5 | --- | --- | --- |
| shadscale | ATCO | --- | --- | 2-5 | --- |
| spiny hopsage | GRSP | --- | --- | 5-20 | --- |
| Range site number | | 028BY004NV | 028BY002NV | 028BY052NV | 028BY002NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 2200 | 1500 | 800 | 1500 |
| Normal years | | 1500 | 1000 | 600 | 1000 |
| Unfavorable years | | 800 | 700 | 450 | 700 |

## 3521--RUSTIGATE-NUYOBE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | RUSTIGATE | NUYOBE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | 1-5 | 5-15 | --- | --- | --- |
| Indian ricegrass | ORHY | --- | --- | 2-10 | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | 10-20 | --- |
| alkali bulrush | SCRO | --- | --- | --- | --- | 10-15 |
| alkali cordgrass | SPGR | --- | 2-5 | --- | --- | --- |
| alkali sacaton | SPAI | 20-40 | 25-40 | --- | --- | --- |
| basin wildrye | ELCI2 | 25-35 | 2-5 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | --- |
| cattail | TYPHA | --- | --- | --- | --- | 20-35 |
| creeping spikerush | ELPA3 | --- | --- | --- | --- | 15-25 |
| giantreed | ARDO4 | --- | 2-5 | --- | --- | --- |
| inland saltgrass | DISPS2 | 2-10 | 10-15 | --- | --- | --- |
| meadow barley | BOBR2 | --- | --- | --- | 5-10 | --- |
| rush | JUNCU | --- | --- | --- | 10-20 | 5-10 |
| sedge | CAREX | --- | --- | --- | 20-35 | 5-10 |
| black greasewood | SAVE4 | 5-15 | --- | 20-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 5-15 | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | 1-5 | --- | --- | --- | --- |
| shadscale | ATCO | --- | --- | 30-50 | --- | --- |
| Range site number | | 029XY004NV | 029XY002NV | 029XY024NV | 029XY001NV | 029XY044NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1600 | 3300 | 700 | 4000 | 4000 |
| Normal years | | 1100 | 2200 | 500 | 3000 | 2800 |
| Unfavorable years | | 800 | 1000 | 300 | 1200 | 2000 |

## 3522--RUSTIGATE-NUYOBE-KAWICH COMPLEX, 0 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | RUSTIGATE | NUYOBE | KAWICH | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Baltic rush | JUBA | 1-5 | 5-15 | --- | --- | --- | 5-15 |
| Indian ricegrass | ORHY | --- | --- | 15-25 | 2-10 | --- | --- |
| alkali cordgrass | SPGR | --- | 2-5 | --- | --- | --- | 2-5 |
| alkali sacaton | SPAI | 20-40 | 25-40 | --- | --- | --- | 25-40 |
| basin wildrye | ELCI2 | 25-35 | 2-5 | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- | --- |
| giantreed | ARDO4 | --- | 2-5 | --- | --- | --- | 2-5 |
| inland saltgrass | DISPS2 | 2-10 | 10-15 | 2-5 | --- | --- | 10-15 |
| needleandthread | STCO4 | --- | --- | 5-10 | --- | --- | --- |
| sand dropseed | SPCR | --- | --- | 2-10 | --- | --- | --- |
| black greasewood | SAVE4 | 5-15 | --- | 30-50 | 20-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 5-15 | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 5-15 | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | 1-5 | --- | --- | --- | --- | --- |
| shadscale | ATCO | --- | --- | 2-8 | 30-50 | --- | --- |
| Range site number | | 029XY004NV | 029XY002NV | 029XY018NV | 029XY024NV | none | 029XY002NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 1600 | 3300 | 450 | 700 | | 3300 |
| Normal years | | 1100 | 2200 | 300 | 500 | | 2200 |
| Unfavorable years | | 800 | 1000 | 100 | 300 | | 1000 |

## 3530--REBEL SANDY LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | REBEL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-30 | --- | --- | 15-25 | 20-30 |
| Nevada bluegrass | PONE3 | --- | 5-10 | --- | --- | --- |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | --- |
| alkali sacaton | SPAI | --- | --- | 15-40 | --- | --- |
| basin wildrye | ELCI2 | --- | 70-80 | 40-60 | --- | --- |
| bottlebrush squirreltail | SIHY | 2-8 | --- | --- | 2-5 | 10-20 |
| inland saltgrass | DISPS2 | --- | --- | 2-5 | --- | --- |
| needleandthread | STCO4 | 10-20 | --- | --- | 5-10 | --- |
| western wheatgrass | AGSM | --- | --- | 2-5 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 2-4 |
| scarlet globemallow | SPCO | --- | --- | --- | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | --- | --- | 20-35 | --- |
| basin big sagebrush | ARTRT | --- | 5-10 | --- | --- | --- |
| black greasewood | SAVE4 | --- | --- | 5-15 | --- | --- |
| rabbitbrush | CHRYS9 | 2-5 | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | 2-5 | --- | --- |
| shadscale | ATCO | --- | --- | --- | 2-5 | 45-50 |
| spiny hopsage | GRSP | --- | --- | --- | 5-20 | --- |
| Range site number | | 028BY010NV | 028BY003NV | 028BY004NV | 028BY052NV | 028BY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 800 | 5000 | 2200 | 800 | 500 |
| Normal years | | 600 | 2500 | 1500 | 600 | 400 |
| Unfavorable years | | 400 | 1500 | 800 | 450 | 300 |

## 3531--REBEL GRAVELLY LOAMY COARSE SAND, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | REBEL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 2-10 | 2-5 | --- | 20-30 | --- |
| alkali sacaton | SPAI | --- | --- | 2-5 | --- | 15-40 |
| basin wildrye | ELCI2 | 10-20 | --- | 40-60 | --- | 40-60 |
| bluegrass | POA++ | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | 10-20 | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | 2-5 |
| western wheatgrass | AGSM | --- | --- | 5-10 | --- | 2-5 |
| globemallow | SPHAE | --- | --- | --- | 2-4 | --- |
| basin big sagebrush | ARTRT | --- | --- | 5-15 | --- | --- |
| big sagebrush | ARTR2 | 20-30 | --- | --- | --- | --- |
| black greasewood | SAVE4 | 30-40 | 20-30 | 2-5 | --- | 5-15 |
| bud sagebrush | ARSP5 | --- | 2-10 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | 2-5 | --- | 2-5 | --- | 2-5 |
| shadscale | ATCO | --- | 20-50 | --- | 45-50 | --- |
| Range site number | | 028BY028NV | 028BY074NV | 028BY041NV | 028BY009NV | 028BY004NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 800 | 600 | 1800 | 500 | 2200 |
| Normal years | | 600 | 400 | 1500 | 400 | 1500 |
| Unfavorable years | | 400 | 200 | 1100 | 300 | 800 |

## 3540--PACKER-SUAK-FOXVIRE ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | PACKER | SUAK | FOXVIRE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Columbia needlegrass | STNE3 | --- | --- | --- | X | X | --- |
| Indian ricegrass | ORHY | --- | --- | --- | X | X | --- |
| Letterman needlegrass | STLE4 | 20-30 | --- | 10-20 | X | X | --- |
| Sandberg bluegrass | POSE | 1-3 | --- | --- | --- | --- | --- |
| basin wildrye | ELCI2 | --- | 2-10 | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | X | X | --- |
| mountain brome | BRCA5 | --- | --- | 5-10 | --- | --- | --- |
| muttongrass | POFE | 10-20 | --- | 10-15 | X | X | --- |
| needleandthread | STCO4 | --- | --- | --- | X | X | --- |
| needlegrass | STIPA | --- | 10-15 | --- | --- | --- | --- |
| pine needlegrass | STPI2 | 2-8 | --- | --- | --- | --- | --- |
| prairie junegrass | KOPY | 2-5 | --- | --- | --- | --- | --- |
| spike-fescue | LEKI2 | --- | --- | 2-8 | --- | --- | --- |
| antelope bitterbrush | PUTR2 | --- | --- | --- | X | X | --- |
| green ephedra | EPVI | --- | --- | 1-3 | --- | --- | --- |
| low sagebrush | ARAR8 | 25-35 | --- | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | 1-5 | 15-25 | X | X | --- |
| serviceberry | AMELA | --- | --- | 2-5 | --- | --- | --- |
| snowberry | SYMPH | --- | 1-5 | 2-8 | X | X | --- |
| curlleaf mountainmahogany | CELE3 | --- | 60-70 | --- | --- | --- | --- |
| Range site number | | 029XY052NV | 029XY027NV | 029XY051NV | 029XY066NV | 029XY066NV | none |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 3000 | 1300 | 600 | 600 | |
| Normal years | | 450 | 2400 | 1100 | 400 | 400 | |
| Unfavorable years | | 300 | 1700 | 700 | 250 | 250 | |

## 3560--UBEHEBE-PENELAS-LOGRING ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | UBEHEBE | PENELAS | LOGRING | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | --- | 10-20 | --- | --- | 2-10 | 10-20 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 | --- |
| bluegrass | POA++ | X | --- | X | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | X | --- | --- | --- |
| galleta | HIJA | --- | 2-8 | --- | --- | 1-5 | 2-8 |
| muttongrass | POFE | X | --- | X | --- | --- | --- |
| needleandthread | STCO4 | --- | 5-15 | --- | --- | --- | 5-15 |
| Nevada ephedra | EPNE | --- | 2-8 | --- | --- | --- | 2-8 |
| Stansbury cliffrose | COMES | X | --- | X | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | X | 35-45 | X | --- | --- | 35-45 |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 | --- |
| green ephedra | EPVI | X | --- | X | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 | --- |
| shadscale | ATCO | --- | 1-5 | --- | --- | --- | 1-5 |
| singleleaf pinyon | PIMO | X | --- | X | --- | --- | --- |
| Range site number | | 029XY069NV | 029XY014NV | 029XY069NV | none | 029XY009NV | 029XY014NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 400 | 350 | 400 | | 1000 | 350 |
| Normal years | | 300 | 200 | 300 | | 700 | 200 |
| Unfavorable years | | 150 | 75 | 150 | | 500 | 75 |

## 3570--EAGLEPASS-KYLER-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | EAGLEPASS | KYLER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 2-5 | 10-20 | --- | --- | 20-35 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | 2-10 |
| bluegrass | POA++ | --- | --- | --- | X | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | X | --- | --- |
| galleta | HIJA | --- | 2-8 | --- | --- | 2-8 | 1-5 |
| muttongrass | POFE | --- | --- | --- | X | --- | --- |
| needleandthread | STCO4 | 5-15 | 5-15 | --- | --- | 5-15 | --- |
| needlegrass | STIPA | 2-8 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 2-8 | --- | --- | 2-5 | --- |
| Nevada greasebush | FONE2 | 1-3 | --- | --- | --- | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | X | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 5-15 | 35-45 | --- | X | 25-35 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | 2-5 | --- | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 1-5 | --- |
| green ephedra | EPVI | --- | --- | --- | X | --- | --- |
| littleleaf mountainmahogany | CEIN7 | 60-70 | --- | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 1-5 | --- | --- | --- | --- |
| winterfat | EULA5 | --- | --- | --- | --- | 1-5 | --- |
| singleleaf pinyon | PIMO | --- | --- | --- | X | --- | --- |
| Range site number | | 029XY040NV | 029XY014NV | none | 029XY069NV | 029XY008NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 600 | 350 | | 400 | 700 | 1000 |
| Normal years | | 450 | 200 | | 300 | 500 | 700 |
| Unfavorable years | | 300 | 75 | | 150 | 250 | 500 |

## 3571--EAGLEPASS-ROCK OUTCROP COMPLEX, 30 TO 75 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | EAGLEPASS | EAGLEPASS | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 2-5 | 2-5 | --- | --- | 10-20 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-10 |
| bluegrass | POA++ | --- | --- | --- | X | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | X | --- | --- |
| galleta | HIJA | --- | --- | --- | --- | 2-8 | 1-5 |
| muttongrass | POFE | --- | --- | --- | X | --- | --- |
| needleandthread | STCO4 | 5-15 | 5-15 | --- | --- | 5-15 | --- |
| needlegrass | STIPA | 2-8 | 2-8 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | --- | 2-8 | --- |
| Nevada greasebush | FONE2 | 1-3 | 1-3 | --- | --- | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | X | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 5-15 | 5-15 | --- | X | 35-45 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | 2-5 | 2-5 | --- | --- | --- | --- |
| green ephedra | EPVI | --- | --- | --- | X | --- | --- |
| littleleaf mountainmahogany | CEIN7 | 60-70 | 60-70 | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | --- | --- | 1-5 | --- |
| singleleaf pinyon | PIMO | --- | --- | --- | X | --- | --- |
| Range site number | | 029XY040NV | 029XY040NV | none | 029XY069NV | 029XY014NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 600 | 600 | | 400 | 350 | 1000 |
| Normal years | | 450 | 450 | | 300 | 200 | 700 |
| Unfavorable years | | 300 | 300 | | 150 | 75 | 500 |

## 3572--EAGLEPASS-KYLER-ROCK OUTCROP COMPLEX, 15 TO 75 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | EAGLEPASS | KYLER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 2-5 | 2-5 | --- | 10-20 | --- | --- |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | --- | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 5-15 |
| beardless wheatgrass | AGSPI | --- | 40-55 | --- | --- | --- | --- |
| bluegrass | POA++ | --- | --- | --- | --- | X | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | X | --- |
| galleta | HIJA | --- | 1-3 | --- | 2-8 | --- | --- |
| muttongrass | POFE | --- | --- | --- | --- | X | --- |
| needleandthread | STCO4 | 5-15 | --- | --- | 5-15 | --- | --- |
| needlegrass | STIPA | 2-8 | --- | --- | --- | --- | 5-10 |
| wheatgrass | AGROP2 | --- | --- | --- | --- | --- | 5-15 |
| Nevada ephedra | EPNE | --- | --- | --- | 2-8 | --- | --- |
| Nevada greasebush | FONE2 | 1-3 | --- | --- | --- | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | --- | X | --- |
| antelope bitterbrush | PUTR2 | --- | --- | --- | --- | --- | 1-5 |
| black sagebrush | ARARN | 5-15 | 25-30 | --- | 35-45 | X | --- |
| currant | RIBES | --- | --- | --- | --- | --- | 1-5 |
| ephedra | EPHED | 2-5 | 2-5 | --- | --- | --- | --- |
| green ephedra | EPVI | --- | --- | --- | --- | X | --- |
| littleleaf mountainmahogany | CEIN7 | 60-70 | --- | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | --- | --- | --- | --- | 10-20 |
| serviceberry | AMELA | --- | --- | --- | --- | --- | 1-5 |
| shadscale | ATCO | --- | --- | --- | 1-5 | --- | --- |
| snowberry | SYMPH | --- | --- | --- | --- | --- | 1-5 |
| singleleaf pinyon | PIMO | --- | --- | --- | --- | X | --- |
| Range site number | | 029XY040NV | 029XY028NV | none | 029XY014NV | 029XY069NV | 029XY026NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 600 | 700 | | 350 | 400 | 1500 |
| Normal years | | 450 | 400 | | 200 | 300 | 1000 |
| Unfavorable years | | 300 | 250 | | 75 | 150 | 800 |

## 3580--KYLER-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | KYLER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 10-20 | --- | 2-5 | --- |
| bluegrass | POA++ | --- | --- | --- | X |
| bottlebrush squirreltail | SIHY | --- | --- | --- | X |
| galleta | HIJA | 2-8 | --- | --- | --- |
| muttongrass | POFE | --- | --- | --- | X |
| needleandthread | STCO4 | 5-15 | --- | 5-15 | --- |
| needlegrass | STIPA | --- | --- | 2-8 | --- |
| Nevada ephedra | EPNE | 2-8 | --- | --- | --- |
| Nevada greasebush | FONE2 | --- | --- | 1-3 | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | X |
| black sagebrush | ARARN | 35-45 | --- | 5-15 | X |
| ephedra | EPHED | --- | --- | 2-5 | --- |
| green ephedra | EPVI | --- | --- | --- | X |
| littleleaf mountainmahogany | CEIN7 | --- | --- | 60-70 | --- |
| shadscale | ATCO | 1-5 | --- | --- | --- |
| singleleaf pinyon | PIMO | --- | --- | --- | X |
| Range site number | | 029XY014NV | none | 029XY040NV | 029XY069NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 350 | | 600 | 400 |
| Normal years | | 200 | | 450 | 300 |
| Unfavorable years | | 75 | | 300 | 150 |

## 3581--KYLER, MOIST-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | KYLER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 2-5 | --- | 2-5 | X | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-10 |
| Thurber needlegrass | STTH2 | --- | --- | --- | X | --- |
| basin wildrye | ELCI2 | --- | --- | --- | X | --- |
| beardless wheatgrass | AGSPI | 40-55 | --- | --- | --- | --- |
| bluebunch wheatgrass | AGSP | --- | --- | --- | X | --- |
| bluegrass | POA++ | --- | --- | --- | X | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | X | --- |
| galleta | HIJA | 1-3 | --- | --- | --- | 1-5 |
| needleandthread | STCO4 | --- | --- | 5-15 | --- | --- |
| needlegrass | STIPA | --- | --- | 2-8 | --- | --- |
| arrowleaf balsamroot | BASA3 | --- | --- | --- | X | --- |
| tapertip hawksbeard | CRAC2 | --- | --- | --- | X | --- |
| Nevada greasebush | FONE2 | --- | --- | 1-3 | --- | --- |
| Stansbury cliffrose | COMES | --- | --- | --- | X | --- |
| antelope bitterbrush | PUTR2 | --- | --- | --- | X | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-30 | --- | 5-15 | X | --- |
| curlleaf mountainmahogany | CELE3 | --- | --- | --- | X | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | 2-5 | --- | 2-5 | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | --- | 60-70 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| serviceberry | AMELA | --- | --- | --- | X | --- |
| Utah juniper | JUOS | --- | --- | --- | X | --- |
| singleleaf pinyon | PIMO | --- | --- | --- | X | --- |
| Range site number | | 029XY028NV | none | 029XY040NV | 028BY060NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | | 600 | 500 | 1000 |
| Normal years | | 400 | | 450 | 300 | 700 |
| Unfavorable years | | 250 | | 300 | 250 | 500 |

## 3590--ALLKER-PORTMOUNT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | ALLKER | PORTMOUNT | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-30 | 20-30 | 15-25 | 20-35 | 20-35 | 1-5 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | 2-5 | 2-5 | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 10-20 |
| bottlebrush squirreltail | SIHY | 2-8 | 2-8 | 2-5 | --- | --- | 2-5 |
| galleta | HIJA | --- | --- | --- | 2-8 | 2-8 | --- |
| needleandthread | STCO4 | 10-20 | 10-20 | 5-10 | 5-15 | 5-15 | --- |
| scarlet globemallow | SPCO | --- | --- | 2-5 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-35 | 20-35 | --- | --- | --- |
| black sagebrush | ARARN | --- | --- | --- | 25-35 | 25-35 | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | --- | 2-5 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 1-5 | 1-5 | 50-60 |
| green molly kochia | KOAM | --- | --- | --- | --- | --- | 1-3 |
| rabbitbrush | CHRYS9 | 2-5 | 2-5 | --- | --- | --- | --- |
| shadscale | ATCO | --- | --- | 2-5 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 5-20 | --- | --- | --- |
| winterfat | EULA5 | --- | --- | --- | 1-5 | 1-5 | 2-5 |
| Range site number | | 028BY010NV | 028BY010NV | 028BY052NV | 029XY008NV | 029XY008NV | 029XY048NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 800 | 800 | 700 | 700 | 1000 |
| Normal years | | 600 | 600 | 600 | 500 | 500 | 800 |
| Unfavorable years | | 400 | 400 | 450 | 250 | 250 | 400 |

## 3600--ARDIVEY-HOLLYWELL-BELTED ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | ARDIVEY | HOLLYWELL | BELTED | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 15-25 | 5-10 | 20-30 | 10-25 | 20-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | --- | 10-20 | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-10 | --- | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 2-8 | 5-15 |
| sand dropseed | SPCR | --- | --- | --- | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 1-3 | 1-4 | --- |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | 0-10 | 2-10 | --- | --- | --- |
| Cooper wolfberry | LYCO2 | --- | --- | --- | 2-5 | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | 1-5 | 2-5 | --- | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | --- | 25-30 | --- |
| black sagebrush | ARARN | --- | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 | --- | 2-8 | 2-5 | --- |
| burrobrush | HYMEN3 | --- | --- | --- | 5-10 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | 5-15 | 20-30 | 2-5 | 1-5 |
| littleleaf horsebrush | TEGL | --- | --- | --- | 5-10 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 10-25 | --- | --- | --- |
| shadscale | ATCO | 25-35 | 25-35 | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | 2-5 | 5-10 | --- |
| winterfat | EULA5 | 5-10 | 5-10 | 5-10 | --- | 10-20 | 2-8 | 1-5 |
| Range site number | | 029XY017NV | 029XY017NV | 029XY017NV | 029XY041NV | 029XY046NV | 029XY049NV | 029XY008NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 500 | 500 | 1100 | 700 |
| Normal years | | 350 | 350 | 350 | 300 | 400 | 800 | 500 |
| Unfavorable years | | 150 | 150 | 150 | 100 | 300 | 500 | 250 |

## 3601--ARDIVEY-ZADVAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ARDIVEY | ZADVAR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-35 | 10-25 | 20-35 | 15-25 |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | 2-5 | --- |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | 2-8 | 2-10 |
| needleandthread | STCO4 | --- | 5-15 | 2-8 | 5-15 | --- |
| globemallow | SPHAE | --- | --- | 1-4 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | 0-10 |
| Nevada ephedra | EPNE | 1-5 | 2-5 | 2-5 | 2-5 | 1-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | --- |
| black sagebrush | ARARN | --- | 25-35 | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 5-15 | --- | 2-5 | --- | 5-15 |
| fourwing saltbush | ATCA2 | --- | 1-5 | 2-5 | 1-5 | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | --- | --- | 5-10 | --- | --- |
| winterfat | EULA5 | 5-10 | 1-5 | 2-8 | 1-5 | 5-10 |
| Range site number | | 029XY017NV | 029XY008NV | 029XY049NV | 029XY008NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 700 | 1100 | 700 | 500 |
| Normal years | | 350 | 500 | 800 | 500 | 350 |
| Unfavorable years | | 150 | 250 | 500 | 250 | 150 |

## 3610--TOKOPER-GARHILL-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | TOKOPER | GARHILL | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 5-10 | 5-10 | --- | 15-25 | 5-10 | 10-15 | 20-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-5 | 2-5 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | 2-5 | 2-5 | --- | --- |
| desert needlegrass | STSP3 | 2-8 | 2-8 | --- | --- | 2-8 | 2-8 | --- |
| galleta | HIJA | 5-15 | 5-15 | --- | 2-10 | 5-15 | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 15-25 | 5-15 |
| Bailey greasewood | SAVEB | 5-15 | 5-15 | --- | 0-10 | 5-15 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | --- | 1-5 | 2-5 | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | --- | 30-35 | --- |
| black sagebrush | ARARN | --- | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 5-10 | 5-10 | --- | 5-15 | 5-10 | --- | --- |
| ephedra | EPHED | --- | --- | --- | --- | --- | 2-8 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | --- | 2-5 | 1-5 |
| shadscale | ATCO | 25-35 | 25-35 | --- | 25-35 | 25-35 | --- | --- |
| winterfat | EULA5 | 5-10 | 5-10 | --- | 5-10 | 5-10 | --- | 1-5 |
| Range site number | | 029XY022NV | 029XY022NV | none | 029XY017NV | 029XY022NV | 029XY010NV | 029XY008NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 400 | 400 | | 500 | 400 | 500 | 700 |
| Normal years | | 250 | 250 | | 350 | 250 | 350 | 500 |
| Unfavorable years | | 100 | 100 | | 150 | 100 | 250 | 250 |

## 3620--ARGALT-STEWVAL-GABBVALLY ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | ARGALT | STEWVAL | GABBVALLY | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 10-15 | --- | 5-10 | 10-25 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | 2-5 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | 2-8 | --- | 2-8 | 10-20 |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | --- | 5-15 | 2-8 |
| needleandthread | STCO4 | 5-15 | 5-15 | 15-25 | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | --- | --- | 1-4 |
| Bailey greasewood | SAVEB | --- | --- | --- | --- | 5-15 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | --- | --- | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 30-35 | --- | --- | 25-30 |
| black sagebrush | ARARN | 25-35 | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | 5-10 | 2-5 |
| ephedra | EPHED | --- | --- | 2-8 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | 1-5 | 2-5 | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | --- | 5-10 |
| winterfat | EULA5 | 1-5 | 1-5 | --- | --- | 5-10 | 2-8 |
| Range site number | | 029XY008NV | 029XY008NV | 029XY010NV | none | 029XY022NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 700 | 500 | | 400 | 1100 |
| Normal years | | 500 | 500 | 350 | | 250 | 800 |
| Unfavorable years | | 250 | 250 | 250 | | 100 | 500 |

## 3630--LYX-GEER-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LYX | GEER | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-30 | 40-50 | 20-30 | 15-25 | 10-25 | 25-35 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | 2-5 | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 10-20 | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-10 | 2-8 | 10-15 |
| needleandthread | STCO4 | --- | --- | --- | --- | 2-8 | --- |
| sand dropseed | SPCR | 2-8 | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | 1-3 | 1-3 | 1-3 | --- | 1-4 | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | 1-5 | 2-5 | 10-15 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 25-30 | --- |
| bud sagebrush | ARSP5 | 2-8 | 5-15 | 2-8 | 5-15 | 2-5 | 2-5 |
| fourwing saltbush | ATCA2 | 20-30 | 1-5 | 20-30 | --- | 2-5 | 2-8 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- | --- |
| spiny hopsage | GRSP | 2-5 | --- | 2-5 | --- | 5-10 | 15-30 |
| winterfat | EULA5 | 10-20 | 25-30 | 10-20 | 5-10 | 2-8 | 2-5 |
| Range site number | | 029XY046NV | 029XY042NV | 029XY046NV | 029XY017NV | 029XY049NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 700 | 500 | 500 | 1100 | 1000 |
| Normal years | | 400 | 500 | 400 | 350 | 800 | 700 |
| Unfavorable years | | 300 | 350 | 300 | 150 | 500 | 500 |

## 3640--ARMESPAN-ZADVAR-VEET ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | ARMESPAN | ZADVAR | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 10-25 | 15-25 | 40-50 | 20-35 | 25-35 |
| Sandberg bluegrass | POSE | 2-5 | 2-5 | --- | --- | --- | 2-5 | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | 2-5 | --- | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | --- | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-10 | 2-8 | 2-8 | 10-15 |
| needleandthread | STCO4 | 5-15 | 5-15 | 2-8 | --- | --- | 5-15 | --- |
| globemallow | SPHAE | --- | --- | 1-4 | --- | 1-3 | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 1-5 | --- | 2-5 | 10-15 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | --- | --- | --- |
| black sagebrush | ARARN | 25-35 | 25-35 | --- | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | --- | --- | 2-5 | 5-15 | 5-15 | --- | 2-5 |
| fourwing saltbush | ATCA2 | 1-5 | 1-5 | 2-5 | --- | 1-5 | 1-5 | 2-8 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 5-10 | --- | --- | --- | 15-30 |
| winterfat | EULA5 | 1-5 | 1-5 | 2-8 | 5-10 | 25-30 | 1-5 | 2-5 |
| Range site number | | 029XY008NV | 029XY008NV | 029XY049NV | 029XY017NV | 029XY042NV | 029XY008NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 700 | 1100 | 500 | 700 | 700 | 1000 |
| Normal years | | 500 | 500 | 800 | 350 | 500 | 500 | 700 |
| Unfavorable years | | 250 | 250 | 500 | 150 | 350 | 250 | 500 |

## 3641--ARMESPAN-LYX-CANDELARIA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ARMESPAN | LYX | CANDELARIA | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-35 | 20-30 | 15-25 | 2-10 | 25-35 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | 2-10 | --- |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-10 | 1-5 | 10-15 |
| needleandthread | STCO4 | 5-15 | --- | --- | --- | --- |
| sand dropseed | SPCR | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | 1-3 | --- | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | 1-5 | --- | 10-15 |
| big sagebrush | ARTR2 | --- | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | 2-8 | 5-15 | --- | 2-5 |
| desert peachbrush | PRFA | --- | --- | --- | 10-20 | --- |
| fourwing saltbush | ATCA2 | 1-5 | 20-30 | --- | --- | 2-8 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 5-15 | --- |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- |
| spiny hopsage | GRSP | --- | 2-5 | --- | --- | 15-30 |
| winterfat | EULA5 | 1-5 | 10-20 | 5-10 | --- | 2-5 |
| Range site number | | 029XY008NV | 029XY046NV | 029XY017NV | 029XY009NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 500 | 500 | 1000 | 1000 |
| Normal years | | 500 | 400 | 350 | 700 | 700 |
| Unfavorable years | | 250 | 300 | 150 | 500 | 500 |

## 3642--ARMESPAN VERY GRAVELLY SANDY LOAM, 8 TO 30 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ARMESPAN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 10-20 | --- | 5-10 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | 2-10 |
| bluegrass | POA++ | --- | --- | X | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | X | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 2-8 | --- |
| galleta | HIJA | 2-8 | 2-8 | --- | 5-15 | 1-5 |
| muttongrass | POFE | --- | --- | X | --- | --- |
| needleandthread | STCO4 | 5-15 | 5-15 | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | 5-15 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-8 | --- | 2-5 | --- |
| Stansbury cliffrose | COMES | --- | --- | X | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | 35-45 | X | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | 5-10 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 1-5 | --- | --- | --- | --- |
| green ephedra | EPVI | --- | --- | X | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 1-5 | --- | 25-35 | --- |
| winterfat | EULA5 | 1-5 | --- | --- | 5-10 | --- |
| singleleaf pinyon | PIMO | --- | --- | X | --- | --- |
| Range site number | | 029XY008NV | 029XY014NV | 029XY069NV | 029XY022NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 350 | 400 | 400 | 1000 |
| Normal years | | 500 | 200 | 300 | 250 | 700 |
| Unfavorable years | | 250 | 75 | 150 | 100 | 500 |

## 3643--ARMESPAN-MORBENCH ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | ARMESPAN | MORBENCH | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | --- | --- | 20-35 | 10-25 | --- |
| Sandberg bluegrass | POSE | 2-5 | X | X | 2-5 | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 10-20 | --- |
| galleta | HIJA | 2-8 | --- | --- | 2-8 | 2-8 | --- |
| muttongrass | POFE | --- | X | X | --- | --- | --- |
| needleandthread | STCO4 | 5-15 | --- | --- | 5-15 | 2-8 | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 1-4 | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | 2-5 | 2-5 | --- |
| Stansbury cliffrose | COMES | --- | X | X | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 25-30 | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | 2-5 | --- |
| fourwing saltbush | ATCA2 | 1-5 | --- | --- | 1-5 | 2-5 | --- |
| goldenweed | HAPLO2 | --- | X | X | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | 5-10 | --- |
| winterfat | EULA5 | 1-5 | --- | --- | 1-5 | 2-8 | --- |
| singleleaf pinyon | PIMO | --- | X | X | --- | --- | --- |
| Range site number | | 029XY008NV | 029XY058NV | 029XY058NV | 029XY008NV | 029XY049NV | none |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 200 | 200 | 700 | 1100 | |
| Normal years | | 500 | 125 | 125 | 500 | 800 | |
| Unfavorable years | | 250 | 50 | 50 | 250 | 500 | |

## 3644--ARMESPAN-CLIFFDOWN-CANDELARIA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | ARMESPAN | CLIFFDOWN | CANDELARIA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 40-50 | 15-25 | 10-25 | 25-35 | 20-35 |
| Sandberg bluegrass | POSE | 2-5 | --- | --- | --- | --- | --- |
| ottlabrush squirreltail | SIHY | --- | 2-5 | 2-5 | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 10-20 | --- | 2-8 |
| galleta | HIJA | 2-8 | 2-8 | 2-10 | 2-8 | 2-8 | --- |
| needleandthread | STCO4 | 5-15 | --- | --- | 2-8 | --- | 5-15 |
| globemallow | SPHAE | --- | 1-3 | --- | 1-4 | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | 1-5 | 2-5 | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | 5-15 | 5-15 | 2-5 | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | 1-5 | --- | 2-5 | --- | 2-5 |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | --- | --- |
| winterfat | EULA5 | 1-5 | 25-30 | 5-10 | 2-8 | --- | --- |
| Range site number | | 029XY008NV | 029XY042NV | 029XY017NV | 029XY049NV | 029XY087NV | 029XY006NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 700 | 500 | 1100 | 500 | 800 |
| Normal years | | 500 | 500 | 350 | 800 | 350 | 600 |
| Unfavorable years | | 250 | 350 | 150 | 500 | 200 | 300 |

## 3645--ARMESPAN-CLOWFIN-PEEKO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | ARMESPAN | CLOWFIN | PEEKO | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-35 | 15-25 | 20-35 | 10-25 | 25-35 | 20-30 | 2-10 |
| Sandberg bluegrass | POSE | 2-5 | --- | 2-8 | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | 5-10 | 2-5 | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 10-20 | --- | --- | --- |
| galleta | HIJA | 2-8 | --- | --- | 2-8 | 10-15 | 2-8 | 1-5 |
| needleandthread | STCO4 | 5-15 | --- | 5-15 | 2-8 | --- | --- | --- |
| other perennial grasses | PPGG | --- | 2-5 | --- | --- | --- | --- | --- |
| sand dropseed | SPCR | --- | --- | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | 2-5 | --- | 1-4 | --- | 1-3 | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | 2-5 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | 2-5 | 10-15 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 25-35 | --- | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | 2-8 | --- | 2-5 | 2-5 | 2-8 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| downy rabbitbrush | CHVIP4 | --- | --- | 2-5 | --- | --- | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | 2-5 | --- | 2-5 | 2-8 | 20-30 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | 2-5 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 5-10 | 15-30 | 2-5 | --- |
| winterfat | EULA5 | 1-5 | 40-50 | --- | 2-8 | 2-5 | 10-20 | --- |
| Range site number | | 029XY008NV | 028BY013NV | 028BY011NV | 029XY049NV | 029XY016NV | 029XY046NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 700 | 700 | 600 | 1100 | 1000 | 500 | 1000 |
| Normal years | | 500 | 500 | 450 | 800 | 700 | 400 | 700 |
| Unfavorable years | | 250 | 350 | 250 | 500 | 500 | 300 | 500 |

## 3647--ARMESPAN-SPAGER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | ARMESPAN | SPAGER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 5-15 | 20-30 | 2-10 | 15-25 |
| Sandbarg bluegrass | POSE | 2-5 | --- | 2-5 | 2-5 | --- |
| bottlebrush squirreltail | SIHY | --- | 2-5 | 2-8 | 2-5 | 2-5 |
| galleta | HIJA | 2-8 | --- | --- | 2-5 | 2-10 |
| needleandthread | STCO4 | 5-15 | --- | 10-20 | 2-10 | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | --- | 0-10 |
| Douglas rabbitbrush | CHVI8 | --- | 2-5 | --- | --- | --- |
| Fremont barberry | BEFR | --- | 25-45 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | --- | 1-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- | --- |
| black sagebrush | ARARN | 25-35 | 20-40 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | --- | --- | 5-15 |
| ephedra | EPHED | --- | 2-5 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 1-5 | --- | --- | --- | --- |
| pigmy sagebrush | ARPY2 | --- | --- | --- | 50-70 | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- | --- |
| shadscale | ATCO | --- | --- | --- | --- | 25-35 |
| winterfat | EULA5 | 1-5 | --- | --- | --- | 5-10 |
| Range site number | | 029XY008NV | 029XY047NV | 028BY010NV | 029XY092NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 400 | 800 | 250 | 500 |
| Normal years | | 500 | 300 | 600 | 175 | 350 |
| Unfavorable years | | 250 | 200 | 400 | 100 | 150 |

## 3651--CANDELARIA VERY GRAVELLY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | CANDELARIA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 15-25 | 20-30 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-10 | 2-8 |
| sand dropseed | SPCR | --- | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | 1-3 |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | 0-10 | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | 1-5 | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 | 2-8 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 20-30 |
| shadscale | ATCO | 25-35 | 25-35 | 25-35 | --- |
| spiny hopsage | GRSP | --- | --- | --- | 2-5 |
| winterfat | EULA5 | 5-10 | 5-10 | 5-10 | 10-20 |
| Range site number | | 029XY017NV | 029XY017NV | 029XY017NV | 029XY046NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 500 | 500 | 500 | 500 |
| Normal years | | 350 | 350 | 350 | 400 |
| Unfavorable years | | 150 | 150 | 150 | 300 |

## 3655--CANDELARIA-ARMESPAN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | CANDELARIA | ARMESPAN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 20-35 | 25-35 | 10-25 | 2-10 | --- |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | 2-10 | --- |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | 2-10 | 2-8 | 10-15 | 2-8 | 1-5 | --- |
| needleandthread | STCO4 | --- | 5-15 | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | 1-4 | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | 2-5 | 10-15 | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | --- | 25-35 | --- | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | --- | 2-5 | 2-5 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 | --- |
| fourwing saltbush | ATCA2 | --- | 1-5 | 2-8 | 2-5 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 15-30 | 5-10 | --- | --- |
| winterfat | EULA5 | 5-10 | 1-5 | 2-5 | 2-8 | --- | --- |
| Range site number | | 029XY017NV | 029XY008NV | 029XY016NV | 029XY049NV | 029XY009NV | none |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 700 | 1000 | 1100 | 1000 | |
| Normal years | | 350 | 500 | 700 | 800 | 700 | |
| Unfavorable years | | 150 | 250 | 500 | 500 | 500 | |

## 3660--TITIACK-GARHILL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | TITIACK | GARHILL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 5-10 | 5-10 | 10-15 | 20-35 | --- | --- |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | --- |
| desert needlegrass | STSP3 | 2-8 | 2-8 | 2-8 | 2-8 | --- | --- |
| galleta | HIJA | 5-15 | 5-15 | 2-8 | --- | --- | --- |
| needleandthread | STCO4 | --- | --- | 15-25 | 5-15 | --- | --- |
| Bailey greasewood | SAVEB | 5-15 | 5-15 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | --- | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 30-35 | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | 5-10 | 5-10 | --- | --- | --- | --- |
| ephedra | EPHED | --- | --- | 2-8 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 2-5 | 2-5 | --- | --- |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- |
| winterfat | EULA5 | 5-10 | 5-10 | --- | --- | --- | --- |
| Range site number | | 029XY022NV | 029XY022NV | 029XY010NV | 029XY006NV | none | none |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 400 | 400 | 500 | 800 | | |
| Normal years | | 250 | 250 | 350 | 600 | | |
| Unfavorable years | | 100 | 100 | 250 | 300 | | |

## 3670--LOGRING-ROCK OUTCROP-KYLER ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | LOGRING | ROCK OUTCROP | KYLER | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | --- | --- | 10-20 | --- | 10-15 | 2-10 | --- |
| Letterman needlegrass | STLE4 | --- | --- | --- | --- | --- | --- | 10-20 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | 2-10 | --- |
| bluegrass | POA++ | X | --- | --- | X | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | --- | X | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | --- | --- | 2-8 | --- | 2-8 | 1-5 | --- |
| mountain brome | BRCA5 | --- | --- | --- | --- | --- | --- | 5-10 |
| muttongrass | POFE | X | --- | --- | X | --- | --- | 10-15 |
| needleandthread | STCO4 | --- | --- | 5-15 | --- | 15-25 | --- | --- |
| spike-fescue | LEKI2 | --- | --- | --- | --- | --- | --- | 2-8 |
| Nevada ephedra | EPNE | --- | --- | 2-8 | --- | --- | --- | --- |
| Stansbury cliffrose | COMES | X | --- | --- | X | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 30-35 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | X | --- | 35-45 | X | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 | --- |
| ephedra | EPHED | --- | --- | --- | --- | 2-8 | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 2-5 | --- | --- |
| green ephedra | EPVI | X | --- | --- | X | --- | --- | 1-3 |
| mountain big sagebrush | ARVA2 | --- | --- | --- | --- | --- | --- | 15-25 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 | --- |
| serviceberry | AMELA | --- | --- | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | 1-5 | --- | --- | --- | --- |
| snowberry | SYMPH | --- | --- | --- | --- | --- | --- | 2-8 |
| singleleaf pinyon | PIMO | X | --- | --- | X | --- | --- | --- |
| Range site number | | 029XY069NV | none | 029XY014NV | 029XY069NV | 029XY010NV | 029XY009NV | 029XY051NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 400 | | 350 | 400 | 500 | 1000 | 1300 |
| Normal years | | 300 | | 200 | 300 | 350 | 700 | 1100 |
| Unfavorable years | | 150 | | 75 | 150 | 250 | 500 | 700 |

## 3671--LOGRING-EAGLEPASS ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | LOGRING | EAGLEPASS | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | --- | 2-5 | --- | 10-20 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bluegrass | POA++ | X | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | --- | --- | --- |
| galleta | HIJA | --- | --- | --- | 2-8 | 1-5 |
| muttongrass | POFE | X | --- | --- | --- | --- |
| needleandthread | STCO4 | --- | 5-15 | --- | 5-15 | --- |
| needlegrass | STIPA | --- | 2-8 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | 2-8 | --- |
| Nevada greasebush | FONE2 | --- | 1-3 | --- | --- | --- |
| Stansbury cliffrose | COMES | X | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | X | 5-15 | --- | 35-45 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | --- | 2-5 | --- | --- | --- |
| green ephedra | EPVI | X | --- | --- | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | 60-70 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | --- | 1-5 | --- |
| singleleaf pinyon | PIMO | X | --- | --- | --- | --- |
| Range site number | | 029XY069NV | 029XY040NV | none | 029XY014NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 400 | 600 | | 350 | 1000 |
| Normal years | | 300 | 450 | | 200 | 700 |
| Unfavorable years | | 150 | 300 | | 75 | 500 |

## 3672--LOGRING-KYLER-EAGLEPASS ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | LOGRING | KYLER | EAGLEPASS | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | --- | 10-20 | 2-5 | --- | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bluegrass | POA++ | X | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | --- | --- | --- |
| galleta | HIJA | --- | 2-8 | --- | --- | 1-5 |
| muttongrass | POFE | X | --- | --- | --- | --- |
| needleandthread | STCO4 | --- | 5-15 | 5-15 | --- | --- |
| needlegrass | STIPA | --- | --- | 2-8 | --- | --- |
| Nevada ephedra | EPNE | --- | 2-8 | --- | --- | --- |
| Nevada greasebush | FONE2 | --- | --- | 1-3 | --- | --- |
| Stansbury cliffrose | COMES | X | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | X | 35-45 | 5-15 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | --- | --- | 2-5 | --- | --- |
| green ephedra | EPVI | X | --- | --- | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | --- | 60-70 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 1-5 | --- | --- | --- |
| singleleaf pinyon | PIMO | X | --- | --- | --- | --- |
| Range site number | | 029XY069NV | 029XY014NV | 029XY040NV | none | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 400 | 350 | 600 | | 1000 |
| Normal years | | 300 | 200 | 450 | | 700 |
| Unfavorable years | | 150 | 75 | 300 | | 500 |

## 3700--LEO-DELAMAR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | LEO | DELAMAR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 25-35 | 25-35 | 10-25 | 15-25 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | 10-15 | 10-15 | 2-8 | 2-10 | 1-5 |
| needleandthread | STCO4 | --- | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | --- | 1-4 | --- | --- |
| Anderson wolfberry | LYAN | 2-5 | 2-5 | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | 10-15 | 10-15 | 2-5 | 1-5 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-5 | 5-15 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 2-8 | 2-8 | 2-5 | --- | --- |
| rubbar rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | 15-30 | 15-30 | 5-10 | --- | --- |
| winterfat | EULA5 | 2-5 | 2-5 | 2-8 | 5-10 | --- |
| Range site number | | 029XY016NV | 029XY016NV | 029XY049NV | 029XY017NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1000 | 1000 | 1100 | 500 | 1000 |
| Normal years | | 700 | 700 | 800 | 350 | 700 |
| Unfavorable years | | 500 | 500 | 500 | 150 | 500 |

## 3702--LEO-HOLLYWELL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key spacies in the potential native plant community)

| Common plant name | Plant symbol | Percantage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | LEO | HOLLYWELL | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 25-35 | 15-25 | 5-10 | 20-30 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | --- |
| galleta | HIJA | 10-15 | 2-10 | --- | 2-8 |
| sand dropseed | SPCR | --- | --- | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | 1-3 |
| Anderson wolfberry | LYAN | 2-5 | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | 2-10 | --- |
| Cooper wolfberry | LYCO2 | --- | --- | 2-5 | --- |
| Nevada ephedra | EPNE | 10-15 | 1-5 | 2-5 | --- |
| bud sagebrush | ARSP5 | 2-5 | 5-15 | --- | 2-8 |
| burrobrush | HYMEN3 | --- | --- | 5-10 | --- |
| fourwing saltbush | ATCA2 | 2-8 | --- | 5-15 | 20-30 |
| littleleaf horsebrush | TEGL | --- | --- | 5-10 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | 10-25 | --- |
| shadscale | ATCO | --- | 25-35 | --- | --- |
| spiny hopsage | GRSP | 15-30 | --- | --- | 2-5 |
| winterfat | EULA5 | 2-5 | 5-10 | --- | 10-20 |
| Range site number | | 029XY016NV | 029XY017NV | 029XY041NV | 029XY046NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 1000 | 500 | 500 | 500 |
| Normal years | | 700 | 350 | 300 | 400 |
| Unfavorable years | | 500 | 150 | 100 | 300 |

## 3703--LEO-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LEO | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 25-35 | 25-35 | 25-35 | 20-35 | 25-35 | 25-35 |
| desert needlegrass | STSP3 | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | 10-15 | 10-15 | 10-15 | --- | 10-15 | 10-15 |
| needleandthread | STCO4 | --- | --- | --- | 5-15 | --- | --- |
| Anderson wolfberry | LYAN | 2-5 | 2-5 | 2-5 | --- | 2-5 | 2-5 |
| Nevada ephedra | EPNE | 10-15 | 10-15 | 10-15 | 2-5 | 10-15 | 10-15 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-5 | --- | 2-5 | 2-5 |
| fourwing saltbush | ATCA2 | 2-8 | 2-8 | 2-8 | 2-5 | 2-8 | 2-8 |
| spiny hopsage | GRSP | 15-30 | 15-30 | 15-30 | --- | 15-30 | 15-30 |
| winterfat | EULA5 | 2-5 | 2-5 | 2-5 | --- | 2-5 | 2-5 |
| Range site number | | 029XY016NV | 029XY016NV | 029XY016NV | 029XY006NV | 029XY016NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 1000 | 1000 | 1000 | 800 | 1000 | 1000 |
| Normal years | | 700 | 700 | 700 | 600 | 700 | 700 |
| Unfavorable years | | 500 | 500 | 500 | 300 | 500 | 500 |

## 3710--BEELEM-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | BEELEM | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-20 | --- | 20-35 | 10-20 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | 2-10 |
| desert needlegrass | STSP3 | 2-10 | --- | --- | 2-10 | --- |
| galleta | HIJA | --- | --- | 2-8 | --- | 1-5 |
| needleandthread | STCO4 | 2-10 | --- | 5-15 | 2-10 | --- |
| Nevada ephedra | EPNE | 2-8 | --- | 2-5 | 2-8 | --- |
| Stansbury cliffrose | COMES | 5-10 | --- | --- | 5-10 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 20-30 | --- | 25-35 | 20-30 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | --- | 1-5 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| winterfat | EULA5 | --- | --- | 1-5 | --- | --- |
| Range site number | | 029XY081NV | none | 029XY008NV | 029XY081NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | | 700 | 500 | 1000 |
| Normal years | | 350 | | 500 | 350 | 700 |
| Unfavorable years | | 200 | | 250 | 200 | 500 |

## 3730--PENELAS-KYLER-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | PENELAS | KYLER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-20 | 10-20 | --- | 10-20 | 10-15 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-5 | 2-10 |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-8 | --- |
| galleta | HIJA | 2-8 | 2-8 | --- | 2-8 | 2-8 | 1-5 |
| needleandthread | STCO4 | 5-15 | 5-15 | --- | 5-15 | 15-25 | --- |
| Nevada ephedra | EPNE | 2-8 | 2-8 | --- | 2-8 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 30-35 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | 35-45 | 35-45 | --- | 35-45 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| ephedra | EPHED | --- | --- | --- | --- | 2-8 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 2-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | 1-5 | 1-5 | --- | 1-5 | --- | --- |
| Range site number | | 029XY014NV | 029XY014NV | none | 029XY014NV | 029XY010NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 350 | 350 | | 350 | 500 | 1000 |
| Normal years | | 200 | 200 | | 200 | 350 | 700 |
| Unfavorable years | | 75 | 75 | | 75 | 250 | 500 |

## 3731--PENELAS-UBEHEBE-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | PENELAS | UBEHEBE | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-20 | --- | --- | 20-35 | 2-10 | 2-5 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-5 | 2-10 | --- |
| bluegrass | POA++ | --- | X | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | --- | X | --- | --- | --- | --- |
| galleta | HIJA | 2-8 | --- | --- | 2-8 | 1-5 | --- |
| muttongrass | POFE | --- | X | --- | --- | --- | --- |
| needleandthread | STCO4 | 5-15 | --- | --- | 5-15 | --- | 5-15 |
| needlegrass | STIPA | --- | --- | --- | --- | --- | 2-8 |
| Nevada ephedra | EPNE | 2-8 | --- | --- | 2-5 | --- | --- |
| Nevada greasebush | FONE2 | --- | --- | --- | --- | --- | 1-3 |
| Stansbury cliffrose | COMES | --- | X | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | 35-45 | X | --- | 25-35 | --- | 5-15 |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 | --- |
| ephedra | EPHED | --- | --- | --- | --- | --- | 2-5 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 1-5 | --- | --- |
| green ephedra | EPVI | --- | X | --- | --- | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | --- | --- | --- | --- | 60-70 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 | --- |
| shadscale | ATCO | 1-5 | --- | --- | --- | --- | --- |
| winterfat | EULA5 | --- | --- | --- | 1-5 | --- | --- |
| singleleaf pinyon | PIMO | --- | X | --- | --- | --- | --- |
| Range site number | | 029XY014NV | 029XY069NV | none | 029XY008NV | 029XY009NV | 029XY040NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 350 | 400 | | 700 | 1000 | 600 |
| Normal years | | 200 | 300 | | 500 | 700 | 450 |
| Unfavorable years | | 75 | 150 | | 250 | 500 | 300 |

## 3740--KEEFA-UNSEL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KEEFA | UNSEL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 25-35 | 20-30 | 5-10 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | --- | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-8 | 2-8 | --- | 1-5 |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | --- | --- | 2-10 | --- |
| Cooper wolfberry | LYCO2 | --- | --- | --- | --- | 2-5 | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | --- | --- | 2-5 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | --- | 2-8 | --- | --- |
| burrobrush | HYMEN3 | --- | --- | --- | --- | 5-10 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 20-30 | 5-15 | --- |
| littleleaf horsebrush | TEGL | --- | --- | --- | --- | 5-10 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 10-25 | 5-15 |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 5-10 | --- | 10-20 | --- | --- |
| Range site number | | 029XY017NV | 029XY017NV | 029XY087NV | 029XY046NV | 029XY041NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 500 | 500 | 1000 |
| Normal years | | 350 | 350 | 350 | 400 | 300 | 700 |
| Unfavorable years | | 150 | 150 | 200 | 300 | 100 | 500 |

## 3741--KEEFA-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | KEEFA | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 40-50 | 15-25 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | 2-5 | --- |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | 2-10 | 1-5 |
| sand dropseed | SPCR | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | 1-3 | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- | 1-5 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | 5-15 | 5-15 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | 20-30 | 1-5 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | 25-35 | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | --- | 2-5 | --- | --- | --- |
| winterfat | EULA5 | 5-10 | 10-20 | 25-30 | 5-10 | --- |
| Range site number | | 029XY017NV | 029XY046NV | 029XY042NV | 029XY017NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 500 | 700 | 500 | 1000 |
| Normal years | | 350 | 400 | 500 | 350 | 700 |
| Unfavorable years | | 150 | 300 | 350 | 150 | 500 |

## 3742--KEEFA-STARGO ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KEEFA | STARGO | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 25-35 | 20-30 | --- | 50-70 | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | 2-5 |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | --- | 2-5 | --- |
| needleandthread | STCO4 | --- | --- | --- | --- | 2-5 | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | --- | 5-15 | --- |
| globemallow | SPHAE | --- | --- | 1-3 | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- | --- | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | --- | 20-35 |
| bud sagebrush | ARSP5 | 5-15 | --- | 2-8 | --- | --- | 5-15 |
| fourwing saltbush | ATCA2 | --- | --- | 20-30 | --- | 15-25 | 2-5 |
| shadscale | ATCO | 25-35 | --- | --- | --- | --- | 30-50 |
| spiny hopsage | GRSP | --- | --- | 2-5 | --- | --- | --- |
| winterfat | EULA5 | 5-10 | --- | 10-20 | --- | 2-8 | --- |
| Range site number | | 029XY017NV | 029XY087NV | 029XY046NV | none | 029XY012NV | 029XY024NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | | 700 | 700 |
| Normal years | | 350 | 350 | 400 | | 500 | 500 |
| Unfavorable years | | 150 | 200 | 300 | | 300 | 300 |

## 3744--KEEFA-GARHILL-BELTED ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KEEFA | GARHILL | BELTED | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 5-10 | 15-25 | 20-30 | 5-10 | 20-30 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 2-8 | --- | --- | 2-8 | --- |
| galleta | HIJA | 2-10 | 5-15 | 2-10 | 2-8 | 5-15 | 2-8 |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | 1-3 | --- | 1-3 |
| Bailey greasewood | SAVEB | 0-10 | 5-15 | 0-10 | --- | 5-15 | --- |
| Nevada ephedra | EPNE | 1-5 | 2-5 | 1-5 | --- | 2-5 | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-10 | 5-15 | 2-8 | 5-10 | 2-8 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 20-30 | --- | 20-30 |
| shadscale | ATCO | 25-35 | 25-35 | 25-35 | --- | 25-35 | --- |
| spiny hopsage | GRSP | --- | --- | --- | 2-5 | --- | 2-5 |
| winterfat | EULA5 | 5-10 | 5-10 | 5-10 | 10-20 | 5-10 | 10-20 |
| Range site number | | 029XY017NV | 029XY022NV | 029XY017NV | 029XY046NV | 029XY022NV | 029XY046NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 400 | 500 | 500 | 400 | 500 |
| Normal years | | 350 | 250 | 350 | 400 | 250 | 400 |
| Unfavorable years | | 150 | 100 | 150 | 300 | 100 | 300 |

## 3745--KEEFA-HOLLYWELL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | |
|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | |
| | | KEEFA | HOLLYWELL | Inclusion 1 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 15-25 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 |
| galleta | HIJA | 2-10 | 2-10 | 2-10 |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | 0-10 |
| Nevada ephedra | EPNE | 1-5 | 1-5 | 1-5 |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 |
| shadscale | ATCO | 25-35 | 25-35 | 25-35 |
| winterfat | EULA5 | 5-10 | 5-10 | 5-10 |
| Range site number | | 029XY017NV | 029XY017NV | 029XY017NV |
| Potential production (lb/acre): | | | | |
| Favorable years | | 500 | 500 | 500 |
| Normal years | | 350 | 350 | 350 |
| Unfavorable years | | 150 | 150 | 150 |

## 3747--KEEFA-LYX-LINOYER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KEEFA | LYX | LINOYER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 15-25 | 15-25 | 20-35 | 15-25 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-8 | --- |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 5-10 | 2-5 | 2-5 | 2-5 |
| galleta | HIJA | 2-10 | 2-8 | --- | 2-10 | --- | 2-10 |
| needleandthread | STCO4 | --- | --- | --- | --- | 5-15 | --- |
| other perennial grasses | PPGG | --- | --- | 2-5 | --- | --- | --- |
| sand dropseed | SPCR | --- | 2-8 | --- | --- | --- | --- |
| globemallow | SPHAE | --- | 1-3 | 2-5 | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | 0-10 | --- | 0-10 |
| Nevada ephedra | EPNE | 1-5 | --- | --- | 1-5 | --- | 1-5 |
| black sagebrush | ARARN | --- | --- | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | 2-8 | 5-15 | --- | 5-15 |
| downy rabbitbrush | CHVIP4 | --- | --- | --- | --- | 2-5 | --- |
| fourwing saltbush | ATCA2 | --- | 20-30 | 2-5 | --- | --- | --- |
| shadscale | ATCO | 25-35 | --- | --- | 25-35 | 2-5 | 25-35 |
| spiny hopsage | GRSP | --- | 2-5 | --- | --- | --- | --- |
| winterfat | EULA5 | 5-10 | 10-20 | 40-50 | 5-10 | --- | 5-10 |
| Range site number | | 029XY017NV | 029XY046NV | 028BY013NV | 029XY017NV | 028BY011NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 700 | 500 | 600 | 500 |
| Normal years | | 350 | 400 | 500 | 350 | 450 | 350 |
| Unfavorable years | | 150 | 300 | 350 | 150 | 250 | 150 |

## 3748--KEEFA-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KEEFA | KOYEN | KEEFA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 25-35 | 40-50 | 15-25 | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | 2-5 | 2-5 | 2-5 |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | 2-8 | 2-10 | --- |
| sand dropseed | SPCR | --- | 2-8 | --- | --- | --- | --- |
| globemallow | SPHAE | --- | 1-3 | --- | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | 1-5 | --- | --- | --- | 1-5 | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | --- | 20-35 |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | --- | 5-15 | 5-15 | 5-15 |
| fourwing saltbush | ATCA2 | --- | 20-30 | --- | 1-5 | --- | 2-5 |
| shadscale | ATCO | 25-35 | --- | --- | --- | 25-35 | 30-50 |
| spiny hopsage | GRSP | --- | 2-5 | --- | --- | --- | --- |
| winterfat | EULA5 | 5-10 | 10-20 | --- | 25-30 | 5-10 | --- |
| Range site number | | 029XY017NV | 029XY046NV | 029XY087NV | 029XY042NV | 029XY017NV | 029XY024NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 700 | 500 | 700 |
| Normal years | | 350 | 400 | 350 | 500 | 350 | 500 |
| Unfavorable years | | 150 | 300 | 200 | 350 | 150 | 300 |

## 3750--KOYEN-CLIFFDOWN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | KOYEN | CLIFFDOWN | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-30 | 40-50 | 20-30 | 15-25 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | 2-5 |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-10 |
| sand dropseed | SPCR | 2-8 | --- | 2-8 | --- |
| globemallow | SPHAE | 1-3 | 1-3 | 1-3 | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 |
| Nevada ephedra | EPNE | --- | --- | --- | 1-5 |
| bud sagebrush | ARSP5 | 2-8 | 5-15 | 2-8 | 5-15 |
| fourwing saltbush | ATCA2 | 20-30 | 1-5 | 20-30 | --- |
| shadscale | ATCO | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | 2-5 | --- | 2-5 | --- |
| winterfat | EULA5 | 10-20 | 25-30 | 10-20 | 5-10 |
| Range site number | | 029XY046NV | 029XY042NV | 029XY046NV | 029XY017NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 500 | 700 | 500 | 500 |
| Normal years | | 400 | 500 | 400 | 350 |
| Unfavorable years | | 300 | 350 | 300 | 150 |

## 3751--KOYEN-UNSEL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KOYEN | UNSEL | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-30 | 15-25 | 25-35 | 10-25 | 40-50 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | 2-5 | --- | --- | 2-5 | --- |
| desert needlegrass | STSP3 | --- | --- | --- | 10-20 | --- | --- |
| galleta | HIJA | 2-8 | 2-10 | 10-15 | 2-8 | 2-8 | 1-5 |
| needleandthread | STCO4 | --- | --- | --- | 2-8 | --- | --- |
| sand dropseed | SPCR | 2-8 | --- | --- | --- | --- | --- |
| globemallow | SPHAE | 1-3 | --- | --- | 1-4 | 1-3 | --- |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 1-5 | 10-15 | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-30 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-8 | 5-15 | 2-5 | 2-5 | 5-15 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 20-30 | --- | 2-8 | 2-5 | 1-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | 2-5 | --- | 15-30 | 5-10 | --- | --- |
| winterfat | EULA5 | 10-20 | 5-10 | 2-5 | 2-8 | 25-30 | --- |
| Range site number | | 029XY046NV | 029XY017NV | 029XY016NV | 029XY049NV | 029XY042NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 1000 | 1100 | 700 | 1000 |
| Normal years | | 400 | 350 | 700 | 800 | 500 | 700 |
| Unfavorable years | | 300 | 150 | 500 | 500 | 350 | 500 |

## 3752--KOYEN SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 25-35 | 5-10 | 15-25 | 20-30 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | --- |
| galleta | HIJA | 10-15 | --- | 2-10 | 2-8 | 1-5 |
| sand dropseed | SPCR | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | --- | --- | 1-3 | --- |
| Anderson wolfberry | LYAN | 2-5 | --- | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | 2-10 | 0-10 | --- | --- |
| Cooper wolfberry | LYCO2 | --- | 2-5 | --- | --- | --- |
| Nevada ephedra | EPNE | 10-15 | 2-5 | 1-5 | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-5 | --- | 5-15 | 2-8 | --- |
| burrobrush | HYMEN3 | --- | 5-10 | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 2-8 | 5-15 | --- | 20-30 | --- |
| littleleaf horsebrush | TEGL | --- | 5-10 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | 10-25 | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- |
| spiny hopsage | GRSP | 15-30 | --- | --- | 2-5 | --- |
| winterfat | EULA5 | 2-5 | --- | 5-10 | 10-20 | --- |
| Range site number | | 029XY016NV | 029XY041NV | 029XY017NV | 029XY046NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1000 | 500 | 500 | 500 | 1000 |
| Normal years | | 700 | 300 | 350 | 400 | 700 |
| Unfavorable years | | 500 | 100 | 150 | 300 | 500 |

## 3754--KOYEN-WATOOPAH-GEER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | KOYEN | WATOOPAH | GEER | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-30 | 10-25 | 40-50 | 15-25 | 10-25 |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 10-20 | --- | --- | 10-20 |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-10 | 2-8 |
| needleandthread | STCO4 | --- | 2-8 | --- | --- | 2-8 |
| sand dropseed | SPCR | 2-8 | --- | --- | --- | --- |
| globemallow | SPHAE | 1-3 | 1-4 | 1-3 | --- | 1-4 |
| Bailey greasewood | SAVEB | --- | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | --- | 2-5 | --- | 1-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | --- | --- | 25-30 |
| bud sagebrush | ARSP5 | 2-8 | 2-5 | 5-15 | 5-15 | 2-5 |
| fourwing saltbush | ATCA2 | 20-30 | 2-5 | 1-5 | --- | 2-5 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | 2-5 | 5-10 | --- | --- | 5-10 |
| winterfat | EULA5 | 10-20 | 2-8 | 25-30 | 5-10 | 2-8 |
| Range site number | | 029XY046NV | 029XY049NV | 029XY042NV | 029XY017NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 1100 | 700 | 500 | 1100 |
| Normal years | | 400 | 800 | 500 | 350 | 800 |
| Unfavorable years | | 300 | 500 | 350 | 150 | 500 |

## 3755--KOYEN-WATOOPAH ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | KOYEN | WATOOPAH | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 25-35 | 10-25 | 20-30 | 2-10 | 15-25 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-10 | --- |
| bottlebrush squirreltail | SIHY | --- | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | 10-20 | --- | --- | --- |
| galleta | HIJA | 10-15 | 2-8 | 2-8 | 1-5 | 2-10 |
| needleandthread | STCO4 | --- | 2-8 | --- | --- | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-4 | 1-3 | --- | --- |
| Anderson wolfberry | LYAN | 2-5 | --- | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | --- | --- | --- | 0-10 |
| Nevada ephedra | EPNE | 10-15 | 2-5 | --- | --- | 1-5 |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-8 | --- | 5-15 |
| desert peachbrush | PRFA | --- | --- | --- | 10-20 | --- |
| fourwing saltbush | ATCA2 | 2-8 | 2-5 | 20-30 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 5-15 | --- |
| shadscale | ATCO | --- | --- | --- | --- | 25-35 |
| spiny hopsage | GRSP | 15-30 | 5-10 | 2-5 | --- | --- |
| winterfat | EULA5 | 2-5 | 2-8 | 10-20 | --- | 5-10 |
| Range site number | | 029XY016NV | 029XY049NV | 029XY046NV | 029XY009NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 1000 | 1100 | 500 | 1000 | 500 |
| Normal years | | 700 | 800 | 400 | 700 | 350 |
| Unfavorable years | | 500 | 500 | 300 | 500 | 150 |

## 3756--KOYEN-LYX ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KOYEN | LYX | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-30 | 20-30 | 25-35 | 25-35 | 20-30 | 10-25 |
| desert needlegrass | STSP3 | --- | --- | --- | --- | --- | 10-20 |
| galleta | HIJA | 2-8 | 2-8 | 10-15 | 10-15 | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 2-8 |
| sand dropseed | SPCR | 2-8 | 2-8 | --- | --- | 2-8 | --- |
| globemallow | SPHAE | 1-3 | 1-3 | --- | --- | 1-3 | 1-4 |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | 2-5 | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 10-15 | 10-15 | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | --- | 25-30 |
| bud sagebrush | ARSP5 | 2-8 | 2-8 | 2-5 | 2-5 | 2-8 | 2-5 |
| fourwing saltbush | ATCA2 | 20-30 | 20-30 | 2-8 | 2-8 | 20-30 | 2-5 |
| spiny hopsage | GRSP | 2-5 | 2-5 | 15-30 | 15-30 | 2-5 | 5-10 |
| winterfat | EULA5 | 10-20 | 10-20 | 2-5 | 2-5 | 10-20 | 2-8 |
| Range site number | | 029XY046NV | 029XY046NV | 029XY016NV | 029XY016NV | 029XY046NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 1000 | 1000 | 500 | 1100 |
| Normal years | | 400 | 400 | 700 | 700 | 400 | 800 |
| Unfavorable years | | 300 | 300 | 500 | 500 | 300 | 500 |

## 3757--KOYEN-VEET-PENOYER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | KOYEN | VEET | PENOYER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 25-35 | 10-25 | 5-15 | 1-5 | 40-50 | 10-25 |
| basin wildrye | ELCI2 | --- | --- | --- | 10-20 | --- | --- |
| bottlebrush squirreltail | SIHY | --- | --- | 5-10 | 2-5 | 2-5 | --- |
| desert needlegrass | STSP3 | --- | 10-20 | --- | --- | --- | 10-20 |
| gallets | HIJA | 10-15 | 2-8 | --- | --- | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | 2-8 | --- | --- | --- | 2-8 |
| globemallow | SPHAE | --- | 1-4 | --- | --- | 1-3 | 1-4 |
| Anderson wolfberry | LYAN | 2-5 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 10-15 | 2-5 | --- | --- | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | 25-30 | --- | --- | --- | 25-30 |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-8 | 2-5 | 5-15 | 2-5 |
| fourwing saltbush | ATCA2 | 2-8 | 2-5 | --- | 50-60 | 1-5 | 2-5 |
| green molly kochia | KOAM | --- | --- | --- | 1-3 | --- | --- |
| spiny hopsage | GRSP | 15-30 | 5-10 | --- | --- | --- | 5-10 |
| winterfat | EULA5 | 2-5 | 2-8 | 60-70 | 2-5 | 25-30 | 2-8 |
| Range site number | | 029XY016NV | 029XY049NV | 029XY020NV | 029XY048NV | 029XY042NV | 029XY049NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 1000 | 1100 | 500 | 1000 | 700 | 1100 |
| Normal years | | 700 | 800 | 350 | 800 | 500 | 800 |
| Unfavorable years | | 500 | 500 | 200 | 400 | 350 | 500 |

## 3758--KOYEN SAND, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 20-30 | 5-10 | 50-70 | 15-25 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | --- | --- | 2-5 | --- |
| gallets | HIJA | 2-8 | --- | 2-5 | 2-10 | 1-5 |
| needleandthread | STCO4 | --- | --- | 2-5 | --- | --- |
| sand dropseed | SPCR | 2-8 | --- | 5-15 | --- | --- |
| globemallow | SPHAE | 1-3 | --- | --- | --- | --- |
| Bailey greasewood | SAVEB | --- | 2-10 | --- | 0-10 | --- |
| Cooper wolfberry | LYCO2 | --- | 2-5 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 2-5 | --- | 1-5 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-8 | --- | --- | 5-15 | --- |
| burrobrush | HYMEN3 | --- | 5-10 | --- | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 20-30 | 5-15 | 15-25 | --- | --- |
| littleleaf horsebrush | TEGL | --- | 5-10 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | 10-25 | --- | --- | 5-15 |
| shadscale | ATCO | --- | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | 2-5 | --- | --- | --- | --- |
| winterfat | EULA5 | 10-20 | --- | 2-8 | 5-10 | --- |
| Range site number | | 029XY046NV | 029XY041NV | 029XY012NV | 029XY017NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 500 | 700 | 500 | 1000 |
| Normal years | | 400 | 300 | 500 | 350 | 700 |
| Unfavorable years | | 300 | 100 | 300 | 150 | 500 |

## 3760--VINDICATOR VERY GRAVELLY SANDY LOAM, 8 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | VINDICATOR | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 5-15 | 10-15 | 20-35 | 25-35 | --- |
| Sandberg bluegrass | POSE | --- | 2-5 | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | 1-3 | --- | --- | --- | --- |
| desert needlegrass | STSP3 | 2-5 | 2-8 | --- | --- | --- |
| galleta | HIJA | 5-10 | 2-8 | 2-8 | 10-15 | --- |
| needleandthread | STCO4 | --- | 15-25 | 5-15 | --- | --- |
| Anderson wolfberry | LYAN | 5-15 | --- | --- | 2-5 | --- |
| Cooper wolfberry | LYCO2 | 2-5 | --- | --- | --- | --- |
| Nevada dalea | PSPO | 5-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 2-5 | 10-15 | --- |
| Wyoming big sagebrush | ARTRW | --- | 30-35 | --- | --- | --- |
| black sagebrush | ARARN | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | 2-5 | --- | --- | 2-5 | --- |
| ephedra | EPHED | --- | 2-8 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | 2-5 | 1-5 | 2-8 | --- |
| spiny hopsage | GRSP | 5-15 | --- | --- | 15-30 | --- |
| winterfat | EULA5 | --- | --- | 1-5 | 2-5 | --- |
| Range site number | | 029XY021NV | 029XY010NV | 029XY008NV | 029XY016NV | none |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 300 | 500 | 700 | 1000 | |
| Normal years | | 200 | 350 | 500 | 700 | |
| Unfavorable years | | 100 | 250 | 250 | 500 | |

## 3770--YODY-CATH-ABGESE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | YODY | CATH | ABGESE | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORBY | 20-30 | 20-35 | 20-30 | 20-35 | 20-35 | 20-30 |
| Sandberg bluegrass | POSE | 2-5 | --- | 2-5 | 2-5 | --- | 2-5 |
| bottlebrush squirreltail | SIHY | 2-8 | --- | 2-8 | --- | --- | 2-8 |
| desert needlegrass | STSP3 | --- | 2-8 | --- | --- | 2-8 | --- |
| galleta | HIJA | --- | --- | --- | 2-8 | --- | --- |
| needleandthread | STCO4 | 10-20 | 5-15 | 10-20 | 5-15 | 5-15 | 10-20 |
| Nevada ephedra | EPNE | --- | 2-5 | --- | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | 25-35 | 25-35 | 25-35 | --- | 25-35 | 25-35 |
| black sagebrush | ARARN | --- | --- | --- | 25-35 | --- | --- |
| fourwing saltbush | ATCA2 | --- | 2-5 | --- | 1-5 | 2-5 | --- |
| rabbitbrush | CHRYS9 | 2-5 | --- | 2-5 | --- | --- | 2-5 |
| winterfat | EULA5 | --- | --- | --- | 1-5 | --- | --- |
| Range site number | | 028BY010NV | 029XY006NV | 028BY010NV | 029XY008NV | 029XY006NV | 028BY010NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 800 | 800 | 800 | 700 | 800 | 800 |
| Normal years | | 600 | 600 | 600 | 500 | 600 | 600 |
| Unfavorable years | | 400 | 300 | 400 | 250 | 300 | 400 |

## 3780--MOLION VERY GRAVELLY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | MOLION | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 20-35 | 20-30 | 15-25 |
| Sandberg bluegrass | POSE | 2-8 | 2-8 | 2-5 | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-8 | 2-5 |
| needleandthread | STCO4 | 5-15 | 5-15 | 10-20 | 5-10 |
| scarlet globemallow | SPCO | --- | --- | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | 20-35 |
| black sagebrush | ARARN | 25-35 | 25-35 | --- | --- |
| downy rabbitbrush | CHVIP4 | 2-5 | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- |
| shadscale | ATCO | 2-5 | 2-5 | --- | 2-5 |
| spiny hopsage | GRSP | --- | --- | --- | 5-20 |
| Range site number | | 028BY011NV | 028BY011NV | 028BY010NV | 028BY052NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 600 | 600 | 800 | 800 |
| Normal years | | 450 | 450 | 600 | 600 |
| Unfavorable years | | 250 | 250 | 400 | 450 |

## 3800--LYDA-DELAMAR-LYX ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LYDA | DELAMAR | LYX | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 25-35 | 20-30 | 20-30 | 15-25 | 15-25 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | --- | 2-5 | 2-5 |
| galleta | HIJA | 2-10 | 10-15 | 2-8 | 2-8 | 2-10 | 2-10 |
| sand dropseed | SPCR | --- | --- | 2-8 | 2-8 | --- | --- |
| globemallow | SPHAE | --- | --- | 1-3 | 1-3 | --- | --- |
| Anderson wolfberry | LYAN | --- | 2-5 | --- | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | --- | 0-10 | 0-10 |
| Nevada ephedra | EPNE | 1-5 | 10-15 | --- | --- | 1-5 | 1-5 |
| bud sagebrush | ARSP5 | 5-15 | 2-5 | 2-8 | 2-8 | 5-15 | 5-15 |
| fourwing saltbush | ATCA2 | --- | 2-8 | 20-30 | 20-30 | --- | --- |
| shadscale | ATCO | 25-35 | --- | --- | --- | 25-35 | 25-35 |
| spiny hopsage | GRSP | --- | 15-30 | 2-5 | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 2-5 | 10-20 | 10-20 | 5-10 | 5-10 |
| Range site number | | 029XY017NV | 029XY016NV | 029XY046NV | 029XY046NV | 029XY017NV | 029XY017NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 1000 | 500 | 500 | 500 | 500 |
| Normal years | | 350 | 700 | 400 | 400 | 350 | 350 |
| Unfavorable years | | 150 | 500 | 300 | 300 | 150 | 150 |

## 3801--LYDA-BELTED-ARDIVEY ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | LYDA | BELTED | ARDIVEY | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 15-25 | 25-35 | 5-10 | 5-10 | 25-35 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | 2-5 | --- | 2-5 |
| desert needlegrass | STSP3 | --- | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-10 | 10-15 | 5-15 | --- | 2-8 |
| Anderson wolfberry | LYAN | --- | --- | --- | 2-5 | --- | --- | --- |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | 0-10 | --- | 5-15 | 2-10 | --- |
| Cooper wolfberry | LYCO2 | --- | --- | --- | --- | --- | 2-5 | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | 1-5 | 10-15 | 2-5 | 2-5 | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 | 2-5 | 5-10 | --- | --- |
| burrobrush | HYMEN3 | --- | --- | --- | --- | --- | 5-10 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | 2-8 | --- | 5-15 | --- |
| littleleaf horsebrush | TEGL | --- | --- | --- | --- | --- | 5-10 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 10-25 | --- |
| shadscale | ATCO | 25-35 | 25-35 | 25-35 | --- | 25-35 | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 15-30 | --- | --- | --- |
| winterfat | EULA5 | 5-10 | 5-10 | 5-10 | 2-5 | 5-10 | --- | --- |
| Range site number | | 029XY017NV | 029XY017NV | 029XY017NV | 029XY016NV | 029XY022NV | 029XY041NV | 029XY087NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 1000 | 400 | 500 | 500 |
| Normal years | | 350 | 350 | 350 | 700 | 250 | 300 | 350 |
| Unfavorable years | | 150 | 150 | 150 | 500 | 100 | 100 | 200 |

## 3803--LYDA-ARDIVEY-VEET ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | LYDA | ARDIVEY | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 10-25 | 20-35 | 10-25 | 20-30 | 25-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-5 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | 10-20 | --- | 10-20 | --- | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-8 | 2-8 | 2-8 | 2-8 | 10-15 |
| needleandthread | STCO4 | --- | --- | 2-8 | 5-15 | 2-8 | --- | --- |
| sand dropseed | SPCR | --- | --- | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | --- | 1-4 | --- | 1-4 | 1-3 | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | 2-5 | 2-5 | 2-5 | --- | 10-15 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-30 | --- | 25-30 | --- | --- |
| black sagebrush | ARARN | --- | --- | --- | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 2-5 | --- | 2-5 | 2-8 | 2-5 |
| fourwing saltbush | ATCA2 | --- | --- | 2-5 | 1-5 | 2-5 | 20-30 | 2-8 |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 5-10 | --- | 5-10 | 2-5 | 15-30 |
| winterfat | EULA5 | 5-10 | 5-10 | 2-8 | 1-5 | 2-8 | 10-20 | 2-5 |
| Range site number | | 029XY017NV | 029XY017NV | 029XY049NV | 029XY008NV | 029XY049NV | 029XY046NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 500 | 1100 | 700 | 1100 | 500 | 1000 |
| Normal years | | 350 | 350 | 800 | 500 | 800 | 400 | 700 |
| Unfavorable years | | 150 | 150 | 500 | 250 | 500 | 300 | 500 |

## 3804--LYDA-ARDIVEY-LYX ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LYDA | ARDIVEY | LYX | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 20-30 | 20-35 | 25-35 | 5-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-8 | 2-8 | 10-15 | --- |
| needleandthread | STCO4 | --- | --- | --- | 5-15 | --- | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | --- | 1-3 | --- | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | 2-5 | --- |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | --- | --- | --- | 2-10 |
| Cooper wolfberry | LYCO2 | --- | --- | --- | --- | --- | 2-5 |
| Nevada ephedra | EPNE | 1-5 | 1-5 | --- | 2-5 | 10-15 | 2-5 |
| black sagebrush | ARARN | --- | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 2-8 | --- | 2-5 | --- |
| burrobrush | HYMEN3 | --- | --- | --- | --- | --- | 5-10 |
| fourwing saltbush | ATCA2 | --- | --- | 20-30 | 1-5 | 2-8 | 5-15 |
| littleleaf horsebrush | TEGL | --- | --- | --- | --- | --- | 5-10 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 10-25 |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 2-5 | --- | 15-30 | --- |
| winterfat | EULA5 | 5-10 | 5-10 | 10-20 | 1-5 | 2-5 | --- |
| Range site number | | 029XY017NV | 029XY017NV | 029XY046NV | 029XY008NV | 029XY016NV | 029XY041NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 700 | 1000 | 500 |
| Normal years | | 350 | 350 | 400 | 500 | 700 | 300 |
| Unfavorable years | | 150 | 150 | 300 | 250 | 500 | 100 |

## 3805--LYDA-HARDHAT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LYDA | HARDHAT | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 25-35 | 25-35 | 15-25 | 20-35 | 40-50 | 25-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | 2-5 | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-10 | 2-8 | 2-8 | 10-15 |
| needleandthread | STCO4 | --- | --- | --- | 5-15 | --- | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 1-3 | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | --- | --- | 2-5 |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 1-5 | 2-5 | --- | 10-15 |
| black sagebrush | ARARN | --- | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 5-15 | --- | 5-15 | 2-5 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 1-5 | 1-5 | 2-8 |
| shadscale | ATCO | --- | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | --- | 15-30 |
| winterfat | EULA5 | --- | --- | 5-10 | 1-5 | 25-30 | 2-5 |
| Range site number | | 029XY087NV | 029XY087NV | 029XY017NV | 029XY008NV | 029XY042NV | 029XY016NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 700 | 700 | 1000 |
| Normal years | | 350 | 350 | 350 | 500 | 500 | 700 |
| Unfavorable years | | 200 | 200 | 150 | 250 | 350 | 500 |

## 3810--BELTED-UNIVEGA-KOYEN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | BELTED | UNIVEGA | KOYEN | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 20-30 | 15-25 | 20-30 | 40-50 | 5-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | 2-5 | --- | 2-5 | --- |
| galleta | HIJA | 2-10 | 2-8 | 2-8 | 2-10 | 2-8 | 2-8 | --- |
| sand dropseed | SPCR | --- | 2-8 | 2-8 | --- | 2-8 | --- | --- |
| globemallow | SPHAE | --- | 1-3 | 1-3 | --- | 1-3 | 1-3 | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | 0-10 | --- | --- | 2-10 |
| Cooper wolfberry | LYCO2 | --- | --- | --- | --- | --- | --- | 2-5 |
| Nevada ephedra | EPNE | 1-5 | --- | --- | 1-5 | --- | --- | 2-5 |
| bud sagebrush | ARSP5 | 5-15 | 2-8 | 2-8 | 5-15 | 2-8 | 5-15 | --- |
| burrobrush | HYMEN3 | --- | --- | --- | --- | --- | --- | 5-10 |
| fourwing saltbush | ATCA2 | --- | 20-30 | 20-30 | --- | 20-30 | 1-5 | 5-15 |
| littleleaf horsebrush | TEGL | --- | --- | --- | --- | --- | --- | 5-10 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 10-25 |
| shadscale | ATCO | 25-35 | --- | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | 2-5 | 2-5 | --- | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 10-20 | 10-20 | 5-10 | 10-20 | 25-30 | --- |
| Range site number | | 029XY017NV | 029XY046NV | 029XY046NV | 029XY017NV | 029XY046NV | 029XY042NV | 029XY041NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 500 | 500 | 700 | 500 |
| Normal years | | 350 | 400 | 400 | 350 | 400 | 500 | 300 |
| Unfavorable years | | 150 | 300 | 300 | 150 | 300 | 350 | 100 |

## 3811--BELTED-UNSEL-LYX ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | BELTED | UNSEL | LYX | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 20-30 | 20-35 | 10-25 | 40-50 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | --- | --- | --- | 2-8 | 10-20 | --- |
| galleta | HIJA | 2-10 | 2-10 | 2-8 | --- | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | 5-15 | 2-8 | --- |
| sand dropseed | SPCR | --- | --- | 2-8 | --- | --- | --- |
| globemallow | SPHAE | --- | --- | 1-3 | --- | 1-4 | 1-3 |
| Bailey greasewood | SAVEB | 0-10 | 0-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 1-5 | 1-5 | --- | 2-5 | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-35 | 25-30 | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 2-8 | --- | 2-5 | 5-15 |
| fourwing saltbush | ATCA2 | --- | --- | 20-30 | 2-5 | 2-5 | 1-5 |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 2-5 | --- | 5-10 | --- |
| winterfat | EULA5 | 5-10 | 5-10 | 10-20 | --- | 2-8 | 25-30 |
| Range site number | | 029XY017NV | 029XY017NV | 029XY046NV | 029XY006NV | 029XY049NV | 029XY042NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 800 | 1100 | 700 |
| Normal years | | 350 | 350 | 400 | 600 | 800 | 500 |
| Unfavorable years | | 150 | 150 | 300 | 300 | 500 | 350 |

## 3830--DOWNEYVILLE-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | DOWNEYVILLE | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 5-10 | --- | 5-10 | 5-15 | 20-30 | 20-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | 1-3 | --- | --- |
| desert needlegrass | STSP3 | 2-8 | --- | 2-8 | 2-5 | --- | --- |
| galleta | HIJA | 5-15 | --- | 5-15 | 5-10 | 2-8 | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 5-15 |
| sand dropseed | SPCR | --- | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | --- | --- | --- | --- | 1-3 | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | 5-15 | --- | --- |
| Bailey greasewood | SAVEB | 5-15 | --- | 5-15 | --- | --- | --- |
| Cooper wolfberry | LYCO2 | --- | --- | --- | 2-5 | --- | --- |
| Nevada dalea | PSPO | --- | --- | --- | 5-10 | --- | --- |
| Nevada ephedra | EPNE | 2-5 | --- | 2-5 | --- | --- | 2-5 |
| black sagebrush | ARARN | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 5-10 | --- | 5-10 | 2-5 | 2-8 | --- |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 20-30 | 1-5 |
| shadscale | ATCO | 25-35 | --- | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 5-15 | 2-5 | --- |
| winterfat | EULA5 | 5-10 | --- | 5-10 | --- | 10-20 | 1-5 |
| Range site number | | 029XY022NV | none | 029XY022NV | 029XY021NV | 029XY046NV | 029XY008NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 400 | | 400 | 300 | 500 | 700 |
| Normal years | | 250 | | 250 | 200 | 400 | 500 |
| Unfavorable years | | 100 | | 100 | 100 | 300 | 250 |

## 3831--DOWNEYVILLE-STEWVAL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | DOWNEYVILLE | STEWVAL | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 5-10 | 20-35 | --- | 5-15 | 2-10 |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | --- | 1-3 | --- |
| desert needlegrass | STSP3 | 2-8 | --- | --- | 2-5 | --- |
| galleta | HIJA | 5-15 | 2-8 | --- | 5-10 | 1-5 |
| needleandthread | STCO4 | --- | 5-15 | --- | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | --- | 5-15 | --- |
| Bailey greasewood | SAVEB | 5-15 | --- | --- | --- | --- |
| Cooper wolfberry | LYCO2 | --- | --- | --- | 2-5 | --- |
| Nevada dalea | PSPO | --- | --- | --- | 5-10 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | --- | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | 5-10 | --- | --- | 2-5 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | 1-5 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | 5-15 | --- |
| winterfat | EULA5 | 5-10 | 1-5 | --- | --- | --- |
| Range site number | | 029XY022NV | 029XY008NV | none | 029XY021NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 400 | 700 | | 300 | 1000 |
| Normal years | | 250 | 500 | | 200 | 700 |
| Unfavorable years | | 100 | 250 | | 100 | 500 |

## 3832--DOWNEYVILLE-TOKOPER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | DOWNEYVILLE | TOKOPER | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 5-10 | 5-10 | 20-30 | 20-30 | --- | 10-15 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- | --- |
| desert needlegrass | STSP3 | 2-8 | 2-8 | --- | --- | --- | 2-8 |
| galleta | HIJA | 5-15 | 5-15 | 2-8 | 2-8 | --- | 2-8 |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 15-25 |
| sand dropseed | SPCR | --- | --- | 2-8 | 2-8 | --- | --- |
| globemallow | SPHAE | --- | --- | 1-3 | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | 5-15 | 5-15 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | --- | 30-35 |
| bud sagebrush | ARSP5 | 5-10 | 5-10 | 2-8 | 2-8 | --- | --- |
| ephedra | EPHED | --- | --- | --- | --- | --- | 2-8 |
| fourwing saltbush | ATCA2 | --- | --- | 20-30 | 20-30 | --- | 2-5 |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | 2-5 | 2-5 | --- | --- |
| winterfat | EULA5 | 5-10 | 5-10 | 10-20 | 10-20 | --- | --- |
| Range site number | | 029XY022NV | 029XY022NV | 029XY046NV | 029XY046NV | none | 029XY010NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 400 | 400 | 500 | 500 | | 500 |
| Normal years | | 250 | 250 | 400 | 400 | | 350 |
| Unfavorable years | | 100 | 100 | 300 | 300 | | 250 |

## 3841--VEET VERY GRAVELLY SANDY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | VEET | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 10-25 | 10-25 | 10-25 | 20-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-5 |
| desert needlegrass | STSP3 | 10-20 | 10-20 | 10-20 | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 2-8 |
| needleandthread | STCO4 | 2-8 | 2-8 | 2-8 | 5-15 |
| globemallow | SPHAE | 1-4 | 1-4 | 1-4 | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | 2-5 |
| Wyoming big sagebrush | ARTRW | 25-30 | 25-30 | 25-30 | --- |
| black sagebrush | ARARN | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-5 | 2-5 | 2-5 | --- |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | 2-5 | 1-5 |
| spiny hopsage | GRSP | 5-10 | 5-10 | 5-10 | --- |
| winterfat | EULA5 | 2-8 | 2-8 | 2-8 | 1-5 |
| Range site number | | 029XY049NV | 029XY049NV | 029XY049NV | 029XY008NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 1100 | 1100 | 1100 | 700 |
| Normal years | | 800 | 800 | 800 | 500 |
| Unfavorable years | | 500 | 500 | 500 | 250 |

## 3842--VEET-KOYEN-GEER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | VEET | KOYEN | GEER | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 10-25 | 20-30 | 40-50 | 2-10 | 5-15 | 20-30 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-10 | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | --- | --- | 2-5 | --- | 5-10 | --- | --- |
| desert needlegrass | STSP3 | 10-20 | --- | --- | --- | --- | --- | --- |
| galleta | HIJA | 2-8 | 2-8 | 2-8 | 1-5 | --- | 2-8 | 1-5 |
| needleandthread | STCO4 | 2-8 | --- | --- | --- | --- | --- | --- |
| sand dropseed | SPCR | --- | 2-8 | --- | --- | --- | 2-8 | --- |
| globemallow | SPHAE | 1-4 | 1-3 | 1-3 | --- | --- | 1-3 | --- |
| Nevada ephedra | EPNE | 2-5 | --- | --- | --- | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | 25-30 | --- | --- | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | 25-35 | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-5 | 2-8 | 5-15 | --- | 2-8 | 2-8 | --- |
| desert peachbrush | PRFA | --- | --- | --- | 10-20 | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | 2-5 | 20-30 | 1-5 | --- | --- | 20-30 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 5-15 | --- | --- | 5-15 |
| spiny hopsage | GRSP | 5-10 | 2-5 | --- | --- | --- | 2-5 | --- |
| winterfat | EULA5 | 2-8 | 10-20 | 25-30 | --- | 60-70 | 10-20 | --- |
| Range site number | | 029XY049NV | 029XY046NV | 029XY042NV | 029XY009NV | 029XY020NV | 029XY046NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 1100 | 500 | 700 | 1000 | 500 | 500 | 1000 |
| Normal years | | 800 | 400 | 500 | 700 | 350 | 400 | 700 |
| Unfavorable years | | 500 | 300 | 350 | 500 | 200 | 300 | 500 |

## 3850--GARHILL-TOKOPER-ARGALT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | GARHILL | TOKOPER | ARGALT | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 5-10 | 5-10 | 20-35 | --- | 10-25 |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- | --- |
| desert needlegrass | STSP3 | 2-8 | 2-8 | --- | --- | 10-20 |
| galleta | HIJA | 5-15 | 5-15 | 2-8 | --- | 2-8 |
| needleandthread | STCO4 | --- | --- | 5-15 | --- | 2-8 |
| globemallow | SPHAE | --- | --- | --- | --- | 1-4 |
| Bailey greasewood | SAVEB | 5-15 | 5-15 | --- | --- | --- |
| Nevada ephedra | EPNE | 2-5 | 2-5 | 2-5 | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | 25-30 |
| black sagebrush | ARARN | --- | --- | 25-35 | --- | --- |
| bud sagebrush | ARSP5 | 5-10 | 5-10 | --- | --- | 2-5 |
| fourwing saltbush | ATCA2 | --- | --- | 1-5 | --- | 2-5 |
| shadscale | ATCO | 25-35 | 25-35 | --- | --- | --- |
| spiny hopsage | GRSP | --- | --- | --- | --- | 5-10 |
| winterfat | EULA5 | 5-10 | 5-10 | 1-5 | --- | 2-8 |
| Range site number | | 029XY022NV | 029XY022NV | 029XY008NV | none | 029XY049NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 400 | 400 | 700 | | 1100 |
| Normal years | | 250 | 250 | 500 | | 800 |
| Unfavorable years | | 100 | 100 | 250 | | 500 |

## 3860--HYZEN-KYLER-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | HYZEN | KYLER | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | X | 2-5 | --- | 2-5 | --- | 2-5 | 2-10 |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | --- | --- | 2-10 |
| Scribner needlegrass | STSC2 | --- | --- | --- | 2-10 | --- | --- | --- |
| Thurber needlegrass | STTH2 | X | --- | --- | --- | --- | --- | --- |
| basin wildrye | ELCI2 | X | --- | --- | --- | --- | --- | --- |
| beardless wheatgrass | AGSPI | --- | 40-55 | --- | --- | --- | --- | --- |
| bluebunch wheatgrass | AGSP | X | --- | --- | --- | 20-30 | --- | --- |
| bluegrass | POA++ | X | --- | --- | --- | --- | --- | --- |
| bottlebrush squirreltail | SIHY | X | --- | --- | --- | --- | --- | --- |
| galleta | HIJA | --- | 1-3 | --- | --- | --- | --- | 1-5 |
| muttongrass | POFE | --- | --- | --- | --- | 2-8 | --- | --- |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | 5-15 | --- |
| needlegrass | STIPA | --- | --- | --- | --- | 5-15 | 2-8 | --- |
| arrowleaf balsamroot | BASA3 | X | --- | --- | --- | --- | --- | --- |
| goldenweed | HAPLO2 | --- | --- | --- | 2-5 | --- | --- | --- |
| tapertip hawksbeard | CRAC2 | X | --- | --- | --- | --- | --- | --- |
| Nevada greasebush | FONE2 | --- | --- | --- | --- | --- | 1-3 | --- |
| Stansbury cliffrose | COMES | X | --- | --- | --- | --- | --- | --- |
| antelope bitterbrush | PUTR2 | X | --- | --- | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | X | 25-30 | --- | 2-8 | --- | 5-15 | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | --- | --- | 15-25 | --- | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| desert snowberry | SYLO | --- | --- | --- | 2-8 | --- | --- | --- |
| ephedra | EPHED | --- | 2-5 | --- | --- | --- | 2-5 | --- |
| littleleaf mountainmahogany | CEIN7 | --- | --- | --- | 60-70 | --- | 60-70 | --- |
| mountain big sagebrush | ARVA2 | --- | --- | --- | --- | 15-25 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| serviceberry | AMELA | X | --- | --- | --- | --- | --- | --- |
| snowberry | SYMPH | --- | --- | --- | --- | 2-8 | --- | --- |
| Utah juniper | JUOS | X | --- | --- | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | --- | --- | 15-25 | --- | --- |
| singleleaf pinyon | PIMO | X | --- | --- | --- | --- | --- | --- |
| Range site number | | 028BY060NV | 029XY028NV | none | 028BY066NV | 028BY043NV | 029XY040NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 700 | | 1300 | 1700 | 600 | 1000 |
| Normal years | | 300 | 400 | | 1000 | 1300 | 450 | 700 |
| Unfavorable years | | 250 | 250 | | 800 | 900 | 300 | 500 |

## 3861--HYZEN-EGANROC-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | HYZEN | EGANROC | ROCK OUTCROP | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | X | --- | --- | --- | 2-5 | --- | 20-30 |
| Letterman needlegrass | STLE4 | --- | X | --- | --- | --- | --- | --- |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | --- | 2-5 |
| Scribner needlegrass | STSC2 | --- | --- | --- | --- | 2-10 | --- | --- |
| Thurber needlegrass | STTH2 | X | --- | --- | --- | --- | --- | --- |
| basin wildrye | ELCI2 | X | --- | --- | --- | --- | 2-8 | --- |
| bluebunch wheatgrass | AGSP | X | X | --- | 20-30 | --- | 30-40 | --- |
| bluegrass | POA++ | X | --- | --- | --- | --- | 2-8 | --- |
| bottlebrush squirreltail | SIHY | X | --- | --- | --- | --- | --- | 2-5 |
| muttongrass | POFE | --- | X | --- | 2-8 | --- | --- | --- |
| needleandthread | STCO4 | --- | --- | --- | --- | --- | --- | 10-20 |
| needlegrass | STIPA | --- | --- | --- | 5-15 | --- | 5-15 | --- |
| spike-fescue | LEKI2 | --- | X | --- | --- | --- | --- | --- |
| arrowleaf balsamroot | BASA3 | X | --- | --- | --- | --- | 2-5 | --- |
| creeping barberry | BERE | --- | X | --- | --- | --- | --- | --- |
| goldenweed | HAPLO2 | --- | X | --- | --- | 2-5 | --- | --- |
| tapertip hawksbeard | CRAC2 | X | --- | --- | --- | --- | 2-5 | --- |
| Stansbury cliffrose | COMES | X | --- | --- | --- | --- | --- | --- |
| Utah serviceberry | AMUT | --- | --- | --- | --- | --- | 2-8 | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | --- | --- | --- | 25-35 |
| antelope bitterbrush | PUTR2 | X | --- | --- | --- | --- | 2-8 | --- |
| black sagebrush | ARARN | X | --- | --- | --- | 2-8 | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | --- | 15-25 | --- | --- | --- |
| desert snowberry | SYLO | --- | --- | --- | --- | 2-8 | --- | --- |
| littleleaf mountainmahogany | CEIN7 | --- | --- | --- | --- | 60-70 | --- | --- |
| mountain big sagebrush | ARVA2 | --- | X | --- | 15-25 | --- | 10-20 | --- |
| serviceberry | AMELA | X | X | --- | --- | --- | --- | --- |
| snowberry | SYMPH | --- | --- | --- | 2-8 | --- | 2-8 | --- |
| Utah juniper | JUOS | X | --- | --- | --- | --- | --- | --- |
| bristlecone pine | PIAR | --- | X | --- | --- | --- | --- | --- |
| curlleaf mountainmahogany | CELE3 | X | --- | --- | 15-25 | --- | --- | --- |
| limber pine | PIFL2 | --- | X | --- | --- | --- | --- | --- |
| singleleaf pinyon | PIMO | X | --- | --- | --- | --- | --- | --- |
| white fir | ABCO | --- | X | --- | --- | --- | --- | --- |
| Range site number | | 028BY060NV | 028BY049NV | none | 028BY043NV | 028BY066NV | 028BY015NV | 028BY080NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 400 | | 1700 | 1300 | 1500 | 600 |
| Normal years | | 300 | 300 | | 1300 | 1000 | 1100 | 400 |
| Unfavorable years | | 250 | 200 | | 900 | 800 | 700 | 200 |

## 3870--LIEN-REBEL ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LIEN | REBEL | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | X | 20-30 | 20-35 | 20-35 | 15-25 | --- |
| Sandberg bluegrass | POSE | X | 2-5 | 2-5 | 2-8 | 2-5 | --- |
| Scribner needlegrass | STSC2 | --- | --- | --- | --- | 2-5 | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | --- | 2-5 |
| basin wildrye | ELCI2 | --- | --- | --- | --- | --- | 40-60 |
| bluebunch wheatgrass | AGSP | --- | --- | --- | --- | 2-5 | --- |
| bluegrass | POA++ | --- | --- | --- | --- | --- | 2-5 |
| bottlebrush squirreltail | SIHY | X | 2-8 | --- | 2-5 | 2-5 | --- |
| galleta | HIJA | X | --- | 2-8 | --- | --- | --- |
| needleandthread | STCO4 | X | 10-20 | 5-15 | 5-15 | --- | --- |
| threeawn | ARIST | X | --- | --- | --- | --- | --- |
| western wheatgrass | AGSM | --- | --- | --- | --- | --- | 5-10 |
| eriogonum | ERIOG | X | --- | --- | --- | --- | --- |
| goldenweed | HAPLO2 | X | --- | --- | --- | --- | --- |
| lupine | LUPIN | X | --- | --- | --- | --- | --- |
| milkvetch | ASTRA | X | --- | --- | --- | --- | --- |
| Douglas rabbitbrush | CHVI8 | X | --- | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 2-5 | --- | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | --- | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | --- | 5-15 |
| black greasewood | SAVE4 | --- | --- | --- | --- | --- | 2-5 |
| black sagebrush | ARARN | --- | --- | 25-35 | 25-35 | 30-35 | --- |
| downy rabbitbrush | CHVIP4 | --- | --- | --- | 2-5 | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 1-5 | --- | --- | --- |
| pigmy sagebrush | ARPY2 | X | --- | --- | --- | --- | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | --- | 2-5 | --- | --- |
| winterfat | EULA5 | --- | --- | 1-5 | --- | --- | --- |
| Utah juniper | JUOS | X | --- | --- | --- | --- | --- |
| singleleaf pinyon | PIMO | X | --- | --- | --- | --- | --- |
| Range site number | | 028AY021NV | 028BY010NV | 029XY008NV | 028BY011NV | 028BY059NV | 028BY041NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 200 | 800 | 700 | 600 | 400 | 1800 |
| Normal years | | 100 | 600 | 500 | 450 | 350 | 1500 |
| Unfavorable years | | 75 | 400 | 250 | 250 | 125 | 1100 |

## 3880--HARDHAT-CANDELARIA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | HARDHAT | CANDELARIA | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 25-35 | 15-25 | 25-35 | 25-35 | 15-25 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | --- | 2-5 | --- |
| galleta | HIJA | 2-8 | 2-10 | 2-8 | 10-15 | 2-10 | 1-5 |
| Anderson wolfberry | LYAN | --- | --- | --- | 2-5 | --- | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | --- | --- | 0-10 | --- |
| Nevada ephedra | EPNE | --- | 1-5 | --- | 10-15 | 1-5 | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | --- | 5-15 | --- | 2-5 | 5-15 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 2-8 | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 25-35 | --- | --- | 25-35 | --- |
| spiny hopsage | GRSP | --- | --- | --- | 15-30 | --- | --- |
| winterfat | EULA5 | --- | 5-10 | --- | 2-5 | 5-10 | --- |
| Range site number | | 029XY087NV | 029XY017NV | 029XY087NV | 029XY016NV | 029XY017NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 1000 | 500 | 1000 |
| Normal years | | 350 | 350 | 350 | 700 | 350 | 700 |
| Unfavorable years | | 200 | 150 | 200 | 500 | 150 | 500 |

## 3881--HARDHAT-STARGO-YOMBA-ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | HARDHAT | STARGO | YOMBA | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 25-35 | 15-25 | 15-25 | 40-50 | 40-50 | 2-10 | 2-10 |
| Sandberg bluegrass | POSE | --- | --- | --- | --- | --- | --- | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 | 2-5 | --- |
| galleta | HIJA | 2-8 | 2-10 | 2-10 | 2-8 | 2-8 | --- | 1-5 |
| globemallow | SPHAE | --- | --- | --- | 1-3 | 1-3 | --- | --- |
| Bailey greasewood | SAVEB | --- | 0-10 | 0-10 | --- | --- | --- | --- |
| Nevada ephedra | EPNE | --- | 1-5 | 1-5 | --- | --- | --- | --- |
| big sagebrush | ARTR2 | --- | --- | --- | --- | --- | --- | 25-35 |
| black greasewood | SAVE4 | --- | --- | --- | --- | --- | 20-35 | --- |
| bud sagebrush | ARSP5 | --- | 5-15 | 5-15 | 5-15 | 5-15 | 5-15 | --- |
| desert peachbrush | PRFA | --- | --- | --- | --- | --- | --- | 10-20 |
| fourwing saltbush | ATCA2 | --- | --- | --- | 1-5 | 1-5 | 2-5 | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | --- | --- | 5-15 |
| shadscale | ATCO | --- | 25-35 | 25-35 | --- | --- | 30-50 | --- |
| winterfat | EULA5 | --- | 5-10 | 5-10 | 25-30 | 25-30 | --- | --- |
| Range site number | | 029XY087NV | 029XY017NV | 029XY017NV | 029XY042NV | 029XY042NV | 029XY024NV | 029XY009NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 500 | 500 | 500 | 700 | 700 | 700 | 1000 |
| Normal years | | 350 | 350 | 350 | 500 | 500 | 500 | 700 |
| Unfavorable years | | 200 | 150 | 150 | 350 | 350 | 300 | 500 |

## 3890--JARAB-DREWING-PHARO ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percantage is highly variabla. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | | |
| | | JARAB | DREWING | PHARO | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Canby bluegrass | POCA | --- | --- | --- | --- | --- | X | --- |
| Indian ricegrass | ORHY | --- | --- | X | 2-10 | 2-10 | --- | X |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-10 | 2-10 | X | --- |
| Thurber needlegrass | STTH2 | --- | --- | X | --- | --- | --- | X |
| basin wildrye | ELCI2 | --- | --- | X | --- | --- | X | X |
| bluebunch wheatgrass | AGSP | --- | --- | X | --- | --- | X | X |
| bluegrass | POA++ | X | X | X | --- | --- | --- | X |
| bottlebrush squirreltail | SIHY | X | X | X | --- | --- | X | X |
| galleta | HIJA | --- | --- | --- | 1-5 | 1-5 | --- | --- |
| muttongrass | POFE | X | X | --- | --- | --- | X | --- |
| arrowleaf balsamroot | BASA3 | --- | --- | X | --- | --- | X | X |
| tapertip hawksbeard | CRAC2 | --- | --- | X | --- | --- | X | X |
| Stansbury cliffrose | COMES | X | X | X | --- | --- | --- | X |
| antelope bitterbrush | PUTR2 | --- | --- | X | --- | --- | X | X |
| big sagebrush | ARTR2 | --- | --- | --- | 25-35 | 25-35 | --- | --- |
| black sagebrush | ARARN | X | X | X | --- | --- | --- | X |
| curlleaf mountainmahogany | CELE3 | --- | --- | X | --- | --- | X | X |
| desert peachbrush | PRFA | --- | --- | --- | 10-20 | 10-20 | --- | --- |
| green ephedra | EPVI | X | X | --- | --- | --- | --- | --- |
| mountain big sagebrush | ARVA2 | --- | --- | --- | --- | --- | X | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | 5-15 | 5-15 | --- | --- |
| serviceberry | AMELA | --- | --- | X | --- | --- | X | X |
| snowberry | SYMPH | --- | --- | --- | --- | --- | X | --- |
| Utah juniper | JUOS | --- | --- | X | --- | --- | X | X |
| singleleaf pinyon | PIMO | X | X | X | --- | --- | X | X |
| Range site number | | 029XY069NV | 029XY069NV | 028BY060NV | 029XY009NV | 029XY009NV | 028BY058NV | 028BY060NV |
| Potential production (lb/acre): | | | | | | | | |
| Favorable years | | 400 | 400 | 500 | 1000 | 1000 | 500 | 500 |
| Normal years | | 300 | 300 | 300 | 700 | 700 | 300 | 300 |
| Unfavorable years | | 150 | 150 | 250 | 500 | 500 | 200 | 250 |

## 3900--PLAYAS

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions |
|---|---|---|
| | | Soil name or Inclusion number-- |
| | | PLAYAS |

Range site number none

Potential production (lb/acre):
Favorable years
Normal years
Unfavorable years

## 3901--LAVA FLOWS

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions |
|---|---|---|
| | | Soil name or Inclusion number-- |
| | | LAVA FLOWS |

Range site number none

Potential production (lb/acre):
Favorable years
Normal years
Unfavorable years

## 3910--YOMBA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | YOMBA | YOMBA | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 2-10 | 2-10 | 15-25 | 5-10 |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-5 | 2-5 | --- |
| galleta | HIJA | 2-10 | --- | --- | 2-10 | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | --- | 0-10 | 2-10 |
| Cooper wolfberry | LYCO2 | --- | --- | --- | --- | 2-5 |
| Nevada ephedra | EPNE | 1-5 | --- | --- | 1-5 | 2-5 |
| black greasewood | SAVE4 | --- | 20-35 | 20-35 | --- | --- |
| bud sagebrush | ARSP5 | 5-15 | 5-15 | 5-15 | 5-15 | --- |
| burrobrush | HYMEN3 | --- | --- | --- | --- | 5-10 |
| fourwing saltbush | ATCA2 | --- | 2-5 | 2-5 | --- | 5-15 |
| littleleaf horsebrush | TEGL | --- | --- | --- | --- | 5-10 |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 10-25 |
| shadscale | ATCO | 25-35 | 30-50 | 30-50 | 25-35 | --- |
| winterfat | EULA5 | 5-10 | --- | --- | 5-10 | --- |
| Range site number | | 029XY017NV | 029XY024NV | 029XY024NV | 029XY017NV | 029XY041NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | 700 | 700 | 500 | 500 |
| Normal years | | 350 | 500 | 500 | 350 | 300 |
| Unfavorable years | | 150 | 300 | 300 | 150 | 100 |

## 3911--YOMBA-PLAYAS COMPLEX, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | YOMBA | PLAYAS | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | --- | 15-25 | 25-35 | 2-10 |
| bottlebrush squirreltail | SIHY | 2-5 | --- | 2-5 | 2-5 | 2-5 |
| galleta | HIJA | 2-10 | --- | 2-10 | 2-8 | --- |
| Bailey greasewood | SAVEB | 0-10 | --- | 0-10 | --- | --- |
| Nevada ephedra | EPNE | 1-5 | --- | 1-5 | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | 20-35 |
| bud sagebrush | ARSP5 | 5-15 | --- | 5-15 | --- | 5-15 |
| fourwing saltbush | ATCA2 | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | 25-35 | --- | 25-35 | --- | 30-50 |
| winterfat | EULA5 | 5-10 | --- | 5-10 | --- | --- |
| Range site number | | 029XY017NV | none | 029XY017NV | 029XY087NV | 029XY024NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 500 | | 500 | 500 | 700 |
| Normal years | | 350 | | 350 | 350 | 500 |
| Unfavorable years | | 150 | | 150 | 200 | 300 |

## 3920--PUETT-GRASSVAL-REBEL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | PUETT | GRASSVAL | REBEL | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-35 | 20-30 | 10-20 | --- | 10-20 |
| Sandberg bluegrass | POSE | 2-5 | 2-8 | 2-5 | --- | --- | --- |
| Scribner needlegrass | STSC2 | 2-5 | --- | --- | --- | --- | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | 2-5 | --- |
| basin wildrye | ELCI2 | --- | --- | --- | --- | 40-60 | --- |
| bluebunch wheatgrass | AGSP | 2-5 | --- | --- | 20-40 | --- | --- |
| bluegrass | POA++ | --- | --- | --- | 2-5 | 2-5 | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | 2-8 | --- | --- | --- |
| desert needlegrass | STSP3 | --- | --- | --- | --- | --- | 2-10 |
| needleandthread | STCO4 | --- | 5-15 | 10-20 | 2-5 | --- | 2-10 |
| western wheatgrass | AGSM | --- | --- | --- | --- | 5-10 | --- |
| goldenweed | HAPLO2 | --- | --- | --- | 2-5 | --- | --- |
| tapertip hawksbeard | CRAC2 | --- | --- | --- | 2-5 | --- | --- |
| Nevada ephedra | EPNE | --- | --- | --- | --- | --- | 2-8 |
| Stansbury cliffrose | COMES | --- | --- | --- | --- | --- | 5-10 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | --- | 5-15 | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | 2-5 | --- |
| black sagebrush | ARARN | 30-35 | 25-35 | --- | 25-35 | --- | 20-30 |
| downy rabbitbrush | CHVIP4 | --- | 2-5 | --- | --- | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- | --- | --- |
| rubber rabbitbrush | CHNA2 | --- | --- | --- | --- | 2-5 | --- |
| shadscale | ATCO | --- | 2-5 | --- | 2-5 | --- | --- |
| winterfat | EULA5 | --- | --- | --- | 2-5 | --- | --- |
| Range site number | | 028BY059NV | 028BY011NV | 028BY010NV | 028BY008NV | 028BY041NV | 029XY081NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 400 | 600 | 800 | 600 | 1800 | 500 |
| Normal years | | 350 | 450 | 600 | 400 | 1500 | 350 |
| Unfavorable years | | 125 | 250 | 400 | 200 | 1100 | 200 |

## 3940--PEEKO-CLOWFIN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | PEEKO | CLOWFIN | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 20-35 | 15-25 | 20-30 | 20-35 |
| Sandberg bluegrass | POSE | 2-8 | --- | 2-5 | 2-8 |
| bottlebrush squirreltail | SIHY | 2-5 | 5-10 | 2-8 | 2-5 |
| needleandthread | STCO4 | 5-15 | --- | 10-20 | 5-15 |
| other perennial grasses | PPGG | --- | 2-5 | --- | --- |
| globemallow | SPHAE | --- | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | --- | 2-8 | --- | --- |
| downy rabbitbrush | CHVIP4 | 2-5 | --- | --- | 2-5 |
| fourwing saltbush | ATCA2 | --- | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- |
| shadscale | ATCO | 2-5 | --- | --- | 2-5 |
| winterfat | EULA5 | --- | 40-50 | --- | --- |
| Range site number | | 028BY011NV | 028BY013NV | 028BY010NV | 028BY011NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 600 | 700 | 800 | 600 |
| Normal years | | 450 | 500 | 600 | 450 |
| Unfavorable years | | 250 | 350 | 400 | 250 |

## 3941--PEEKO GRAVELLY LOAM, 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | PEEKO | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 20-35 | 15-25 | 25-35 | 25-35 |
| Sandberg bluegrass | POSE | 2-8 | --- | --- | --- |
| bottlebrush squirreltail | SIHY | 2-5 | 2-5 | --- | --- |
| galleta | HIJA | --- | --- | 10-15 | 10-15 |
| needleandthread | STCO4 | 5-15 | 5-10 | --- | --- |
| scarlet globemallow | SPCO | --- | 2-5 | --- | --- |
| Anderson wolfberry | LYAN | --- | --- | 2-5 | 2-5 |
| Nevada ephedra | EPNE | --- | --- | 10-15 | 10-15 |
| Wyoming big sagebrush | ARTRW | --- | 20-35 | --- | --- |
| black sagebrush | ARARN | 25-35 | --- | --- | --- |
| bud sagebrush | ARSP5 | --- | --- | 2-5 | 2-5 |
| downy rabbitbrush | CHVIP4 | 2-5 | --- | --- | --- |
| fourwing saltbush | ATCA2 | --- | --- | 2-8 | 2-8 |
| shadscale | ATCO | 2-5 | 2-5 | --- | --- |
| spiny hopsage | GRSP | --- | 5-20 | 15-30 | 15-30 |
| winterfat | EULA5 | --- | --- | 2-5 | 2-5 |
| Range site number | | 028BY011NV | 028BY052NV | 029XY016NV | 029XY016NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 600 | 800 | 1000 | 1000 |
| Normal years | | 450 | 600 | 700 | 700 |
| Unfavorable years | | 250 | 450 | 500 | 500 |

## 3960--HODEDO STONY LOAM, 15 TO 30 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | HODEDO | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Canby bluegrass | POCA | X | X | --- | --- |
| Indian ricegrass | ORHY | X | X | 2-5 | 20-35 |
| Sandberg bluegrass | POSE | --- | --- | --- | 2-8 |
| Thurber needlegrass | STTH2 | --- | --- | 30-40 | --- |
| bluebunch wheatgrass | AGSP | X | X | 15-30 | --- |
| bluegrass | POA++ | X | X | 2-8 | --- |
| bottlebrush squirreltail | SIHY | X | X | --- | 2-5 |
| needleandthread | STCO4 | --- | --- | 2-8 | 5-15 |
| arrowleaf balsamroot | BASA3 | X | X | 2-5 | --- |
| tapertip hawksbeard | CRAC2 | X | X | 2-5 | --- |
| Wyoming big sagebrush | ARTRW | X | X | --- | --- |
| antelope bitterbrush | PUTR2 | X | X | 2-10 | --- |
| big sagebrush | ARTR2 | --- | --- | 15-25 | --- |
| black sagebrush | ARARN | --- | --- | --- | 25-35 |
| downy rabbitbrush | CHVIP4 | --- | --- | --- | 2-5 |
| ephedra | EPHED | X | X | --- | --- |
| shadscale | ATCO | --- | --- | --- | 2-5 |
| Utah juniper | JUOS | X | X | --- | --- |
| singleleaf pinyon | PIMO | X | X | --- | --- |
| Range site number | | 028BY061NV | 028BY061NV | 028BY007NV | 028BY011NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 500 | 500 | 1000 | 600 |
| Normal years | | 300 | 300 | 800 | 450 |
| Unfavorable years | | 200 | 200 | 600 | 250 |

## 3970--LINOYER-REBEL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | LINOYER | REBEL | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | --- | 1-5 | --- |
| Nevada bluegrass | PONE3 | --- | --- | 5-10 | --- | --- |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | 2-8 |
| basin wildrye | ELCI2 | --- | --- | 70-80 | 10-20 | --- |
| bottlebrush squirreltail | SIHY | 5-10 | 2-8 | --- | 2-5 | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | 5-15 |
| needleandthread | STCO4 | --- | 10-20 | --- | --- | --- |
| other perennial grasses | PPGG | 2-5 | --- | --- | --- | --- |
| globemallow | SPHAE | 2-5 | --- | --- | --- | --- |
| Parry saltbush | ATPA3 | --- | --- | --- | --- | 2-10 |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | 5-10 | --- | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | 50-65 |
| bud sagebrush | ARSP5 | 2-8 | --- | --- | 2-5 | --- |
| fourwing saltbush | ATCA2 | 2-5 | --- | --- | 50-60 | --- |
| green molly kochia | KOAM | --- | --- | --- | 1-3 | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | --- |
| seepweed | SUAED | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | --- | --- | 2-10 |
| winterfat | EULA5 | 40-50 | --- | --- | 2-5 | --- |
| Range site number | | 028BY013NV | 028BY010NV | 028BY003NV | 029XY048NV | 029XY076NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 800 | 5000 | 1000 | 450 |
| Normal years | | 500 | 600 | 2500 | 800 | 250 |
| Unfavorable years | | 350 | 400 | 1500 | 400 | 100 |

## 3971--LINOYER-EASYCHAIR ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | |
|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | |
| | | LINOYER | EASYCHAIR | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 1-5 | 20-30 | --- | --- |
| Nevada bluegrass | PONE3 | --- | --- | --- | 5-10 | --- |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- | --- |
| alkali sacaton | SPAI | --- | --- | --- | --- | 2-8 |
| basin wildrye | ELCI2 | --- | 10-20 | --- | 70-80 | --- |
| bottlebrush squirreltail | SIHY | 5-10 | 2-5 | 2-8 | --- | --- |
| inland saltgrass | DISPS2 | --- | --- | --- | --- | 5-15 |
| needleandthread | STCO4 | --- | --- | 10-20 | --- | --- |
| other perennial grasses | PPGG | 2-5 | --- | --- | --- | --- |
| globemallow | SPHAE | 2-5 | --- | --- | --- | --- |
| Parry saltbush | ATPA3 | --- | --- | --- | --- | 2-10 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- | --- |
| basin big sagebrush | ARTRT | --- | --- | --- | 5-10 | --- |
| black greasewood | SAVE4 | --- | --- | --- | --- | 50-65 |
| bud sagebrush | ARSP5 | 2-8 | 2-5 | --- | --- | --- |
| fourwing saltbush | ATCA2 | 2-5 | 50-60 | --- | --- | --- |
| green molly kochia | KOAM | --- | 1-3 | --- | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- | --- |
| seepweed | SUAED | --- | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | --- | --- | 2-10 |
| winterfat | EULA5 | 40-50 | 2-5 | --- | --- | --- |
| Range site number | | 028BY013NV | 029XY048NV | 028BY010NV | 028BY003NV | 029XY076NV |
| Potential production (lb/acre): | | | | | | |
| Favorable years | | 700 | 1000 | 800 | 5000 | 450 |
| Normal years | | 500 | 800 | 600 | 2500 | 250 |
| Unfavorable years | | 350 | 400 | 400 | 1500 | 100 |

## 3972--LINOYER VERY FINE SANDY LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | LINOYER | Inclusion 1 | Inclusion 2 | Inclusion 3 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 20-30 | 15-25 |
| Sandberg bluegrass | POSE | --- | --- | 2-5 | --- |
| bottlebrush squirreltail | SIHY | 5-10 | --- | 2-8 | 5-10 |
| galleta | HIJA | --- | 2-8 | --- | --- |
| needleandthread | STCO4 | --- | --- | 10-20 | --- |
| other perennial grasses | PPGG | 2-5 | --- | --- | 2-5 |
| sand dropseed | SPCR | --- | 2-8 | --- | --- |
| globemallow | SPHAE | 2-5 | 1-3 | --- | 2-5 |
| Wyoming big sagebrush | ARTRW | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 2-8 | 2-8 | --- | 2-8 |
| fourwing saltbush | ATCA2 | 2-5 | 20-30 | --- | 2-5 |
| rabbitbrush | CHRYS9 | --- | --- | 2-5 | --- |
| spiny hopsage | GRSP | --- | 2-5 | --- | --- |
| winterfat | EULA5 | 40-50 | 10-20 | --- | 40-50 |
| Range site number | | 028BY013NV | 029XY046NV | 028BY010NV | 028BY013NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 700 | 500 | 800 | 700 |
| Normal years | | 500 | 400 | 600 | 500 |
| Unfavorable years | | 350 | 300 | 400 | 350 |

## 3973--LINOYER-CLOWFIN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | |
|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | |
| | | LINOYER | CLOWFIN | Inclusion 1 | Inclusion 2 |
| Indian ricegrass | ORHY | 15-25 | 15-25 | 20-35 | 20-30 |
| Sandberg bluegrass | POSE | --- | --- | 2-8 | 2-5 |
| bottlebrush squirreltail | SIHY | 5-10 | 5-10 | 2-5 | 2-8 |
| needleandthread | STCO4 | --- | --- | 5-15 | 10-20 |
| other perennial grasses | PPGG | 2-5 | 2-5 | --- | --- |
| globemallow | SPHAE | 2-5 | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | --- | --- | 25-35 |
| black sagebrush | ARARN | --- | --- | 25-35 | --- |
| bud sagebrush | ARSP5 | 2-8 | 2-8 | --- | --- |
| downy rabbitbrush | CHVIP4 | --- | --- | 2-5 | --- |
| fourwing saltbush | ATCA2 | 2-5 | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | --- | --- | --- | 2-5 |
| shadscale | ATCO | --- | --- | 2-5 | --- |
| winterfat | EULA5 | 40-50 | 40-50 | --- | --- |
| Range site number | | 028BY013NV | 028BY013NV | 028BY011NV | 028BY010NV |
| Potential production (lb/acre): | | | | | |
| Favorable years | | 700 | 700 | 600 | 800 |
| Normal years | | 500 | 500 | 450 | 600 |
| Unfavorable years | | 350 | 350 | 250 | 400 |

## 3974--LINOYER-KUNZLER ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions | | | | | |
|---|---|---|---|---|---|---|---|
| | | Soil name or Inclusion number-- | | | | | |
| | | LINOYER | KUNZLER | Inclusion 1 | Inclusion 2 | Inclusion 3 | Inclusion 4 |
| Indian ricegrass | ORHY | 15-25 | 20-30 | 15-25 | 20-35 | 15-25 | 20-35 |
| Sandberg bluegrass | POSE | --- | 2-5 | --- | --- | --- | 2-8 |
| bottlebrush squirreltail | SIHY | 5-10 | 2-8 | 2-5 | --- | 2-5 | 2-5 |
| desert needlegrass | STSP3 | --- | --- | --- | 2-8 | --- | --- |
| galleta | HIJA | --- | --- | 2-10 | --- | --- | --- |
| needleandthread | STCO4 | --- | 10-20 | --- | 5-15 | 5-10 | 5-15 |
| other perennial grasses | PPGG | 2-5 | --- | --- | --- | --- | --- |
| globemallow | SPHAE | 2-5 | --- | --- | --- | --- | --- |
| scarlet globemallow | SPCO | --- | --- | --- | --- | 2-5 | --- |
| Bailey greasewood | SAVEB | --- | --- | 0-10 | --- | --- | --- |
| Nevada ephedra | EPNE | --- | --- | 1-5 | 2-5 | --- | --- |
| Wyoming big sagebrush | ARTRW | --- | 25-35 | --- | 25-35 | 20-35 | --- |
| black sagebrush | ARARN | --- | --- | --- | --- | --- | 25-35 |
| bud sagebrush | ARSP5 | 2-8 | --- | 5-15 | --- | --- | --- |
| downy rabbitbrush | CHVIP4 | --- | --- | --- | --- | --- | 2-5 |
| fourwing saltbush | ATCA2 | 2-5 | --- | --- | 2-5 | --- | --- |
| rabbitbrush | CHRYS9 | --- | 2-5 | --- | --- | --- | --- |
| shadscale | ATCO | --- | --- | 25-35 | --- | 2-5 | 2-5 |
| spiny hopsage | GRSP | --- | --- | --- | --- | 5-20 | --- |
| winterfat | EULA5 | 40-50 | --- | 5-10 | --- | --- | --- |
| Range site number | | 028BY013NV | 028BY010NV | 029XY017NV | 029XY006NV | 028BY052NV | 028BY011NV |
| Potential production (lb/acre): | | | | | | | |
| Favorable years | | 700 | 800 | 500 | 800 | 800 | 600 |
| Normal years | | 500 | 600 | 350 | 600 | 600 | 450 |
| Unfavorable years | | 350 | 400 | 150 | 300 | 450 | 250 |

## W--WATER

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

| Common plant name | Plant symbol | Percentage composition and production (dry weight) of plants on major soils and inclusions |
|---|---|---|
| | | Soil name or Inclusion number-- |
| | | WATER |
| Range site number | | none |
| Potential production (lb/acre): | | |
| Favorable years | | |
| Normal years | | |
| Unfavorable years | | |

# NRCS Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.